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## The influence of creative self-efficacy, creative self-identity, and creative process engagement on innovative behaviour

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**Abstract:** Given that creativity and innovation is a sine qua non for any living organism, the calls for increasing research has got momentum in this landscape. The present study attempts to scrutinise the impact of creative self-efficacy (CSE) and creative self-identity (CSI) on employees' creative process engagement (CPE) as well as innovative behaviour (IB). Deductive reasoning approach was followed and data were collected using self-administered and other administered survey methods from small and medium enterprises listed in the SME foundation of Bangladesh. The current study used structural equation modelling, SmartPLS3, to estimate the results. The results reveal that the association of CSE and CSI with IB is not supported ( $p > 0.05$ ). In contrast, the relationship between CSI and CPE, CSE and CPE, CPE and IB are statistically significant. The study advances the current literature by providing additional insights into the impact of CSE and CSI on employees' CPE and on IB.

**Keywords:** creative self-identity; CSI; creative self-efficacy; CSE; creative process engagement; CPE; innovative behaviour; SME.

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## 1 Introduction

In the wake of the highly competitive business world, creativity and innovation have become the mantra ‘innovate or die’ for realising sustainable competitive advantage (Hon, 2012; Stojcic et al., 2018; Sweiss and Yamin, 2020). To foster the idea generation and materialisation in a formal setting, employees go through a distinct process by sketching new concepts and ideas in innovation funnel (Leung and Lin, 2018). Generally, the link between innovation and creativity is acknowledged similarly, but there is a theoretical crystal divide between these two distinct phenomena (Yi et al., 2019). Creativity refers to the origination and development of new ideas, whereas innovation epitomises the application of useful and valuable creative ideas into a reality (Maqbool et al., 2019; Nguyen and Hooi, 2020). To sustain in today’s competitive world, the conversion of divergent and convergent thoughts into useful objects in a novel way is mandatory (Park, 2016; Bresciani, 2009).

Importantly, it is found that about 80% of new ideas are derived from employees (Getz and Robinson, 2003). It states that meeting and exceeding the requirements of ever-changing needs of customers candidly, organisations need a band of creative and innovative employees (Stojcic et al., 2018; Leung and Lin, 2018). Henceforth, creative process engagement (CPE) is vital to heighten innovation. Karwowski (2016) underscored the essence of creative self-belief for moulding employees’ CPE and innovative behaviour (IB) in a psychological mechanism. Notably, employees’ creative self-identity (CSI) and creative self-efficacy (CSE) significantly explain the psychological engagement in the CPE that, in consequence, leads to IB. An individual’s aspiration to entail in innovative activities relies mainly on how well he or she can associate himself/herself with a creative identity (Uddin et al., 2020b) and have credence about his/her creative aptitude and capabilities (Azim et al., 2019; Li et al., 2020).

Numerous studies addressed and endorsed the significance of creativity and innovation for the existence of any organism (Yamin, 2020; Kiveu et al., 2019), but very limited studies shed light on the psychological mechanism by which innovation sees hope in an organisational setting with the help of employees (Tan et al., 2019; Du et al., 2019). Evidentially, what drives employees to employ in CPE and how CPE of employees outreaches innovative outcome are not adequately studied (Zhang and Bartol, 2010b; Uddin et al., 2020b; Yi et al., 2019). Additionally, creativity enclave documents that the magnitude and outreach of both creativity and innovation demand the active presence and persistence of a pool of creative genius in any organisation (Stojcic et al., 2018; Bäckström and Bengtsson, 2019). In the process of innovative performance, the

consistent IB from the employees is compulsory through creative engagement (Sica et al., 2019; Zhu et al., 2017).

Notes from prior researches posit that the extent of the employees' self-belief on their novel capacity and the social image attributed to them and shaped by essential others (peers, friends, families, supervisors, relatives, etc.) have substantial bearings on their CPE and IB in any settings (Li et al., 2020). For example, what and how individuals think about their creative originality to bring novelty (CSE) and also how is the perception of their relatives, friends, families, and essential others toward their creative ability (CSI) reserve an essential role for stimulating their CPE and IB (Williams et al., 2016; Karwowski, 2016). Studies mirrored that perceived belief in CSE and socially identified CSI ignites the moral compulsion to engage in defining and identifying the problem, generating information and encoding and idea generation (CPE) that lead to IB (Azim et al., 2019; Uddin et al., 2020b; Wang et al., 2014).

The significance of CSE and CSI to CPE to IB is supported with the understanding of self-efficacy theory (Bandura, 1977) and social identity theory (Farmer et al., 2003), respectively. A synthesis of past literature posits that how an individual sees himself or herself and is seen by others have consequential effects on what, when and how the individual does (Farmer et al., 2003; Bandura, 1977). A creative person with attribution of creative identity by people surrounding him/her displays higher knack and enthusiasm in CPE (Azim et al., 2019) and IB (Uddin et al., 2020b). By taking into account, the underpinning of theories and prior studies, this study aims to investigate the influence of CSI and CSE on IB via the mediating influence of CPE. This study explicates IB as a dependent variable that is going to be the outcome of employees' CSI and CSE through CPE.

In the last few years, research on innovations has been increased extensively (Walley et al., 2017; Kiveu et al., 2019; Nguyen and Hooi, 2020). Studies that seek out to unearth the potential mechanism of using CPE toward IB are not adequate (Mahmood et al., 2019; Uddin et al., 2020b). Accordingly, this study adds some valuable insights into creativity and innovation literature. First, this study will enhance the existing literature of creativity by amplifying the dynamic relations of CPE with CSI, and CSE, and the subsequent impact on IB of employees. Second, most of the previous studies in the innovation field examine the relational effects of CPE and IB from western context (Azim et al., 2019; Mahmood et al., 2019; Yi et al., 2019). Thus, this study strives to test the creativity-innovation link from a non-western context. Finally, we observed that prior studies were conducted in a specific industry or firm that prevented them from generalising the findings (Li et al., 2020; Uddin et al., 2020b; Zhang and Bartol, 2010b). However, we collected data from multiple industries (information technology, manufacturing, materials, light engineering and electronics) that exclude the problem of generalisability in the previous findings.

The rest of the paper is structured as follows: At first, the conceptual clarification is given about CSI, CSE, CPE, and IB along with an extensive literature review to ensure a robust theoretical basis with the lens of self-efficacy theory and social identity theory in theory, and hypotheses development sections. Later, the research methods section describes the research design, sample design, data collection procedure, participants' information, and measurement tools. The results section provides the psychometric properties of scales and the credentials of findings along with discussion in the light of the previous empirical findings and theoretical observations. Finally, the paper highlights

the theoretical contributions and practical implications along with concluding remarks for the future research agenda.

## **2 Theory and hypotheses development**

Whereas IB is directed to the application and adaptation of innovative solution (West and Farr, 1990), CPE refers to the cognitive, affective and behavioural aspects that a person adapts to anticipate, recognise and explore a problem, to organise and encode data and facts and breed new ideas for innovation (Yi et al., 2019; Zhang and Bartol, 2010b). More specifically, CPE is the manifestation of distinct behaviour that exhibits the innovative aptitude of employees' mental aspiration to engage in challenging affairs (Tan et al., 2019). Creative engagement to generate novel and innovative ideas require exploration of a poorly defined problem and construction of creative solution for that (Amabile, 1996). An individual with a strong determination and commitment in his/her creative ability will significantly persuade the innovative attitude and creative performance (Walley et al., 2017). IB reflects the application of useful creative ideas generated through the engagement of employees in the creative process (Uddin et al., 2020b; Yi et al., 2019).

Accordingly, this study undertakes CSE and CSI as the antecedent of CPE. The root of CSE lies in Bandura's self-efficacy theory which signifies the inevitable role of self-efficacy in shaping the goal-oriented behaviour of employees through emotional belongingness and effective intervention in the cognitive and motivational state (Bandura, 1986). CSE refers to the individual's belief in his/her capability of constructing a creative solution. A person can demonstrate resilience through condition if he/she possess high CSE (Chen et al., 2016). Likewise, CSI is the reflection of an individual's image by others based on social identity ascribed and conferred on them (Tierney and Farmer, 2002; Maqbool et al., 2019).

According to social identity theory, persons have the intent to put themselves and others into various social groups that define and represent their idiosyncratic traits (Ashforth and Mael, 1989; Tajfel and Turner, 1986). People classified with a similar role group cognitively and psychologically intertwine themselves with the same fortune group (Ashforth and Mael, 1989). Consequently, an individual develops his or her sensory image by identifying himself or herself with an in-role group that accurately resembles him or her (Burke and Tully, 1977; Tajfel and Turner, 1986; Ashforth and Mael, 1989). Thus, it can be asserted that a person with a creative image feels the compulsion from his/her in-role group to involve in activities that are more creative. Moreover, CSE and CSI stimulate a positive psychological state, which creates a sense of urgency to strive for the innovative outcome (DeShon and Gillespie, 2005).

### *2.1 Relationship between CSE and IB*

The notion of CSE originates from the domain of self-efficacy. Tierney and Farmer (2011) coined the term CSE as the degree of trust and self-belief on thyself about the potential and competency of performing a creative and innovative task. People with high CSE tend to be more self-assured and compatible with challenging tasks and exert more efforts to achieve the benchmark (Wang et al., 2013). The sense of firm's conviction on the creative self-belief revamps confidence, energy and the internal locus of control that

inspire employees to bring originality and novelty (Peterson and Seligman, 2004). In this regard, CSE plays a decisive role to enhance the propensity to IB. Previous studies endorsed that an individual with substantial CSE has a strong influence on his or her IB (Tierney and Farmer, 2002, 2011; Gong et al., 2009). Therefore, we develop the following relationship:

H1 Employees' CSE has an impact on IB.

## *2.2 Relationship between CSI and IB*

Role identity is a self-view imaged by others or the title endorsed to the self for a given role (Farmer et al., 2003). The fundamental proponent of self-identity is that how a person views himself/herself and how other people characterise him/her (Jaussi et al., 2007; Simon et al., 2018). Plucker and Makel (2010) noted a broader perspective of CSI, which reflects an individual's attitude towards creativity by his notion and belief. CSI stirs up the creative interactions among the individuals and generates contextual support and atmosphere to gear up IB (Petkus, 1996; Williams et al., 2016). In line with social identity theory, we admit that a socially identified innovative person will feel the obligation to engage in IB concerning the socially imprinted role/call (Karwowski, 2016; Williams et al., 2016). Thus, the outcome in IB is significantly predicted by the presence of CSI that a person holds (Peng and Weichun, 2010). On the basis of prior empirical research and theoretical postulation, it is assumed that CSI has a notable influence on the IB of the employees in an organisational setting. Thus, we formally endorse the following hypothesis:

H2 Employees' CSI has an influence on IB.

## *2.3 Relationship between CSI and CPE*

The primary focus of different creativity researches is to set a propitious direction for achieving innovative outcomes by understanding the process in a creative manner and igniting the creative engagement by fostering employees' CSI (Mumford, 2000; Shalley et al., 2004; Mainemelis, 2001). The generation of original and innovative ideas require the active engagement of employees in defining and identifying the problem, searching information and encoding of that information creatively (Royston and Reiter-Palmon, 2019; Li et al., 2020). Employees with CSI are more conscious of their role performance and will be capable of bringing the unwonted solution of problems and innovative insight in their decision-making (Song et al., 2015; Zhu et al., 2017). Wang and Cheng (2010) signify that the participation of employees in the creative process will grow if they become optimistic about their creative capabilities and originalities. Studies of Song et al. (2015), Uddin et al. (2020b) and Zhu et al. (2017) revealed that employees with high CSI offer fresh insights to the problem and innovative approach to address. Uddin et al. (2020b) and Jaussi et al. (2007) posited that high CSI in individuals stimulates them to engage more in CPE because of the creative identity bestowed on them. Thus, in the light of the theory of social identity, it can be envisioned that CSI positively influences the engagement of employees in the creative process (Azim et al., 2019; Farmer et al., 2003; Wang et al., 2014). Therefore, the following hypothesis is proposed:

H3 CSI significantly influences the CPE.

## *2.4 Relationship between CSE and CPE*

CSE is delineated as a conviction of a person in his capacity to solve a problem in a novel and innovative manner, which requires heterogeneous thinking ability and creative functionality (Beghetto, 2006). Bandura (1997) cited CSE as a precondition for the creative outcome and the exploration of 'new idea', that is the precursor of employees' engagement in the creative process. Employees with substantial CSE will be more likely to engage in defining, identifying, searching and encoding complex information to generate alternatives, which lead to novel and creative solution (Royston and Reiter-Palmon, 2019; Zhang and Bartol, 2010a, 2010b). Moreover, a sense of perceived personal accomplishment heightens the perceived CSE of employees toward the creative process and thinking (Carmeli and Schaubroeck, 2007). For example, Azim et al. (2019), in their study on information and communication technology firms, revealed that CSE significantly influences CPE. In line with the tenet of the self-efficacy theory (Bandura, 1977), we postulate that the ownership/possession of self-efficacious belief increases one's confidence and capability in defining the problem, constructing the problem, identifying the question and proposition of solution. Accordingly, the previous study reckoned that CSE improves conditions for expediting employees' CPE (Carmeli and Schaubroeck, 2007; Bandura, 2001; Atwater and Carmeli, 2009; Baas et al., 2008), which leads us to develop the following hypothesis:

H4 CSE predicts CPE.

## *2.5 Relationship between CPE and IB*

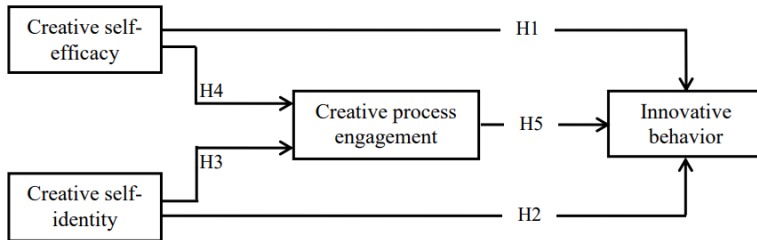
Innovation and creativity literature observed an exponential growth of studies on both innovation and IB. Surprisingly, very little is known about the influence of CPE on IB (Uddin et al., 2020b; Yi et al., 2019). The componential theory of creativity posits that the intention to engage in IB depends on the extent of creative thinking and process skills of employees (Amabile, 1988). CPE facilitates the different view and flexible opinion through the exploration of the truth and facts of a problem, which ultimately leads to IB. (Facione and Facione, 2007). When employees ensure their cognitive, affective and behavioural engagement in defining and identifying the problem, searching and encoding information, and generating an alternative idea and fixing the best option, studies confirm that it results in employees' IB (Royston and Reiter-Palmon, 2019; Uddin et al., 2020b). In a way, Du et al. (2016) and Tan et al. (2019) found that employees who are spending more time and energy in different facets of CPE sharpen their capability for soliciting their IB. Another study using online panel survey by Henker et al. (2015) on various professionals endorsed that each dimension of CPE (problem identification, information searching, and the idea generation) significantly explains creative performance. So, based on prior research findings, it can be reasonably deduced that a person who utilises his/her sufficient efforts and time in CPE can generate more innovative and novel solution (Zhang and Bartol, 2010a; Reiter-Palmon et al., 1997). Thus, the following hypothesis can be formed:

H5 CPE effects IB.

Figure 1 excerpts the theoretical model. The research model demonstrates the logical relationships among the predictors and the corresponding outcome variables depending

on notations from empirical evidence. Additionally, we found that the hypothesised influences from independent variables to dependent variables are also supported with the premise of self-efficacy theory (Bandura, 1977, 1997) and social identity theory (Tierney and Farmer, 2002; Maqbool et al., 2019).

**Figure 1** Research framework



### 3 Research methods

#### 3.1 Survey design

In order to examine the hypothesised interrelationships among variables, researchers have applied the survey with the deductive reasoning approach. The multi-item scale has been used to measure the perceptual value of the constructs, which are adopted from prior studies. The original survey questionnaire was translated into the native language (Bangla) for receiving an accurate response. Henceforth, we followed the back-translation method with a panel of experts that was continued until we found no significant difference between the original instrument with the translated instrument (Brislin, 1970).

#### 3.2 Data collection procedure and sample characteristics

We used the survey questionnaire technique to collect required data from executives serving the small and medium enterprises, whose credit limit ranged from BDT. 50,000 to BDT. 100,000,000 (Bangladesh Bank, 2011). The study collected cross-sectional data from Dhaka, the capital of Bangladesh, and Chattogram, the commercial capital of Bangladesh using self-administered and others administered questionnaire survey method. Research assistants also delivered the questionnaire and briefed the respondents about the purpose of the study. Section 1 and Section 2 include demographic data, and items representing latent variables, respectively.

The survey questionnaire was designed in a way that respondents could keep them anonymous because previous studies endorsed that accurate responses were received in a perceptual survey when privacy and confidentiality are guaranteed (Uddin et al., 2019, 2020a; Fan et al., 2019). In total, we collected 292 questionnaires from 500 questionnaires, and seven questionnaires were dismissed because of incomplete data and unmatched cases. Table 1 elucidated that the majority of the respondents are men (215, 75%) and aged below 35 years old (192, 67%) along with bachelor degrees (155, 54%).



The largest number of respondents (223, 78%) has more than five years of experience to manage their SMEs.

**Table 1** Demographic variables (n = 285)

<i>Characteristics</i>	<i>Classifications</i>	<i>Frequencies</i>	<i>Percentage</i>
Gender	Male	215	75
	Female	70	25
Age	Below 35 years	192	67
	Above 35 years	93	33
Education	Graduation	155	54
	Master	96	34
	Others	34	12
Experience	Below 5 years	62	22
	Above 5 years	223	78

### 3.3 Measurement tools

All the measures were adopted from previous studies to collect data. The CSE of employees was measured by the measurement tool of Jaiswal and Dhar (2015). We used the measurement tool of Karwowski (2014) to measure the CSI of employees. Finally, to estimate the CPE and IB of employees, the measurement tools of Zhang and Bartol (2010b) and Zhang and Begley (2011) were used, respectively. Five-point Likert scale (1 = strongly agree and 5 = strongly disagree) was administered to collect the responses. Sample questions were 'I feel that I am good at generating novel ideas' for CSE, 'creativity is an important part of me' for CSI, 'I promote and champions ideas to others' for IB and 'I retain large amounts of detailed information in my area of expertise for future use' for CPE.

## 4 Results

### 4.1 Measurement model evaluation

We applied partial least square-based structural equation modelling (PLS-SEM) to estimate the results. The PLS-SEM is preferred over other regression techniques because of its robustness in measuring both measurement and structural models holistically (Hair et al., 2014, 2017). Table 2 signifies descriptive statistics, means, correlations, composite reliabilities and validities of the study. The correlation value represents the association between variables. It is indispensable to conduct reliability and validity tests for the underlying constructs to ensure their suitability representing the construct (Hair et al., 2017).

It is considered to be a reliable construct if the composite reliability scores above 0.70 (Hair et al., 2014, 2017). Two items from CPE scale (CPE7 and CPE11) were dropped due to their low regression weights. In this study, extracted composite reliability values are 0.943 (CSE), 0.945 (CSI), 0.943 (CPE) and 0.945 (IB), which are above the threshold limit (Hair et al., 2014, 2017). We examined convergent and discriminant validities that

are two varied forms of investigating validities and reliability (Kiron and Kannan, 2018). When the average variance extracted (AVE) comes to above 0.50, we can say that the constructs are convergent. In this study, the minimum score of AVE is 0.649 (CPE) is above the 0.50, which endorses no issues with convergent validity (Hair et al., 2014, 2017).

**Table 2** Reliabilities and validities estimates

<i>Variables</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
<i>Control variables</i>								
1 Age	1							
2 Tenure	0.569**	1						
3 Education	0.289**	0.366**	1					
4 Gender	0.043	-0.050	0.194**	1				
<i>Latent variables</i>								
5 CSE	0.083	0.110	0.024	-0.088	0.921			
6 CSI	-0.001	0.047	-0.027	-0.065	0.343**	0.880		
7 CPE	0.106	0.145*	0.049	-0.092	0.478**	0.456**	0.806	
8 IB	0.002	0.041	-0.016	-0.078	0.406**	0.315**	0.612**	0.861
AVE	-	-	-	-	0.848	0.774	0.649	0.741
CR	-	-	-	-	0.943	0.945	0.943	0.945
R <sup>2</sup>	-	-	-	-	-	-	0.363	0.395
Mean	-	-	-	-	1.905	1.891	2.029	1.992
Standard deviation	-	-	-	-	0.713	0.674	0.673	0.746

Notes: \*\*, \*Correlation is significant at the 0.01/0.05 level (2-tailed), SD – standard deviation, CSE – creative self-efficacy, CSI – creative self-identity, CPE – creative process engagement, IB – innovative behaviour, AVE – average variance extracted, CR – composite reliability.

To test discriminant validity, we assessed the square root of the AVE of all constructs. Estimates in Table 2 show us that the square root of the AVE of a distinct construct is higher than its correlations with other constructs. Additionally, confirmatory factor analysis (CFA) was also examined through the cross-loading table (see Table 3) to test if any item loads highly in other constructs(s) than its corresponding scale. Subsequently, we observed that items of the scale loaded highly to their own scale than other scale(s). Thus, it is attested that no issue arises regarding the scales' reliabilities and validities.

#### 4.2 Hypothesis testing

Table 4 presents the results after conducting structural equation modelling. To investigate the influences of independent variables on the dependant variable, we examined all the hypothesised relationships. From the analyses, it has been found that at 5% level of significance ( $p < 0.05$ ) the path relation between CSE and IB (H1:  $\beta = 0.145$ ;  $p = 0.146$ ) and CSI and IB (H2:  $\beta = 0.024$ ;  $p = 0.821$ ) are not significant. Thus, Hypothesis H1 and H2 are not supported.

**Table 3** Confirmatory factor analysis

<i>Latent variables</i>	<i>Items</i>	<i>CPE</i>	<i>CSI</i>	<i>CSE</i>	<i>IB</i>
Creative process engagement (CPE) (Zhang and Bartol, 2010b)	CPE1	0.811	0.426	0.369	0.486
	CPE2	0.803	0.359	0.369	0.525
	CPE3	0.811	0.403	0.406	0.497
	CPE4	0.808	0.346	0.414	0.505
	CPE5	0.815	0.316	0.393	0.535
	CPE6	0.802	0.338	0.397	0.489
	CPE8	0.797	0.364	0.427	0.437
	CPE9	0.803	0.412	0.342	0.454
	CPE10	0.801	0.353	0.354	0.518
	Creative self-identity (CSI) (Karwowski, 2014)	CSI1	0.407	0.871	0.288
CSI2		0.400	0.879	0.317	0.309
CSI3		0.385	0.878	0.276	0.261
CSI4		0.377	0.873	0.318	0.243
CSI5		0.439	0.898	0.310	0.304
Creative self-efficacy (CSE) (Jaiswal and Dhar, 2015)	CSE1	0.466	0.303	0.930	0.395
	CSE2	0.424	0.326	0.910	0.367
	CSE3	0.430	0.320	0.922	0.364
Innovative behaviour (IB) (Zhang and Begley, 2011)	IB1	0.549	0.279	0.359	0.874
	IB2	0.572	0.297	0.357	0.877
	IB3	0.483	0.231	0.281	0.844
	IB4	0.541	0.271	0.381	0.863
	IB5	0.509	0.263	0.369	0.855
	IB6	0.508	0.298	0.354	0.852

Moreover, in Table 4, it is also found that, the relationship between CSI and CPE (H3:  $\beta = 0.280$ ;  $p = 0.009$ ), CSE and CPE (H4:  $\beta = 0.269$ ;  $p = 0.018$ ) and CPE with IB (H5:  $\beta = 0.534$ ;  $p = 0.000$ ) are statistically significant as the p-value is below the acceptable limit ( $p < 0.05$ ). Hence, Hypothesis 3, Hypothesis 4 and Hypothesis 5 are supported.

**Table 4** Estimates on hypotheses

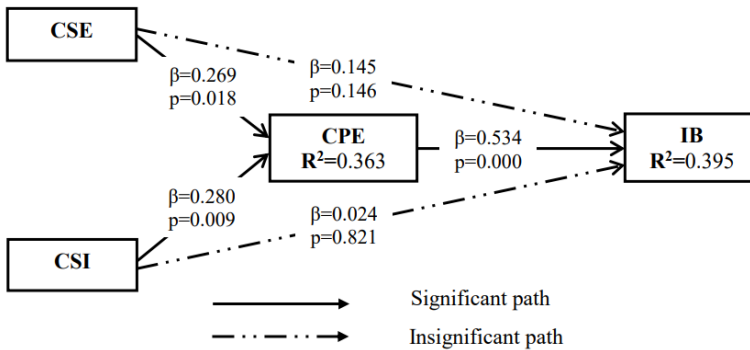
<i>Hypothesis</i>	<i>Path relations</i>	$\beta$	<i>Standard error</i>	<i>T statistics</i>	<i>p-value</i>	<i>Decisions</i>
H1	CSE -> IB	0.145	0.0992	1.458	0.146	No supported
H2	CSI -> IB	0.024	0.1073	0.227	0.821	No supported
H3	CSI -> CPE	0.280	0.1071	2.612	0.009	Supported
H4	CSE -> CPE	0.269	0.1131	2.374	0.018	Supported
H5	CPE -> IB	0.534	0.115	4.642	0.000	Supported

Notes: CSE – creative self-efficacy, CSI – creative self-identity, CPE – creative process engagement, IB – innovative behaviour.

### 5 Discussion

Despite the fact that the extant literature witnessed a handful of studies on creativity and innovation, a very little is known regarding the antecedents and outcomes of CPE (Yi et al., 2019). Given that there is the paucity of literature on CPE, most of the integrate CPE and IB are inconclusive. In contrast, authors, such as Azim et al. (2019), Royston and Reiter-Palmon (2019), Song et al. (2015) and Uddin et al. (2020b) shed light on the importance of CSE and CSI on CPE or creativity related activities. However, there is a dearth of studies that integrates self-concepts of creativity underlying creativity in general, and CPE in particular (Karwowski, 2016). On that note, the present study considered both CSE and CSI as two dominant key precursors and IB as the most desired outcome of CPE in any work settings. Thus, with the influence of CPE as a mediator, this paper extends the role of CSE and CSI in determining the IB at SMEs in Bangladesh. Figure 2 exhibits the structural model through the marked manifestation of significant and insignificant paths with different arrows

**Figure 2** Structural equation model



In H1, we assumed that employees’ CSE has a positive impact on IB. Counter to the assumption the test statistics of the study were not supported which is inconsistent with previous findings (Gong et al., 2009; Tierney and Farmer, 2002, 2011). The result mirrors on the fact that indirect effects via CPE is more prevalent than the direct influence of CSE on IB. In H2, we examined the impact of CSI on IB and surprisingly, the statistical finding of this hypothesis does not support the significant influence. Likewise, this result is also inconsistent with the prior findings (Williams et al., 2016; Uddin et al., 2020b). The possible reason for the insignificant direct effects of CSE and CSI is that their indirect effects through the mediating variable (CPE) on IB is stronger than their direct effects on IB without CPE.

The result of the impact of CSI on CPE is significant. The result is supported by the findings of Uddin et al. (2020b) and (Karwowski, 2014). It endorses that when an individual has a social impression on his self-creative image among his peers and neighbourhoods; it recreates positive energies to engage in the creative process. In line with the tenet of social identity theory, a socially imprinted creative image in a person drives him/her to repeat the same behaviour. In H4, CSE of an individual significantly influences the CPE at works. The result reveals that the influence is supported. This

finding is also consistent with the result of previous studies (Azim et al., 2019; Royston and Reiter-Palmon, 2019).

The outcome reinforces that a person with heightened confidence and fiery passion for one's creative capabilities toward any object becomes enthusiastic and passionate to solve novel problems by engaging in the creative process. The underpinning outcome is also attested with the understanding of self-efficacy theory, which advances that employees with their creative capabilities to solve any novel problems are encouraged to do so when they notice that problem is ill-defined that requires creative construction and solution of the problem (Azim et al., 2019).

Finally, H5 states that CPE significantly predicts the IB of employees. This finding is supported and is also consistent with previous studies (Uddin et al., 2020b; Yi et al., 2019; Zhang and Bartol, 2010a). The result asserts that the creative outcome of employees at organisational settings extensively depends on how employees engage them in defining and constructing a problem and engendering creative ideas to address the issue (Tan et al., 2019; Chen et al., 2020; Richard et al., 2019). Therefore, it can be advanced that the exertion of IB needs the CPE of employees to solve the problem creatively.

### *5.1 Theoretical contributions*

In today's business world, nurturing the creativity of employees has become indispensable for the competitive existence of business organisations (Carvalho et al., 2019). Particularly in the case of SME, creativity has become much more prevalent because of uneven and volatile market competition and co-existence with market giants. In this study, prior research has been expanded with the addition of new shreds of evidence by considering CPE as an antecedent to IB, and the integrative effects of exogenous variables on the innovative mindset of employees. Theoretically, this study strengthens the current pool of literature with its fascinating empirical findings. In the existing literature, few studies have examined the relationships among CSE, CSI and IB independently. However, the present study explores the role of CSE and CSI in mapping the IB of employees through CPE holistically, which enrich the existing literature in the landscape of creativity-related research.

This study gives additional clutch to establish and support the theoretical insights suggesting that a person with the creative thought-process consider himself as creative and makes him more functional in IB domain. Arguably, employees' IB and creative performance have got the central proposition in most of the prior researches while leaving the vivacity of CSI and CPE (Sica et al., 2019; Simon et al., 2018). In contrast, this study makes an insightful contribution to the existing literature by coining the role of CSI and CPE in transcending IB of employees.

### *5.2 Practical implications*

In order to sustain the manic competitive market platform, SMEs need to be more vibrant to manage their talents with a creative outlook. This study can help practitioners in several ways. The study reveals the necessity of igniting CSE and CSI of employees for magnifying CPE and IB. With that note, it can be reckoned that it is vital for the managers to hire employees with high CSE and CSI because high CSE and CPI show

more craving and fervour to confer CPE and IB for complying with their self-image ascribed to them (Simon et al., 2018).

This study also highlights the prominence of attracting creative talents in SMEs who have convergence and divergence of thinking abilities along with exposing the existing pool of expertise to creative thoughts by providing advance and extensive training programs. Additionally, this study also helps the practitioners look for avenues for engendering pools of existing talents with CSE and CSI so that it can resiliently sustain in the upcoming hyper-changing competition with creative originalities and breakthroughs. Moreover, this study adds evidence that employees will add more value to the organisation through displaying their CPE toward IB when an organisation provides conducive working environment amplifying their CSE and CPI (Azim et al., 2019).

### *5.3 Limitations of the study and future research directions*

Even though the outcome of this research is robust and relevant, this present study underlies a few limitations to be resolved by future researchers for generalisability of the findings. Firstly, this study has examined the role of CSE and CSI on IB in the context of the SMEs registered with the SME Foundation in Bangladesh, which prevents the generalisation in other industries. Future studies are suggested to uncover the relationship of these variables outside the jurisdiction of the SME foundation to generalise the outcome. Secondly, the sample size ( $N = 285$ ) in the study is relatively few and, thus, a large sample size would have been desirable to make the study more comprehensive. Future studies might incorporate more respondents from different segments to ensure proper representations. Thirdly, the present study exhibited insignificant influences of CSI and CSE on IB, which is inconsistent with prior studies. Notably, we observed that both CSI and CSE influence IB through influencing CPE. Thus, future researchers might examine whether the full mediation mechanism works that make significant direct influences insignificant. Fourthly, researchers have used CSE and CSI as predictors of CPE and IB. Further studies might be conducted to know the role of other factors such as openness to experience, flexibility, conscientiousness, and education, etc. which could be responsible for employees' decision to engage in the creative process and IB. Finally, another dominant limitation of this research is the use of a quantitative method with cross-sectional data. Therefore, further studies can include both qualitative and quantitative approach with longitudinal data to observe whether any significant difference exists between two different ways.

### *5.4 Conclusions*

Following the lens of a multi-theoretical perspective, we develop a theoretical model integrating CSI, CSE, and CPE for a comprehensive understanding of CPE and IB in SMEs settings. The results contend that CSI and CSE substantially predict IB through the mechanism of CPE, which follows that CSE and CSI explain IB indirectly than directly. Despite having some mixed outcomes, it can be noted that CSE and CSI have a remarkable impact in predicting the CPE of employees that lead them to amplify IB among employees in a given context. Consequently, we advance the literature by integrating both CSE and CSI to explain IB through influencing CPE directly and indirectly.

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