Linking Core Self-Evaluation to Creativity: The Roles of Knowledge Sharing and Work Meaningfulness

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ABSTRACT

Whereas core self-evaluation (CSE) has been proposed as an antecedent of creativity, surprisingly, little research has examined it. Extending prior research on CSE, this study investigates when and how CSE relates to creativity. Drawing on the approach/avoidance theoretical framework (Elliot & Thrash, 2002), we propose that employee's knowledge sharing behavior serves as a mechanism that links CSE to creativity. We further examine the positive moderating effect of work meaningfulness as an activator of the approach tendencies of high-CSE employees. We tested our hypotheses using two-wave multi-source data from a sample of 200 researchers and their supervisors. The results fully supported our hypotheses, and offered both theoretical implications and practical implications.

Keywords:

Core self-evaluation; Creativity; Approach/avoidance framework; Work meaningfulness; Knowledge sharing

Core self-evaluation (CSE) is a broad personality trait that represents an individual's fundamental evaluations of their own ability, competence, and values (Judge, Erez, & Bono, 1998; Judge, Locke, & Durham, 1997). It is a higher-order multidimensional construct consisting of four interrelated components: self-esteem, generalized self-efficacy, locus of control, and emotional stability (Johnson, Rosen, & Chang, 2011; Judge, Bono, & Locke, 2000). Studies have documented that CSE represents a positive self-concept and is associated with a wide range of positive work behaviors, such as task performance (e.g., Erez & Judge, 2001), organizational citizenship behavior (OCB; e.g., Rich, LePine, & Crawford, 2010), transformational leadership behaviors (e.g., Hu, Wang, Liden, & Sun, 2012), and voice behavior (e.g., Aryee, Walumbwa, Mondejar, & Chu, 2017).

Despite recent calls for CSE research to further expand the performance criteria space (Judge & Kammeyer-Mueller, 2011; Chang, Ferris, Johnson, Rosen, & Tan, 2012) to include constructs "that have become important in light of the dynamic environment in which organizations operate" (Aryee et al., 2017, p. 948), it is surprising that, with just a few exceptions (Chiang, Hsu, & Hung, 2014; Zhang, Kwan, Zhang, & Wu, 2014), little research has been conducted thus far to investigate the effect of CSE on creativity. Creativity is the generation of novel and useful ideas concerning products, services, and work methods (Amabile, 1988). In today's dynamic environment, organizations are increasingly reliant on employee creativity and innovation to sustain success and long-term survival (Anderson, De Dreu, & Nijstad, 2004; Anderson, Potočnik, & Zhou, 2014). Noting this, it is thus important to extend CSE research to examine its effect on creativity.

Researchers have proposed CSE to be a possible antecedent of creativity (Judge & Kammeyer-Mueller, 2011). Indeed, there are good reasons to believe that there is a positive association between both constructs. Creativity-related activities are inherently uncertain, as they are not guaranteed to deliver desired outcomes (Zhou & George, 2001). Despite the

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desirability of creativity, people are biased against it out of the motivation to reduce

uncertainty (Ederer & Manso, 2013; Mueller, Melwani, & Goncalo, 2012). Hence, a strong

tendency to take risks and pursue conceivable positive outcomes is imperative for creativity

(Dewett, 2006). The approach/avoidance framework (Elliot & Thrash, 2002) asserts that CSE

represents a strong approach temperament and a weak avoidance temperament (Chang et al.,

2012; Ferris et al., 2011), that is, individuals with higher CSE are more sensitive to positive

stimuli and insensitive to negative stimuli (or, individuals with lower CSE are more sensitive

to negative stimuli and insensitive to positive stimuli). High-CSE individuals, therefore, may

be "wired" to see more positive aspects of creativity-related activities. As they are also more

confident in attaining positive outcomes (Judge et al., 1998; Judge & Kammeyer-Mueller,

2011), they are more likely to engage in behaviors that are conducive to creativity. One recent

study (Chiang et al., 2014) found that workers high on CSE engaged in more behaviors that

acquired job-related knowledge and were more intrinsically motivated, which positively

related to higher creativity. This study provides initial empirical evidence of a positive

association between CSE and creativity. Nonetheless, on a whole, empirical research on this

relationship is still scarce.

Moreover, we know little about what behavior engendered by high CSE could lead to

an increased level of creativity. Identifying such behavior will shed light on the mechanism

of how CSE links to creativity (Chiang et al., 2014). In this study, we focus on employees'

knowledge sharing behavior. Whereas previous research has suggested that altruistic

knowledge sharing could facilitate the creativity of the knowledge recipient, the team and the

organization (Oldham, 2003; Wang & Noe, 2010), it is still unstudied as to whether

knowledge sharing fosters the sharer's own creativity. A learning perspective (Shah, Cross, &

Levin, 2018) suggests that knowledge sharing does not only enable the knowledge recipient

to learn, but also helps the knowledge sharer to acquire new insights and skills, which will

ultimately facilitate their own creativity. Indeed, as knowledge sharing entails both benefits

(e.g., expected organizational rewards and enjoyment in helping others, Lin, 2007) and costs

(e.g., loss of time and energy, Kankanhalli, Tan, & Wei, 2005), not everyone is motivated to

share their knowledge. We argue that high-CSE individuals might be more attentive to the

benefits than the costs of knowledge sharing (Ferguson & Bargh, 2008) and are thus more

likely to share knowledge with their coworkers than low-CSE individuals. This process will

ultimately increase their own creativity.

Last but not least, only a limited number of studies have examined the contingencies

that activate or strengthen individuals' approach tendencies (Aryee et al., 2017; Ferris et al.,

2011). In this study, we examine work meaningfulness as such a contingency. The theory of

work meaningfulness (Steger & Dik, 2010) suggests that work not only provides a sense of

comprehension, which may aid people in utilizing their positive evaluations about abilities

and competence to exhibit prosocial acts (e.g., knowledge sharing), but also offers a sense of

purpose, which may highlight the prosocial impact of knowledge sharing and improve the

understanding that their work is serving for the greater social good. We argue that work

meaningfulness magnifies the prosocial benefits of knowledge sharing to individuals, thus

making them share more knowledge with coworkers. Our hypothesized model is depicted in

Figure 1.

Insert Figure 1 about here

Our study makes several important contributions to the literature. First, whereas most

prior research focuses on task performance and organizational citizenship behaviors as the

performance outcomes of CSE, our study examines creativity as an equally, if not more,

critical performance outcome of CSE. Noting the lack of performance breadth in CSE

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studies, several scholars have called for more research to expand the performance criterion space of CSE, in order to explicate its implications for a changing organizational environment (Aryee et al., 2017; Chang et al., 2012; Judge & Kammeyer-Mueller, 2011). Our study contributes to the CSE literature by responding to these calls and provides empirical evidence that show how creativity could be a pivotal and distal performance outcome of CSE.

Second, by integrating the approach/avoidance framework of CSE and learning perspective of creativity, we take a further step to explain how CSE is linked to creativity. While previous research has stressed the importance of motivation among other things in explaining creativity (Amabile, 1988; Amabile & Pratt, 2016) and examined how work environment and job characteristics influence individual's motivation (cf. Anderson et al., 2014), the implications of personality such as CSE for motivation and subsequently, for creativity-related behaviour and outcomes have not been fully considered (Chang et al., 2012). At the same time, scholars lament that research on CSE has been "mostly descriptive in nature" (Chang et al., 2012, p. 84) or "largely proceeded without much theoretical grounding" (Aryee et al., 2017, p. 948). The approach/avoidance framework (Elliot & Thrash, 2002) provides a firm theoretical foundation for our study and explains from a motivational perspective why high-CSE individuals engage in knowledge sharing, a learning behavior that is critical for creativity (Shah et al., 2018). In doing so, we make a contribution to the literature through incorporating multiple theoretical perspectives into the CSE research.

Third, by identifying work meaningfulness as a boundary condition of the CSE-knowledge sharing and CSE-creativity relationship, we respond to calls for more research on contextual variables that shape the personality-creativity relationship (Anderson et al., 2014) and research on contingencies that activate individuals' approach tendencies (Ferris et al., 2011). As work meaningfulness represents a perception that one's work can make a difference to others, it highlights the benefits of knowledge sharing and activates people's

approach temperaments to propel their knowledge sharing behaviors. The strengthened CSE-knowledge sharing relationship further elicits creativity. By revealing the moderator between CSE and knowledge sharing, as well as the moderated mediation effects of CSE on creativity, we advance the currently incomplete knowledge of how and when CSE affects its outcomes (Chang et al., 2012).

Fourth and finally, this study adds to our understanding of personality and self-concept as antecedents of creativity. Following an actor-centered approach, research has documented a range of personality characteristics as the antecedents of creativity, such as proactive personality (e.g., Kim, Hon, & Crant, 2009), creative personality (Madjar, Oldham, & Pratt, 2002) and big-five personality (see Anderson et al., 2014 for a review). In contrast to these previously-documented personality antecedents of creativity, CSE represents a broader and latent personality trait that includes the components of self-esteem, generalized self-efficacy, locus of control, and emotional stability (Judge et al., 2000). While research has investigated the relationships between some components of CSE and creativity, the returned results are inconclusive (Anderson et al., 2014). This suggests a need to take a more comprehensive view at CSE and its relationship with creativity, as CSE is a more global positive self-concept and is thus suggested to be a better predictor of work-related outcomes (Judge, 2009; Rode, Judge, & Sun, 2012). In addition, aside from being distinct from creativity-specific self-concepts (e.g., creative self-efficacy, Tierney & Farmer, 2002), CSE further represents a general self-concept that represents a baseline appraisal that implicitly exists in all personal beliefs and evaluations (Chang et al., 2012). Adding CSE to the "limited set of individual differences… for creativity" (Anderson et al., 2014, p. 1309) and uncovering the "black box" of its effect on creativity, our study advances our understanding of the role of personality in creativity.

THEORETICAL BACKGROUND AND HYPOTHESES

CSE and Knowledge Sharing

Core self-evaluation (CSE) refers to people's fundamental evaluations of their own ability, competence and values (Judge et al., 1998). It is a global and latent personality construct representing a positive baseline evaluation in which they are self-potent, self-worthy, free from anxiety, and in control of their own lives (Harris, Harvey, & Kacmar, 2009; Johnson, Rosen, & Levy, 2008; Kim, Liden, Kim, & Lee, 2015). Individuals with high CSE appraise themselves favorably as competent, valuable, and in control of their own lives (Judge & Hurst, 2007; Judge, Van Vianen, & De Pater, 2004). A recent meta-analysis found significant relationships of CSE with various job-related outcomes, such as in-role and extra-role job performance and job and life satisfaction (Chang et al., 2012). Indeed, CSE has been considered as an important personality construct (Chang et al., 2012; O'Neill, McLarnon, Xiu, & Law, 2016) and is suggested to predict work-related outcomes better than other individual personality traits in both Eastern and Western contexts (Judge, 2009; Rode et al., 2012). In the current study, we follow the suggestions by previous scholars (Judge et al., 2000; Johnson et al., 2008; Chang et al., 2012) and treat CSE as a global trait, rather than four specific traits (i.e., self-esteem, generalized self-efficacy, locus of control and emotional stability) to capture the effects of an individual's overall positive evaluations on knowledge sharing and subsequently, on creativity.

We draw on the approach/avoidance framework (Elliot & Thrash, 2002) to predict the relationship between CSE and knowledge sharing. The approach/avoidance framework asserts that the personality traits reflect orthogonal biologically based approach-and-avoidance temperaments and can be categorized in terms of their respective sensitivities to positive or negative information (Chang et al., 2012; Elliot & Thrash, 2002). For example, extroverted people are more sensitive to positive information while individuals with high levels of neuroticism are more sensitive to negative information. In relation to this, scholars

have revealed that individuals with approach temperaments tend to attend to the associated

benefits than the possible costs when deciding whether to engage in certain behaviors

(Ferguson & Bargh, 2008). This helped to explain, for instance, why people engage in job

crafting (Bipp & Demerouti, 2015) and feedback seeking (Janssen & Prins, 2007) in

organizational settings.

Ferris and colleagues (2011) found that higher CSE is related to a stronger approach

temperament and a weaker avoidance temperament. Thus individuals with high CSE are

sensitive to positive information and insensitive to negative information. On the contrary,

individuals with low CSE are sensitive to negative information and insensitive to positive

information. This explains, for example, why high-CSE individuals are more likely to engage

in in-role performance behaviors, OCBs and less likely to display deviance behaviors (Ferris

et al., 2011). Chang et al. (2012) delineates that the approach/avoidance theoretical

framework is useful in explaining the relationship between CSE and its outcomes due to the

differential sensitivities to positive and negative information that high/low CSE individuals

possess.

Knowledge sharing is a personal initiative to share one's own information, skills, and

expertise with others (Lu, Leung, & Koch, 2006; Wang & Noe, 2010). It focuses on

providing information and know-how to help others and to collaborate with others to solve

problems, develop new ideas, or implement policies or procedures (Cummings, 2004).

Knowledge sharing entails both benefits and costs. First, researchers have found that

knowledge sharing is associated with organizational rewards that recognize employees'

contribution of knowledge to the organization (Kankanhalli et al., 2005). Further, the sharing

of knowledge presents learning opportunities to the knowledge sharer. To be able to

effectively share the knowledge to their coworkers, individuals need to understand it well

first so that they could organize and explain the knowledge in a clear way to ensure that the

knowledge recipient can understand it (Wang & Noe, 2010). In the process of preparing to share the knowledge with their coworkers, individuals can deepen their understanding of the knowledge. The time spent in helping others with their own knowledge may enable them to obtain new insights and skills (Bolino & Grant, 2016). In addition, sharing knowledge is a good way to elevate enjoyment and increase personal reputation (Lin, 2007), and may also serve to help build interpersonal reciprocity with coworkers and manage a positive impression in front of others (Wang & Noe, 2010). Finally, by sharing knowledge, the knowledge sharer could help their peers gain new skills and expertise, which could in turn improve the team performance (Mesmer-Magnus, & DeChurch, 2009).

On the other hand, there are several costs associated with knowledge sharing. One such cost is on the basis that knowledge can be a source of superior power (Gupta & Govindarajan, 2000). An employee's distinctive knowledge can earn him/her higher performance evaluation and increased rewards and promotion opportunities (Husted & Michailova, 2002; Wang & Noe, 2010). The potential downside of sharing their unique knowledge is losing one's advantages of possessing this exclusive knowledge. Therefore, people may be reluctant to share knowledge due to the fear of losing their relative power (Kankanhalli et al., 2005). In addition, knowledge sharing costs time and efforts, which are spent on helping the knowledge recipient to understand the source's knowledge (Reagan & McEvily, 2003). Finally, knowledge sharing also entails social costs. As suggested by Wang and Noe (2010), in the process of sharing knowledge, inconsistent perspectives may occur. These inconsistencies may not only reveal the mistakes made by the knowledge sharer or the recipient, but may also create disagreements and conflicts, which, if not handled well, could damage the social relations between them.

When evaluating the decision on whether to engage in knowledge sharing behavior, high-CSE individuals, driven by their strong approach temperaments and weak avoidance

temperaments, are more attentive to the positive side of knowledge sharing (Judge, Bono, Erez, & Locke, 2005) and less attentive to the negative side. To them, the benefits of knowledge sharing are likely to be more salient and their choice is more driven by the benefits associated with knowledge sharing than the related costs. As a result, individuals with a high level of CSE are more likely to share their knowledge. In summary, we propose:

Hypothesis 1: CSE is positively related to knowledge sharing.

CSE, Knowledge Sharing, and Creativity

Creativity is the intentional generation of novel and useful ideas for products, processes and procedures (Amabile, 1988; Anderson et al., 2014). We argue that knowledge sharing can enhance the sharer's creativity through three mechanisms. First, sharing knowledge with coworkers is a useful learning opportunity. One may not be able to explain something lucidly to his or her coworkers unless he/she can thoroughly understand it him-/herself. Thus, knowledge sharing could serve as a great opportunity for employees to extend his/her own understanding of the knowledge (Wang & Noe, 2010). Second, knowledge recipients can provide timely feedback on refining and applying the original knowledge to the knowledge sharer (Lu, Lin, & Leung, 2012; Radaelli, Lettieri, Mura, & Spiller, 2014). This will help the sharer to develop better understandings of the questions encountered, generate new approaches to interpret previous views, and/or integrate previous understandings into a new framework (Du Plessis, 2007). Third and finally, inconsistencies in views and knowledge may be found during knowledge sharing. These disagreements are likely to facilitate the development of new ideas (Wang & Noe, 2010). In summary, through the communication of views and exchange of information, knowledge sharing enables the knowledge sharer to update his/her knowledge and skills (Perry-Smith & Shalley, 2003), which is a necessary precondition for generating creative ideas (Amabile, 1988).

Combining the previous arguments, we suggest that knowledge sharing mediates the

relationship between CSE and creativity. That is, individuals with high CSE are more likely to share their knowledge with others because they are more sensitive to the benefits over costs of knowledge sharing. By doing so, they are more likely to produce novel and useful ideas. Thus, we propose:

Hypothesis 2: Knowledge sharing mediates the positive relationship between CSE and creativity.

The Moderating Role of Work Meaningfulness

Work meaningfulness refers to the amount of significance and positive meaning that work holds for an individual (Pratt & Ashforth, 2003; Rosso, Dekas, & Wrzesniewski, 2010). Meaningful work is regarded as purposeful and significant. It leads to people's positive reflection on their work (Jiang & Johnson, 2018) and affords individuals the opportunity to transcend their individual selves and connect with something that is greater (Michaelson, Pratt, Grant, & Dunn, 2014; Pratt & Ashforth, 2003). According to Steger and Dik (2010), work meaningfulness indicates a sense of work comprehension (i.e., a clear understanding of his or her role in the organization) and a sense of purpose (i.e., an understanding that they are serving for the greater social good). Prior research (May, Gilson, & Harter, 2004; Steger, Littman-Ovadia, Miller, Menger, & Rothmann, 2013) has found that work meaningfulness accounts for additional variances beyond organizational commitment and calling when predicting job satisfaction, absenteeism, and life satisfaction. In addition, work meaningfulness has been shown to influence numerous favorable job-related outcomes, such as engagement, empowerment, job satisfaction, work motivation, job performance, and career development (for a review, see Rosso et al., 2010). Scholars have also called for explorations of the role of work meaningfulness in employee creativity (Cohen-Meitar, Carmeli, & Waldman, 2009).

In the current study, we propose that work meaningfulness moderates the relationship between CSE and knowledge sharing. When individuals see their work as meaningful, they clearly understand their role in the bigger organization and see the prosocial impact of their work on others' and the organizational aims, or more universal ones (Ashforth & Vaidyanath, 2002). High work meaningfulness thus likely situates the benefits of knowledge sharing within a bigger picture. It helps individuals to gain a better understanding of how knowledge sharing behavior could positively impact their coworkers and the organization, or even a greater cause, which could lead to their stronger sense of accomplishment. As a result, individuals' motivation to engage in knowledge sharing behavior is enhanced. They will more successfully utilize the positive evaluations of their competence and turn them into knowledge sharing behavior. Therefore, we propose that the relationship between CSE and knowledge sharing is strengthened when employees experience higher work meaningfulness.

Hypothesis 3: Work meaningfulness moderates the positive relationship between CSE and knowledge sharing such that the positive relationship is stronger when work meaningfulness is higher.

Given the moderation hypothesis (i.e., Hypothesis 3) and the notion that work meaningfulness enhances the approach motivation of CSE, work meaningfulness could also strengthen the indirect relationship between CSE and creativity through knowledge sharing, thereby demonstrating a pattern of moderated mediation.

Hypothesis 4: Work meaningfulness moderates the positive indirect effect of CSE on creativity through knowledge sharing, such that this indirect effect is stronger when work meaningfulness is higher.

METHODS

Research Procedures and Participants

We collected data from a sample of researchers in a physics research institution in

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northern China. Researchers serve as an excellent sample for testing our proposed model because creativity is a crucial component of their work. These researchers' daily job includes generating creative research ideas. They engage in providing suggestions and comments on others' ideas and seeking the same from others. We distributed the study information sheet and questionnaires to 300 researchers at time 1 and their direct supervisors at time 2 (three months after time 1) along with a letter of confidentiality and voluntary participation. At Time 1, a total of 256 (85.3% response rate) questionnaires measuring participants' demographics, CSE, knowledge sharing and work meaningfulness were returned. At Time 2, supervisor questionnaires with ratings on subordinates' creativity were returned. Matching subordinate and supervisor responses resulted in 212 effective dyads. Twelve incomplete questionnaires were deleted. Hence, the final matched sample size was 200 dyads (66.7% response rate). All assessments were conducted in Chinese. Most of the scales have been validated in the Chinese context by previous studies. Where it has not, the translation and back-translation processes were followed to ensure the quality of the translation (Brislin, Lonner, & Thorndike, 1973).

The majority of participants were male (69.5%). Fifty-three percent of the participants were unmarried. Fifty-three percent were under 30 years old, 39% were between 30 and 40 years old and 4.5% were over 40 years old. In terms of education level, 45.5% of them held a doctoral degree, 37% held a master's degree and 17.5% held a bachelor's degree.

Measures

CSE (Employee rating, T1)

We assessed CSE with 12-item Core Self-Evaluation Scale (CSES; Judge, Erez, Bono, & Thoresen, 2003). The measure has been validated by Rode et al. (2012) in the Chinese context. The 12 items were scored on a five-point Likert scale ranging from "1" (strongly disagree) to "5" (strongly agree). A sample item was "When I try, I generally

succeed". The Cronbach's alpha was .86.

Knowledge Sharing (Employee rating, T1)

We measured knowledge sharing with 8 items from the scale developed by Lu et al. (2006) using a Chinese sample. Sample items included "I actively share my knowledge with my colleagues". The items were each measured using a six-point Likert scale, ranging from "1" (strongly disagree) to "6" (strongly agree). The Cronbach's alpha was .89.

Work Meaningfulness (Employee rating, T1)

Work meaningfulness was measured with 10 items using the Work and Meaning Inventory (WAMI) developed by Steger, Dik and Duffy (2012). Each item was scored on a six-point Likert scale ranging from "1" (strongly disagree) to "6" (strongly agree). Sample items were "I have a good sense of what makes my job meaningful" and "My work helps me better understand myself". The Cronbach's alpha of the scale was .95.

Creativity (Supervisor rating, T2)

Creativity was measured with Farmer, Tierney and Kung-Mcintyre's (2003) 4 items on six-point Likert scale from "1" (strongly disagree) to "6" (strongly agree). A sample item is "(This employee) Tries new ideas or methods first". The Cronbach's alpha of the scale was .89.

RESULTS

Confirmatory Factor Analyses (CFA)

We conducted a series of CFAs in Mplus 7 (Muthén, & Muthén, 2012) to examine the construct validity of the latent variables in this study: CSE, knowledge sharing, work meaningfulness and creativity. Because our sample size is relatively small (Williams, Vandenberg, & Edwards, 2009) and the ratio of sample size to parameters (i.e., 200/150 = 1.33) is below the recommended value of 5 (Bentler & Chou, 1987), we created parcels for latent variables before testing the competing models. Although item parcels have been

criticized for the lack of meaning (Williams, Vandenberg, & Edwards, 2009) and misspecification possibilities (Marsh, Lüdtke, Nagengast, Morin, & Von Davier, 2013), Little, Rhemtulla, Gibson and Schoemann (2013) argue that parcels have higher reliability due to the aggregation of items and structural models with parcels have reduced sources of sampling error. If the goal is to understand the relationship between constructs instead of item-level relationships, they argue that well-applied parceling is advantageous in providing "a parsimonious representation of the construct" (Little et al., 2013, p. 294).

Following the recommended parceling strategies of Little et al. (2013), we applied theory-guided parceling and also used EFA results to aid our parceling decisions. Specifically, we created three parcels for work meaningfulness based on its three dimensions. In addition, we used the single-factor method recommended by Landis and colleagues (2000) to create parcels for CSE and knowledge sharing. We first ran an exploratory factor analysis (EFA) wherein a single-factor solution was specified. Then, we assigned the item with the highest factor loading to the first parcel, the second highest loading to the second parcel, and so forth until all items were assigned to form two balanced parcels. Consequently, we created two parcels for CSE and knowledge sharing, respectively. The Chi-square difference tests showed that the four-factor baseline model yielded superior fit than alternative models (See Table 1), providing evidence for the adequate construct validity of the theoretical constructs in our study.

Insert Table 1 about here

Hypothesis Testing

Table 2 reported the means, standard deviations, reliabilities, and correlations of all variables. Notably, CSE was positively correlated with knowledge sharing ($r = .53$, $p < .01$)

and creativity ($r = .26$, $p < .01$). In addition, knowledge sharing was positively correlated

with creativity ($r = .29$, $p < .01$).

Insert Table 2 about here

We conducted structural equation modeling (SEM) analyses in Mplus 7 to test our

hypotheses. To test hypothesis 1, we estimated a direct effect model in which knowledge

sharing was predicted by CSE. The results showed that CSE was positively related to

knowledge sharing ($B =. 70$, $p < .01$), supporting hypothesis 1.

We tested hypothesis 2 following the suggestions by Preacher and Hayes (2008).

Preacher and Hayes (2008) proposed three conditions for the mediation effect to hold: the

independent variable should be significantly related to the mediator, the mediator should be

significantly related to the dependent variable, and the indirect effect of the independent

variable on the dependent variable should be significant when the mediator is present. The

first condition was met because of the support for hypothesis 1. We tested both full mediation

and partial mediation models for hypothesis 2. Specifically, we first examined a partial

mediation model in which knowledge sharing was predicted by CSE, and creativity was

predicted by CSE and knowledge sharing. The model had a good fit to the data: χ^2 [12]

$=29.999$, $p < .01$, CFI=.980, TLI=.965, RMSEA=.087, SRMR=.033. In this model, CSE was

positively related to creativity ($B =.30$, $p < .01$), providing a preliminary support for the

partial mediation model. Then, we tested a full mediation model in which there was no direct

effect of CSE on creativity. The model yielded a good fit to the data: χ^2 [13] $=34.283$, $p < .01$,

CFI=.976, TLI=.962, RMSEA=.090, SRMR=.042. The $\triangle\chi^2$ test showed that the partial

mediation model had a better fit ($\triangle\chi^2$ [$\triangle df=1$] $= 4.284$, $p < .05$) than the full mediation

model. Thus, we tested hypothesis 2 based on the partial mediation model. As expected,

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knowledge sharing was positively related to creativity ($B =$. 31, $p < .05$). We further tested the

indirect effect of CSE on creativity using the 95% confidence intervals (CIs, 5000

bootstrapping samples). The results showed that the indirect effect of CSE on creativity was

positive and significant (estimated indirect effect = .21, with a 95% CI of [.06, .42]).

Therefore, hypothesis 2 was supported.

To test the moderation hypothesis (i.e., hypothesis 3) and the moderated mediation

hypothesis (i.e., hypothesis 4), a moderated mediation model was estimated based on the

partial mediation model. All variables were centered before the analyses (Aiken & West,

1991) to improve the interpretation of our results (Cohen, Cohen, West, & Aiken, 2003; Dalal

& Zickar, 2012). This model yielded a good fit to the data: $\chi^2[14] =30.458$, $p < .01$, CFI=.974,

TLI=.953, RMSEA=.077, SRMR=.031. As shown in Figure 2, the interaction term (i.e., CSE

× work meaningfulness) was significant ($B =.08$, $p < .05$). Plotting the interaction effect (see

Figure 3) shows that employees who experience high work meaningfulness (1 SD above the

mean) demonstrated a stronger relationship between CSE and knowledge sharing ($B = .29$, p

$< .01$) than those with low work meaningfulness (1 SD below the mean, $B = .13$, *n.s.*),

supporting hypothesis 3 (see Figure 3).

Insert Figures 2 and 3 about here

Hypothesis 4 predicted that the indirect effect of CSE on creativity through

knowledge sharing will be moderated by work meaningfulness. That is, we expected the

mediation effect of knowledge sharing would vary at different levels of work meaningfulness

(Preacher, Rucker, & Hayes, 2007). Again, we examined the 95% CIs with 5000

bootstrapping samples.

According to the procedures suggested by Edwards and Lambert (2007), moderated

mediation is supported if the indirect effect of CSE on creativity via knowledge sharing differs significantly between low and high levels of the moderators (i.e., work meaningfulness). We tested the conditional indirect effect at two levels of work meaningfulness (-1 SD and +1 SD). The results were shown in Table 3. As predicted, the indirect effect was not significant [B = .04, 95% CI = (-.01, 14)] when work meaningfulness was low, but was significant [B = .08, 95% CI = (.02, 19)] when work meaningfulness was high. The difference between the indirect effects was .05 (95% CI= [.004, .12]), excluding 0, indicating that the moderated mediation was supported (Hayes, 2015). Thus, hypothesis 4 was supported.

Insert Table 3 about here

Robustness Check

Following recent recommendations on the use of control variables (e.g., Becker, Atinc, Breaugh, Carlson, Edwards, & Spector, 2016; Bernerth, & Aguinis, 2016; Carlson & Wu, 2012), we did robustness check using SEM and tested our hypotheses after including the control variables in the analyses. Specifically, employee demographics including gender (0 = female, 1 = male), age (1 = 30 years and below, 2 = 31 to 40 years, 3 = 41 years and above), education level (1 = bachelor degree, 2 = master degree, 3 = doctoral degree) and marital status (1 = married, 2 = not married) were controlled. Gender (Baer & Kaufman, 2008), age (Jones & Weinberg, 2011) and educational differences (Tierney & Farmer, 2002) in creativity have been found in previous studies. Research also found that married employees exhibited higher creativity, possibly because they experienced more psychological safety and therefore, were more risk-taking (Madjar, Oldham, & Pratt, 2002). The correlations among controls and other variables were presented in Table 2.

The results showed that CSE was related to knowledge sharing ($B =.68$, $p < .01$), supporting hypothesis 1. For hypothesis 2, in the partial mediation model, knowledge sharing was positively related to creativity ($B =.27$, $p < .05$), and the indirect effect of CSE on creativity was .18, with a 95% CI of [.03, 38]. Therefore, hypothesis 2 was also supported. In the moderated mediation model, the interaction between CSE and work meaningfulness was still positively related to knowledge sharing ($B =.09$, $p < .05$), supporting hypothesis 3. The moderated mediation analysis results indicated that the indirect effect of CSE on creativity via knowledge sharing was not significant [$B = .03$, 95% CI = (-.01, 13)] when work meaningfulness was low, but was significant [$B = .08$, 95% CI = (.01, 19)] when work meaningfulness was high. The difference between the indirect effects was .05 (95% CI= [.003, .13]), supporting hypothesis 4. In summary, all hypotheses held after including control variables in the analyses.

DISCUSSION

Drawing on the approach/avoidance framework and the learning perspective of creativity, we expected that knowledge sharing mediated the relationship between CSE and creativity. Using a sample of 200 researchers and their supervisors, we found evidence for a partially mediated relationship. In addition, our results showed that work meaningfulness strengthened the relationship between CSE and knowledge sharing, as well as the indirect relationship between CSE and creativity via knowledge sharing. The hypothesized relationships remained significant after control variables were removed from the model. The results provide several important theoretical and practical implications.

Theoretical Implications

First, our study enriches CSE research by adding further evidence that CSE, as an important and distinct broader personality construct that captures employees' general positive self-concept, contributed to predicting individual creativity (Chiang et al., 2014). Although

the componential theory of creativity (Amabile, 1988; 1996) asserts that personality has a

significant impact on individuals' engagement in innovation-related activities and previous

work has examined a number of personality variables (Anderson et al., 2014), little work has

been undertaken to examine the role of CSE. The current findings address this limitation and

extend the creativity literature by showing that the global evaluations about oneself capture a

distinct personal attribute that contributes to generating creative ideas. As the outcome of

creativity is inherently uncertain (Zhou & George, 2001) and creative action is often a choice

(cf. Ford, 1996), positive evaluations of oneself appear crucial. Different from creativity-

specific self-evaluations, such as creative self-efficacy, which are narrower in nature and can

be more easily affected by the environment (Tierney & Farmer, 2002), CSE represents more

fundamental and stable evaluations of oneself in broader areas (Judge et al., 1998) and is an

effective predictor of creativity-related behaviors. Building on our findings, future research

may be conducted on other workplace behaviors that entail both benefits and risks, for

example, unethical pro-organizational behavior (Umphress, Bingham, & Mitchell, 2010).

Second, drawing on the approach/avoidance framework, our model extends earlier

research by revealing knowledge sharing as one particular mechanism between CSE and

creativity. Although knowledge sharing has been suggested to be beneficial for recipients' and

team-level creativity (Dong, Bartol, Zhang, & Li, 2017), its role in benefiting the knowledge

sharer's creativity has received limited empirical support. Recently, Shah et al. (2018) found

that providing problem-solving assistance to coworkers increased the sharer's learning and

knowledge base. Conversely, hiding knowledge from coworkers hurts one's own creativity

(Černe, Nerstad, Dysvik, & Škerlavaj, 2014). Consistent with these findings, our study

reveals that knowledge sharing benefits one's own creativity. Knowledge sharing boosts

communication with coworkers and builds relational resources of the knowledge sharer. The

knowledge sharer receives constructive and prompt feedback, as well as instrumental and

emotional support as a return from their coworkers, which are all essential for the creation of new ideas (Shah et al., 2018). Future research could build on our findings to take a fine-grained look at these mechanisms linking knowledge sharing and creativity using a longitudinal study design. Understanding the mechanisms would contribute to the advancement and refinement of the approach/avoidance framework through the delineation of how CSE relates to desirable work-related outcomes.

Finally, this study further identified the novel moderating role of work meaningfulness in the relationship between CSE and knowledge sharing and of the indirect effect CSE had on creativity. Employees who reported experiencing their work as more meaningful shared more knowledge with their coworkers, elicited by their strengthened sensitivity to the benefits of knowledge sharing, which derives from a better understanding of the impact of their work. In contrast, there was no relationship observed between CSE and knowledge sharing when work meaningfulness was low. The indirect effect of CSE on creativity exhibited similar patterns: it was not significant when work meaningfulness was low, but was positive and significant when work meaningfulness was high. It appears that high work meaningfulness activates the approach tendencies of high-CSE individuals. Indeed, preliminary findings suggest that "the beneficial effects of approach constructs are contingent upon incentive or rewards that activate approach tendencies" (Ferris et al., 2011, p: 156). Our findings contribute to the development and clarification of when approach constructs (e.g., CSE) lead to desirable outcomes by uncovering work meaningfulness as such an essential incentive.

Practical Implications

The current research also carries several practical implications. First, the findings suggest that high CSE employees are more likely to display knowledge sharing and benefit from it. As CSE is a rather stable personality trait, this may provide implications for recruitment and selection practices, since it is expected that individuals high on CSE will

"show some consistency in behavior long after they have been hired, and in a variety of jobs and work roles" (Judge & Kammeyer-Mueller, 2011, p. 332). One reasonable recommendation is that managers could consider hiring individuals with a high level of CSE if the job requires creativity, provided that other more important selection criteria have been met. We expect that these individuals will engage in knowledge sharing more often if adequate incentives are present, thus benefiting both coworkers' and their own creativity.

Second, the results of this study suggest that work meaningfulness is beneficial to activating and releasing the positive potential of CSE. Pratt and Ashforth (2003) propose a range of "meaningfulness *in* working practices" and "meaningfulness *at* work practices". The former category of practices includes job design, employee involvement practices and goal-path leadership (House, 1997). They change what workers do. When used in a systematic manner, they can potentially nurture "callings" (Wrzesniewski, McCauley, Rozin, & Shwarz, 1997) and render maximal work meaningfulness. The latter category of practices includes, for example, visionary leadership and community building. They shape the context in which work is done. Organizations can thus adopt these practices to increase employees' work meaningfulness as a way to activate their approach tendencies and increase their knowledge sharing behavior. As knowledge sharing behavior is observable, managers can compare the frequency of employees' knowledge sharing before and after the managerial interventions and establish their effectiveness.

Third and finally, as knowledge sharing can promote creativity, it is recommended that organizations encourage employees to share their knowledge and provide a supportive climate for knowledge sharing in order to help employees to develop the knowledge and skills necessary for creating novel ideas and implementing those ideas. This implication is supported by empirical findings that firms that promote knowledge sharing practices within groups or organizations is likely to generate new ideas for developing new business

opportunities, which can further facilitate innovative activities (Heffner & Sharif, 2008;

Lundvall & Nielsen, 2007).

Limitations and Future Directions

The implications above should be interpreted in light of the limitations of this study.

First, some limitations exist with regard to our research design and analytical approach, thus

our findings should be interpreted with caution. Because our sample is relatively small and

the sample-to-parameter ratio is low, we conducted our CFA and SEM analyses with

parceling strategies. We encourage future research to test the model with a larger sample

without using item parcels and compare the results. Moreover, we used supervisory ratings to

measure individual creativity, which has been suggested as an advance in creativity

measurement in recent years (cf. Anderson et al., 2014). That being said, where appropriate,

future research should adopt more objective measures of creativity (e.g., number of patents)

to reduce rater bias (Park, Chun, & Lee, 2016). In addition, the temporal separation and

multi-source design reduced the common method variance between variables collected at

Time 1 and Time 2 (Podsakoff, MacKenzie, & Podsakoff, 2012; Podsakoff, MacKenzie, Lee,

& Podsakoff, 2003; Spector, 2006), nevertheless, concerns exist with regard to the variables

collected at Time 1. Specifically, although CFA results suggest that our findings are not

unduly influenced by common method bias and the moderated mediation effect is less

influenced by common method variance (Evans, 1985), future studies should attempt to

replicate our findings by using more rigorous longitudinal designs with multi-source data.

Second, while the moderators and mediators we examined were theoretically-driven,

there could be other moderators and mediators that may be relevant in understanding the links

connecting CSE and creativity. For example, a desirable work environment may serve as a

crucial boundary condition because an effective environment (e.g., free of politics) is helpful

in maintaining positive cognitions and activating approach tendencies to invoke creativity

(Kacmar, Collins, Harris, & Judge, 2009). Furthermore, high-CSE individuals tend to have higher levels of persistence (Wanberg, Glomb, Song, & Sorenson, 2005), which in turn may lead to higher creativity (De Dreu, Baas, & Nijstad, 2008). Therefore, future research should continue to explore other relevant moderators and mediators.

CONCLUSION

Drawing on the approach/avoidance framework, our study revealed that CSE enhanced employees' creativity through knowledge sharing when they experienced high work meaningfulness. The findings improve our understanding of the link between CSE and creativity by uncovering the underlying mechanism and delineating the boundary condition. This study encourages future research to examine the relationship between CSE and creativity as well as the underlying mechanisms and boundary conditions.

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TABLE 1
Confirmatory Factor Analyses Results

Model	χ^2	df	$\triangle\chi^2$	$\triangle df$	CFI	TLI	SRMR	RMSEA
Model 1: Four factors	64.94**	38			.99	.98	.03	.06
Model 2: Three factors	134.04**	41	69.10**	3	.95	.93	.06	.11
Model 3: Two factors	366.01**	43	301.07**	5	.83	.78	.09	.19
Model 4: One factor	850.14**	44	785.20**	6	.57	.46	.20	.30

Notes: N = 200. Model 1: Baseline model with core self-evaluation (CSE), work meaningfulness, knowledge sharing and creativity loaded on their intended factors; Model 2: Three-factor model with CSE and work meaningfulness loaded onto one factor. This is the best alternative model among all models we tested. Model 3: Two-factor model with CSE, work meaningfulness and knowledge sharing loaded onto one factor; Model 4: One-factor model with all items loaded onto one factor.

TABLE 2
Means, SDs, Correlations and Reliabilities

	Mean	SD	1	2	3	4	5	6	7	8
1. Gender[a] (T1E)	.70	.46	(-)							
2. Age[b] (T1E)	1.48	.58	-.11	(-)						
3. Marital status[c] (T1E)	.47	.50	-.12	.56**	(-)					
4. Education[d] (T1E)	2.28	.75	.13	.14*	.01	(-)				
5. CSE (T1E)	3.59	.60	.14*	-.16*	-.09	-.01	(.86)			
6. Knowledge sharing (T1E)	4.64	.77	.08	-.12	-.07	.11	.53**	(.89)		
7. Creativity (T2S)	3.98	.86	.15*	-.03	-.11	.21*	.26**	.29**	(.89)	
8. Work meaningfulness (T1E)	4.65	.95	.02	-.07	-.05	-.02	.67**	.54**	.20**	(.95)

Note: N=200; CSE=Core Self-evaluation. Where relevant, Cronbach's coefficient alphas are given on the diagonal in parentheses. T1E = rated by employee at Time 1; T2S=rated by supervisor at Time 2.

a. 0=female, 1=male;

b. 1= 30 years and below, 2=31 to 40 years; 3=41 years and above;

c. 1=married, 2= unmarried;

d. 1= bachelor degree; 2=master degree; 3= doctoral degree.

*$p < .05$

**$p < .01$

TABLE 3
Results of the Moderated Mediation Models

|	Indirect effect	
	Estimate	Bias-corrected 95% CI
CSE → Knowledge Sharing → Creativity		
High work meaningfulness	**.08**	**[.02, .19]**
Low work meaningfulness	.04	[-.01, .14]
Difference between low and high	**.05**	**[.004, .12]**

Note. CI= confidence interval; Bootstrap samples =5,000; The numbers in bold indicate significant estimates. CSE = Core Self-Evaluation.

FIGURE 1
Hypothesized Model
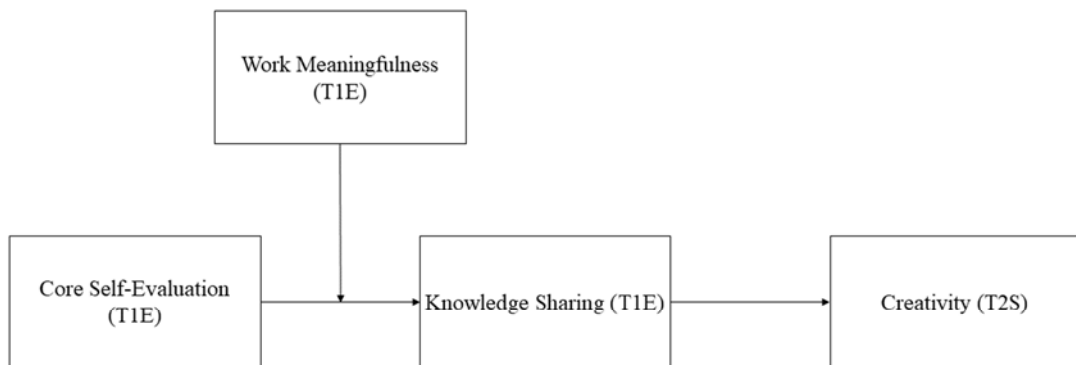
Note. T1E = rated by employee at Time 1; T2S=rated by supervisor at Time 2.

FIGURE 2
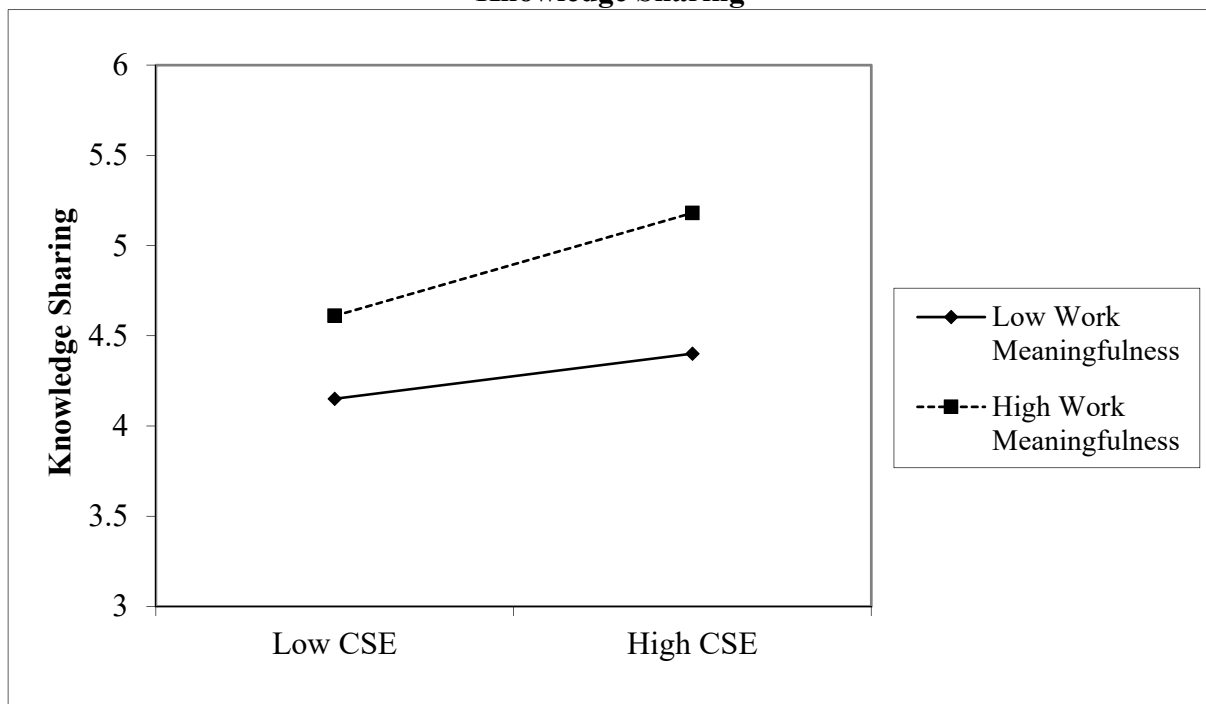**Structural Equation Modeling Results of the Moderated Mediation Model**
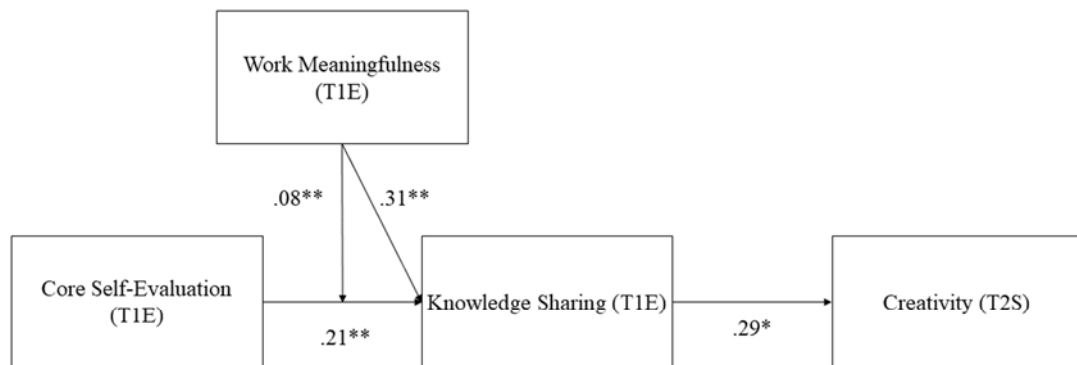
Note. T1E = rated by employee at Time 1; T2S=rated by supervisor at Time 2.
Model fit indices: $\chi^2[14]$ =30.458, $p < .01$, CFI=.974, TLI=.953, RMSEA=.077, SRMR=.031.
  $^*p < .05$
  $^{**}p<.01$

FIGURE 3
Moderating Effect of Work Meaningfulness on the Relationship between CSE and Knowledge Sharing

Note: CSE=Core Self-Evaluation.