What really counts? Investigating the effects of creative role identity and self-efficacy on teachers' attitudes towards the implementation of teaching for creativity

Abstract:

This study explored the relationships between teachers' creative role identity, creative self-efficacy, attitudes towards the implementation of teaching for creativity by integrating role identity and social cognitive theory. Structural equation modelling with bootstrapping estimation was conducted using data from 167 Chinese kindergarten teachers. The results showed that teachers' creative self-efficacy mediated the relationship between their creative role identity and their implementation attitudes. Process-focused self-efficacy was found to be significantly related to teachers' positive implementation attitudes, whereas product-focused self-efficacy was not. The implications of this study for research and practice in the school context are discussed.

Key words: Teaching for creativity; creative role identity; teacher creative self-efficacy; China

Introduction

Addressing and encouraging the creativity of students in the school context has become common worldwide (Bereczki & Kárpáti, 2018; Cachia & Ferrari, 2010; Hui & Yuen, 2010). Teachers have a central role in nurturing creative and innovative thinking (Andiliou & Murphy, 2010; Beghetto, 2009; Mullet, Willerson, Lamb, & Kettler, 2016), which is reflected in studies of how teachers can be equipped with the essential knowledge and skills for nurturing student creativity (e.g., Cachia & Ferrari, 2010; Plucker, Kaufman, & Beghetto, 2015). The implementation of teaching for creativity is, however, beset with many difficulties (Bereczki & Kárpáti, 2018), which pose challenges to effective teaching for creativity (Banaji, Cranmer, & Perrotta, 2013; Kampylis, Berki, & Saariluoma, 2009).

With respect to teacher behaviour in cultivating student creativity, Soh (2017) concluded that there were three approaches: social modelling, reinforcement, and classroom ecology. Social modelling refers to the teacher acting as a role model, whose creative behaviours stimulate students' motivation to be innovative. However, this approach is constrained by the prescriptive, convergent nature of the teaching profession and leaves too much to chance by largely depending on the teacher-student relationship. Reinforcement is described as the fostering of student creativity by recognizing and rewarding student creative behaviour that has been shown to be effective (Winston & Baker, 1985). However, identifying student creative behaviour and reinforcing this behaviour within limited teaching time is challenging for teachers. In contrast to the first two approaches, which are largely dependent on the creative performance of students or teachers, the classroom ecology approach highlights the crucial role of teachers in constructing a creativity-friendly social environment. There has been a proliferation of investigations into effective strategies for constructing creative classroom ecologies (e.g., Craft, 2005; Desailly, 2012; Wilson, 2011), and an Index of Teacher Creativity Fostering Behavior based on Cropley's (1997) list of nine principles has also been developed and used worldwide (e.g., Hui, Cheung, & Ho, 2018; Lee & Kemple, 2014) to explore teacher performance in terms of nurturing student creativity.

Factors influencing teachers' attitudes and actions in teaching for creativity can be categorised into four main groups. First, a culture of examination and accountability can put

pressure on teachers to achieve accountability indexes or quality assurance levels, and make them feel 'disappointed and frustrated' and thus detached from creativity and innovation (Banaji et al., 2013; Olivant, 2015). Without a transferable framework for assessing creative competence, creativity is not prioritised as highly as literacy and numeracy, and there is a general belief that students should learn and be assessed on a prevailing body of knowledge (Cachia & Ferrari, 2010; Cheng, 2010). Second, the control ethos and hierarchical relationships between managers, students and teachers prevent effective teaching for creativity (Banaji et al., 2013), which is still common in Western and Asian countries alike. Cultures that are deeply influenced by Confucian culture are particularly affected (Cheng, 2010). Lower levels of teacher autonomy and less freedom for imaginative thinking in classrooms sustain the orthodox transmission methods of learning, unified and standardised answers and confirmative thinking and behaviour (Hong & Kang, 2010). Third, the constraints of limited available resources can affect teaching for creativity, such as a full curriculum (Alsahou, 2015; Cachia & Ferrari, 2010), rigid timetables (Kampylis, Saariluoma, & Berki, 2011), large class sizes (Hong & Kang, 2010) and limited knowledge and facilities (Cheng, 2010; Hartley & Plucker, 2014). These conditions suit expository teaching rather than group activity and flexible student inquiry, and can also be a barrier to innovative instruction. Fourth, the personal attributes of teachers (Cheung & Leung, 2014; Chan & Yuen, 2014) and their mind-sets (Paek & Sumners, 2017) can affect their willingness to implement the teaching for creativity. Teachers may also misunderstand teaching for creativity. For example, it may be assumed that teachers cannot teach for creativity without digital technologies, or that teaching for creativity can only be identified through observable student outcomes (Banaji et al., 2013; Author, 2015).

Regarding teacher attitudes towards creativity or teaching for creativity, even though the discrepancy between teacher attitudes and teaching practices have been observed (Cachia & Ferrari, 2010; Roy & Carter, 2013), it is undeniable that teacher attitudes can be seen as a crucial factor in driving teacher creativity fostering behaviour (Al-Nouh, Abdul-Kareem & Taqi, 2014). In addition, attitude, as an "individual's predispositions to respond to an object" (Fishbein, 1967, p. 257), can also affect the endeavour they invest in, their motivation to perform, and the way they process and/or react to related policy or training programmes (Karwowski & Lebuda, 2016; Richardson, 1996). Thus, there is a need to explore teacher perceptions of teaching for creativity. However, few studies in the reviewed literature have addressed the self-concept dimensions of teachers specific to creativity, and even fewer have explored the effects of teachers' perceptions of the organisational climate, or the effects of interactions between individuals and organisations on teachers' willingness to nurture student creativity. This research gap has been highlighted in several review papers (Bereczki & Kárpáti, 2018; Davies et al., 2014; Mullet et al., 2016) and is addressed in this study by examining teachers' creative role identities and creative self-efficacy. The effects of these two factors on teachers' attitudes towards teaching for creativity is explored by drawing on the theory of structural symbolic interactionism.

Theoretical base and hypothesis

Creative role identity and teachers' attitudes towards the implementation of teaching for creativity

This study draws on role identity theory, in which the self is considered to consist of social roles that an individual actively engages in (Piliaving & Callero, 1991). According to structural symbolic interaction theory, a social role is 'a set of expectations tied to a social position' (Burke

& Stets, 2009, p. 114). Role identity involves the internalised definitions of a role that individuals apply to themselves and is thus a self-regulatory sense-making process of interpreting various inputs from others and oneself, which are negotiated in an attempt to verify, support and validate the identity (Riley & Burke, 1995). The negotiation and formulation of role identities are achieved throughout the process of selecting stances, making decisions, generating emotions and any individual acts. Thus, different identities, particularly salient identities, are likely to be activated in different situations (Stryker, 2002) - that is, the identities that individuals verify can influence their behaviour, thoughts and feelings or emotions significantly.

Individual role identity can be based on feedback on the self from social relations and associated self-views (Farmer, Tierney, & Kung-McIntyre, 2003; Riley & Burke, 1995). Weick (1995) pointed out that identity construction is a process of retrospective sense making. Burke (1991) stated that role identity is linked to behaviour through the sharing of meanings implied by individuals while in a role and by their behaviour. The behaviour and feedback of others perceived by individuals then reinforce the formulation of role identity (Burke & Stets, 2009). Thus, the development of role identity is a result of an individual retrospectively interpreting the past and continuing his/her role activity (Grube & Piliavin, 2000). Based on a survey of 302 pre-service teachers, Lee and Kemple (2014) found that teachers with creativity-related experiences were likely to have positive beliefs and encourage teaching practices that fostered creativity. Farmer and colleagues (2003) also found that individual self-reviewing of general creative behaviour significantly contributed to the formulation of a creative role identity.

Stryker and Burke (2000) noted that individuals tied to social structures and relations also developed individual identities. Role identities are formed and justified through personal interactions and sense-making, and interpreting and internalising the expectations of others. Thus, the normative expectations of important 'social others' contribute to individual role identities by one 'seeing oneself through such expectations' (Farmer et al., 2003, p. 620). Individuals may thus be inclined to try out an activity and continue to practice it based on the expectations of significant others (Grube & Piliavin, 2000). Studies have supported the argument that the expectations of others, such as supervisors (Scott & Bruce, 1994) and co-workers (Madjar, Oldham, & Pratt, 2002; Tierney & Farmer, 2002), affect the identity formulation of an individual. The 'important others' for a teacher may be the dynamic and demanding school system.

To summarise, the two important bases of teacher creative role identity are teachers' self-review of creative behaviour (SRoCB) and their perceived school expectations (PSEs) regarding creativity. We predict that both these factors positively affect the attitudes of teachers towards the implementation of teaching for creativity.

Hypothesis 1: Teacher SRoCB is positively related to teachers' attitudes towards teaching for creativity (AtTfC).

Hypothesis 2: Teacher PSEs concerning creativity are positively related to teacher AtTfC.

Creative self-efficacy and teachers' attitudes towards the implementation of teaching for creativity

Tierney and Farmer (2002) developed the concept of creative self-efficacy, with reference to social cognitive theory (Bandura, 1986), and found that creative self-efficacy correspondingly increased with levels of creative performance. Taking a product-oriented approach, they described creative self-efficacy as occurring when 'one has the ability to produce creative

outcomes' (Tierney & Farmer, 2002, p. 1138). Other studies have since explored the antecedents and effects of creative self-efficacy (e.g., Beghetto, 2006; Karwowski & Lebuda, 2016; Tierney & Farmer, 2011). While most of these scholars have taken a general approach when measuring the extent to which individuals believe in their capability to accomplish creative tasks, Bandura (1997) suggested that the content domain should be considered in any measurement of efficacy, in terms of the degree of specificity.

Although a general belief in one's creative capacity contributes to task accomplishment, there is extensive evidence that effective teaching for creativity requires a set of skills specific to the classroom setting (e.g., Craft, 2005; Soh, 2017; Zhu, Wang, Cai, & Engels, 2013). Author (2015) explored the beliefs of Hong Kong teachers concerning different creativity-fostering skills and found that various teacher profiles on understanding the skills needed to foster student creativity effectively were widely supported in the research. In addition, this study showed that the skills needed to cultivate creativity could be generally divided into process and product domains. The skills in the product domain consist of two aspects: one concerns the skills required to help students produce observable creative outputs, such as new ideas or creative products; the other refers to teachers' ability to teach creatively with innovative ideas or new techniques. For some teachers, teaching for creativity should provide easily observed creative outcomes in terms of either student performance or teacher performance. At the same time, the skills in the process domain are closely related to an open and ecological environment within which student creativity may be nurtured, for instance, constructing a link between teaching content and student authentic experiences, and being tolerant of various ideas and the behaviours of students. Mirroring Bandura's (1997) recommendations on understanding teacher efficacy, the present study argued that teacher creative self-efficacy may contain two dimensions: product-oriented and process-oriented. Specifically, creative self-efficacy in the product dimension refers to the extent to which teachers believe in their ability to teach creatively or help students produce creative outputs, while creative self-efficacy in the process dimension refers to teacher confidence in constructing an ecological classroom environment that may cultivate student creativity.

Gist and Mitchell (1992) stated that individuals assess their personal abilities and environmental factors when engaged in a specific activity. Their assessment results on their previous experiences can serve as one of the main sources of the formation of individual efficacy judgments (Bandura, 1997).[1] Csikszentmihalyi (1996) states that affective flow and past experiences contribute to the attitude of an individual in conducting creativity-related tasks. Empirical studies also suggest that individuals with high creative self-efficacy are inclined to be actively involved in creative tasks (Carmeli & Schaubroeck, 2007; Wang, Tsai, & Tsai, 2014) and to achieve creative outcomes (Gong, Huang, & Farh, 2009; Jaussi, Randel, & Dionne, 2007). The relationship between high self-efficacy and active involvement in tasks is also supported in the school context. In an analysis involving three award-winning teachers, self-confidence, in terms of teaching for creativity, was found to be a key factor in the development of positive perceptions and performance with regard to teaching for creativity (Horng, Hong, ChanLin, Chang, & Chu, 2005). Dilekli and Tezci (2016) surveyed 1003 Turkish classroom teachers and

[1] Bandura (1997) enumerates four types of experiences that may facilitate the shaping of teacher self-efficacy: previous mastery experiences in similar educational contexts or teaching tasks; vicarious experiences, such as observing the instructional strategies of colleagues in similar teaching tasks; verbal persuasion, such as suggestions or support from colleagues; and physiological and affective states, such as the intensity of anxiety.

found that self-efficacy was a meaningful variable in understanding the attitudes towards and practices involved in the teaching of divergent thinking skills. From the review presented above, the following hypotheses were formulated in the present study.

Hypothesis 3: Teacher creative self-efficacy in the process dimension (CSE-process) is positively related to teacher AtTfC.

Hypothesis 4: Teacher creative self-efficacy in the product dimension (CSE-product) is positively related to teacher AtTfC.

Creative role identity and self-efficacy

Creative role identity and self-efficacy depend to some degree on self-review and self-regulation. Specifying absolute causality between the two constructs is very difficult (Bandura, 1986; Burke, 1996), but theoretical analysis and research outcomes support the causal primacy of identity over self-efficacy. Swann (1985) stated that to verify and maintain valued self-views, identity orientation can stimulate the attribution process, which is essential in self-efficacy development. Gist and Mitchell (1992) noted that social information and expectations, which persuade individuals of their competence, are very important to their self-efficacy formulation. McNatt and Judge (2004) emphasized that performance expectation, as a form of efficacy validating information, is essential in shaping individual self-efficacy and creative performance (Shalley, 2008).

Individuals with strong identities, either from self-review or from the perceived expectations of others, put more time and effort into engaging in domain-related activities as a means of enacting their identities (Swann, 1983). Incremental input can lead to greater involvement and positive experiences, which facilitate the generation of strong self-efficacy. The outcomes of other studies also support this relationship (Carmeli & Schaubroeck, 2007; Petkus, 1996; Tolli & Schmidt, 2008) and indicate that creative self-efficacy often serves as a mediator between individual and contextual factors and individual willingness and performance regarding creativity (Gong et al., 2009; Tierney & Farmer, 2011). Therefore, we expected teachers' creative role identity to be positively related to self-efficacy in the dimensions of process and product.

Hypothesis 5: Teacher CB is positively related to CSE-process.

Hypothesis 6: Teacher CB is positively related to CSE-product.

Hypothesis 7: Teacher perceived SE is positively related to CSE-process.

Hypothesis 8: Teacher perceived SE is positively related to CSE-product.

Research background

Creativity in education in China has developed extensively in the 21st century (Hui & Yuen, 2010). The role of creativity and innovation in the developmental plan of the whole country has been repeatedly highlighted (Li, 2015; Xi, 2017), so cultivating student creativity has been a main issue in the field of education in mainland China (The State Council of the People's Republic of China, 2018, January 31). In early childhood education, a creativity-driven curriculum is advocated and recommended (Zhu & Zhang, 2008). However, collectivism, conformity, discipline and obedience to authority all figure largely in Chinese culture (Cheung & Leung, 2014). In addition, to achieve good examination results, teachers traditionally use rote

learning, drilling, memorising and lecturing in their classrooms (Li & Wong, 2008). A few studies have addressed teacher perceptions in mainland China in terms of creativity and teaching for creativity in primary and secondary school contexts (see Hartley & Plucker, 2014; Zhou, Shen, Wang, Neber, & Johji, 2013). Apart from those studies, Chien and Hui (2010) specifically explored the perceptions of kindergarten teachers in Hong Kong, Taiwan and Shanghai concerning the promotion of creative education and found that the Shanghai teachers had difficulties in improving creative education due to a low level of knowledge. Several studies have explored the perceptions that Hong Kong teachers have of creativity and teaching for creativity (Cheung, 2017), student creative performance (Chan, D. W. & Chan, L., 1999) and personality (Cheung & Leung, 2014) in relation to creative behaviour. Few studies have addressed the dimension of teacher self-concept with regard to teaching for creativity. To fill this gap, in this study, the theory of structural symbolic interactionism and self-efficacy were used to explore the effect of the self-concept dimension on teachers' attitudes towards the implementation of teaching for creativity.

Method

Participants and Procedures

Over 2000 teachers from kindergartens and primary and secondary schools in Shanxi Province and Chongqing City in China were invited to participate in this large-scale research project. The questionnaires were self-addressed, and stamped envelopes were sent to the kindergartens and schools. Follow-up calls were made to explain the purpose of the study and to repeat the invitation. Regarding the respondents from kindergartens, convenience sampling was adopted, taking into account district (developed and underdeveloped), location (urban, suburb, and rural) and school type (public and private), which can represent a wide and mixed range of settings. Initially, 225 surveys were received. After data cleaning, 167 survey forms were retained (response rate = 65.2%) and used to perform data analysis. All the respondents were female teachers, with an average age of 31.27 years (SD = 8.14, range 18-55). Furthermore, 46% of the teachers had a Bachelor degree, 48.4% an Associate degree and 5.6% a high school diploma. Concerning school type, 35 % of the teachers came from urban kindergartens, 54% from suburb districts, and 11% from rural districts.

Measurement

Teachers' self-reviews of creative behaviour

Teachers' self-reviews of their creative behaviour were measured using eight items adapted by Farmer and colleagues (2003). Kirton (1976) developed the Kirton Adaption-Innovation Inventory. The originality subscale originally comprised 13 items. However, applying the scale in American, Japanese, and Hong Kong contexts, Danis and Dollinger (1998) found that some of the items did not fit Chinese work settings. Based on their analysis, Farmer and colleagues (2003) revised this subscale to eight items, which were used in this study and were confirmed to have very good internal reliability (α = 0.92). Responses were rated on a 5-point scale, with 1 representing strongly disagree and 5 representing strongly agree. A sample item is: 'I always think of other ways to solve problems when I run into obstacles'.

Teachers' perceived school expectations

We adapted the organisational valuing scale of Farmer et al. (2003) to measure the teachers' perceived expectations with respect to creativity ($\alpha = 0.96$). There are six items in this measurement. In some items, the phrase 'top management' was changed to 'principals' to fit the school context. A sample item of this subscale is: 'I feel creativity is supported and encouraged in my school'. The rating scale ranged from 1 (strongly disagree) to 6 (strongly agree).

Teachers' creative self-efficacy

Rather than exploring the creative self-efficacy of teachers in general (e.g., Karwowski & Lebuda, 2016; Wang, Tsai, & Tsai, 2014), the aim of the present study was to investigate teacher self-efficacy specifically in terms of teaching for creativity. Reviews of previous studies (Cremin, 2007; Hong & Kang, 2010; Author, 2015) found that teachers had identified nine skills essential to teaching for creativity. These skills were adapted in the present study to form two subscales, which measure teacher self-efficacy in the dimensions of process ($\alpha = 0.91$) and product ($\alpha = 0.94$) in terms of teaching for creativity. A sample item from the product dimension subscale (4 items) is: 'I can creatively use various teaching strategies to carry out effective teaching activities.' A sample item of the process dimension subscale (5 items) is: 'I can connect learning content with student daily life'. The response scale ranged from 1 (strongly disagree) to 5 (strongly agree).

Teachers' attitudes towards teaching for creativity

Teachers' attitudes towards teaching for creativity were measured using the subscale of overall feelings, with four items developed by Waugh and Punch (1985). The wording of the items was changed from 'curriculum changes' to 'teaching for creativity' to fit the research aims ($\alpha = 0.92$). A sample item is: 'Currently, I support teaching for creativity'. All responses were made on a 7-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The authors followed Brisline's (1970) backward translation method for the Chinese versions of the surveys. All the items were translated into Chinese by the first and second author of this paper. Another translator, who was unaware of the objective of the questionnaire, was invited to produce the third translation so that subtle differences in the original questionnaire might be detected. During the process, all the discrepancies between the three translators were fully discussed with two consulting professors in China who were familiar with not only the field of teaching for creativity but also the Chinese context. Then, the Chinese version was translated back into English by a research assistant majoring in translation. The differences were detected and discussed until a consensus had been reached on each item. The whole process of translation was aimed at ensuring the suitability of the wording for Chinese teachers but did not alter the original meaning.

Data analysis

After data cleaning[2], Confirmatory factor analysis (CFA) was conducted before any further analysis to estimate the quality of structural reliabilities and designated factor loadings by testing

[2] All the inconsistent (cross-checked by reverse coding items), suspicious (all scoring was maximum or minimum), or incomplete surveys were manually detected by two research

the model fit between the proposed measurement models and the collected data. Maximum likelihood estimation on the covariance matrix was applied to assess the validity of the measurement model, and items with factor loadings larger than 0.5 were retained. Reliability was measured by Cronbach's alpha test of internal consistency and was confirmed.

Structural equation modelling (SEM, Amos 21.0) was used to analyse the structural parameters between constructs and test the relationships between factors (such as mediation effects). The fit indices Chi-square/degree of freedom ratio (χ^2/df) < 3.0, the Comparative Fit Index (CFI), the Normative Fit Index (NFI), the Tacker-Lewis Index (TLI) > 0.90 and the root mean square error of approximation (RMSEA) <0.07 indicated an acceptable fit (Hair, Black, Babin, Anderson, & Tatham, 1998; Hu & Bentler, 1999). As suggested by Cohen (1992), the interpretations of the magnitude of standardised regression coefficients (β) were 0.10 to 0.30 for a small effect, 0.30 to 0.60 for a moderate effect and >0.60 for a large effect.

Bootstrap analysis was then conducted to confirm the significance and strength of meditation in these relationships (Preacher & Hayes, 2008). We selected 10,000 bootstrap samples randomly, and constructed a 95% bias-corrected percentile interval and a percentile confidence interval (Taylor, MacKinnon, & Tein, 2008). The direct effects of SRoCB and PSEs on teacher AtTfC were examined. Both direct effects were significant, which confirmed the preconditions for establishing the mediation effects.

Results

Table 1 shows the means, standard deviation and correlation coefficients for the study variables. The reliability of the scales exceeded the standard of 0.80 as recommended. Cronbach's alpha for all the subscales exceeded 0.91, indicating good reliability. Next, the construct validity of the scales was examined. CFA was conducted to examine the five-factor measurement model. The model fitted the data well (χ^2/df = 1.622, CFI = .963, NFI = .909, TLI = .954, RMSEA = .061). No item was removed as the factor loadings of all of the observed items were larger than 0.70.

Table 1. Means, Standard Deviation, Internal Consistency Reliabilities and Correlations between Five Factors.

	Mean	SD	α	1	2	3	4	5
1 SRoCB	3.7	0.80	0.92	1				
2 PSEs	4.8	1.23	0.96	0.74**	1			
3 CSE-product	3.9	0.81	0.94	0.78**	0.68**	1		
4 CSE-process	4.2	0.80	0.91	0.74**	0.72**	0.84**	1	
5 AtTfC	5.8	1.48	0.92	0.54**	0.58**	0.55**	0.60**	1

Note: * $p < 0.05$ ** $p < 0.01$

To test the hypotheses between various factors, SEM analysis was performed (see Table 2). The results indicated that this model could adequately fit the data (χ^2/df = 1.44, CFI = .99, NFI = .99, TLI = .99, RMSEA = .05). The standardised parameter estimates revealed the strong, significant and direct effects of teacher SRoCB on CSE-product (β = 0.61, p < 0.01) and a

assistants during the data input, checked by the first author, and deleted from the data set once the survey had been confirmed as invalid.

moderate, direct effect of SRoCB on CSE-process (β = 0.45, p < 0.01). The results also confirmed a moderate, direct effect of PSEs on CSE-process (β = 0.39, p < 0.01) and a small but significant effect of PSEs on CSE-product (β = 0.23, p < 0.05). Both SRoCB (β = 0.05, p = 0.68) and PSEs (β = 0.19, p = 0.05) had no significant effect on AtTfC. CSE-process demonstrated a significant direct effect on AtTfC (β = 0.30, p < 0.05), while the direct effect of CSE-product on AtTfC was insignificant (p = 0.67).

To test the indirect effects of SRoCB and PSEs on AtTfC, bootstrapping was then performed. As shown in Table 3, the results of the bootstrapping tests reaffirmed the moderate significant indirect effect of SRoCB (β = 0.31, p < 0.01) and the small but significant indirect effect of PSEs (β = 0.23, p < 0.01) through at least one mediator to teacher AtTfC. The bootstrapping results also showed high consistency with the SEM output in terms of the paths related to two self-efficacy dimensions. The direct effects of SRoCB and PSEs on the two self-efficacy dimensions were significant. The significant direct effect of CSE-process on teacher AtTfC was confirmed by the bootstrapping method, while the effect of CSE-product on teacher AtTfC remained insignificant (p = 0.22).

Table 2. The Results of Structural Equation Modeling of Variables

Structural Model	Path	Standardized coefficient	SE
	SRoCB → CSE-Product	0.61**	.07
	SRoCB → CSE-process	0.45**	.07
	PSEs → CSE-product	0.23**	.05
	PSEs → CSE-process	0.39**	.05
	CSE-product → AtTfC	0.16	.22
	CSE-process → AtTfC	0.49**	.22
	SRoCB → AtTfC	0.05	.21
	PSEs → AtTfC	0.19	.14

Note: n = 167. Note: * p < 0.05 ** p<0.01.

SRoCB = Self-review of creative behaviour; PSEs = Perceived school expectations; CSE-product = Creative self-efficacy on product dimension; CSE-process = Creative self-efficacy on process dimension; AtTfC = Attitude towards teaching for creativity.

Table3. Standardised Direct, Indirect and Total Effects of the Hypothesised Model.

	Point estimate	Product of coefficients		Bootstrapping		
				Bias-corrected Percentile 95% CI		Two-tailed significance
		SE	Z	Lower	Upper	
Standardised direct effects						
SRoCB → CSE-Product	0.61	0.07	8.46	0.47	0.75	<.01 (**)
SRoCB → CSE-process	0.45	0.08	5.61	0.29	0.61	<.01 (**)
PSEs → CSE-product	0.25	0.07	3.14	0.08	0.37	<.01 (**)
PSEs → CSE-process	0.40	0.08	4.71	0.22	0.55	<.01 (**)
CSE-product → AtTfC	0.16	0.13	1.25	-0.09	0.40	0.22
CSE-process → AtTfC	0.49	0.13	3.80	0.24	0.74	<.01 (**)
SRoCB → AtTfC	0.05	0.21	0.30	-0.17	0.28	0.67
PSEs → AtTfC	0.19	0.14	3.08	0.07	0.33	0.05
Standardised indirect effects						
SRoCB → AtTfC	0.31	0.07	4.76	0.18	0.47	<.01 (**)
PSEs → AtTfC	0.23	0.05	4.35	0.12	0.35	<.01 (**)

Note: Standardised estimating of 10,000 bootstrap sample. * p < 0.05 **p < .01.

SRoCB = Self-review of creative behaviour; PSEs = Perceived school expectations; CSE-product = Creative self-efficacy on product dimension; CSE-process = Creative self-efficacy on process dimension; AtTfC = Attitude towards teaching for creativity.

Discussion

The results of the study revealed the relationship between teachers' creative role identity, creative self-efficacy and attitudes towards teaching for creativity. The effects of teachers' personal creative behaviour, school expectations and two different types of creative self-efficacy on teachers' attitudes towards teaching for creativity are discussed.

Contrary to hypotheses 1 and 2, teachers' creative role identity did not have a direct effect on their attitudes towards teaching for creativity. The mediating role of self-efficacy was highlighted in this study. Studies have demonstrated that individual personality traits such as openness, extraversion and plasticity are closely related to attitude and performance in terms of creativity (Karwowski & Lebuda, 2016). However, this study indicated that in the school context, although teachers may be creative in their daily lives, their innovative performance may not naturally lead to a willingness to implement teaching for creativity, and similarly, neither will the school climate. Personal creative experiences and a creativity-friendly school context can develop or increase teacher self-confidence in culturing student creativity, and these two factors can significantly influence teachers' willingness to implement teach for creativity in their own classrooms. The following paragraphs address the specific relationship between the two bases of teacher creative role identity, teacher self-efficacy and teachers' attitudes towards teaching for creativity.

The study demonstrated that creative self-efficacy predicted creative performance, which was partially consistent with hypotheses 3 and 4 (Tierney & Farmer, 2002, 2011). In previous studies, creative self-efficacy has been investigated through overall evaluations of the creative performances of teachers (Tierney & Farmer, 2011). This study not only linked this concept to the domain of teaching for creativity but also generated the two different but closely related process- and product-focused dimensions. Only process-focused self-efficacy is significantly related to teachers' positive attitudes towards teaching for creativity. Confidence in engaging students and communicating and interacting with them, along with connecting the learning content to the daily lives of students, will thus significantly increase the willingness of teachers to implement teaching for creativity. However, confidence in producing creative outcomes may not dramatically increase their supportive attitudes. Interpretations of this differentiated relationship can be integrated with teachers' conceptions of teaching for creativity. Developing innovative outcomes, such as improving students' capacity for inquiry or their ability to use teaching tools creatively, is more difficult for teachers than constructing an open environment. Studies have also found that teacher conceptions of creativity are predominantly associated with the use of resources or practical facts (Bolden, Harries, & Newton, 2010; Newton, D. P. & Newton, L. D., 2009). Thus, if teachers suppose that teaching for creativity means working towards solid outcomes, some may hold back when they make a decision on whether to adopt teaching for creativity (Author, 2015). However, if teachers are confident in constructing creativity-friendly classroom environments, they will be amenable to implementing teaching for creativity in their classrooms.

Consistent with hypotheses 5 and 6, the day-to-day creative performance of teachers can significantly influence their self-efficacy in teaching for creativity. This positive relationship is supported by many studies (Carmeli & Schaubroech, 2007; Hejazi, Shahraray, Farsinejad, & Asgary, 2009). Personal creative behaviour has been found to have significant effects on teachers' creative self-efficacy in terms of product and process dimensions, and thus day-to-day creative experiences can transfer to creative performance in classrooms and correspondingly

build up the self-confidence of teachers. Innovative experiences may also contribute to positive feelings about creativity and motivate teachers to construct surroundings that cultivate their students' creativity (Farmer et al., 2003).

SEM also supported hypotheses 7 and 8, indicating that teachers' perceived school expectations in terms of creativity corresponded with their self-efficacy with respect to teaching for creativity, which aligned with previous research outcomes. Sternberg and Lubart (1999) found that the environmental context could stimulate personal innovation performance. Zhu and Engels (2014) found that a supportive organisational environment could contribute to teaching innovations by strengthening and encouraging the development of individual competencies. Downing et al. (2007) also stated that the presence of a professional learning culture within a school provided opportunities for teachers to take risks in a supportive environment. The present study found that a school's expectations in terms of creativity had a major effect on teacher self-efficacy in terms of the process dimension rather than the product dimension with the introduction of self-efficacy as a mediator. If a school has an innovative climate in which creativity and innovative ideas or behaviour are valued, teachers will be more tolerant of different ideas, be more likely to create an open and flexible atmosphere in their classrooms and build up their confidence throughout the whole process.

Implications

Rubensein, McCoach and Siegle (2013) asked a key question: If there are specific attitudes and perspectives that influence teacher ability to foster creativity in the classroom, then is it possible to affect those attitudes? (p. 325). The present study aimed to answer this by exploring the effects of teachers' creative role identities and self-efficacy on teacher attitudes. The findings of this study provide the following insights.

In addition to the influence of culture and ethos (Hartley & Plucker, 2014; Zhou et al., 2013) and personal traits (Karwowski & Lebuda, 2016), school climate has a significant effect on teachers' self-efficacy with respect to teaching for creativity. Katz-Buonincontro (2012) suggested that although creativity was undoubtedly encouraged, it might not actually be applied in schools. How test scores are perceived has also been found to significantly influence the creativity policies of schools and the direction of teachers' professional development. Accountability is still a constraint in establishing a creative school environment (Troman, Jeffrey, & Raggl, 2007). Scholars have explored alternative approaches in addressing this predicament. Downing and colleagues (2007) found that the professional learning culture within schools could considerably enhance effective sharing and improve teacher performance in terms of teaching for creativity. Professional dialogue and knowledge co-construction among teachers and external professionals can be alternative approaches when fostering school culture and nurturing the creativity of teachers and students (Davies et al., 2014).

The study also found that some teachers still held misconceptions about teaching for creativity, which must be a concern for teacher educators and professional programme designers. The intervention and involvement of external partners can be an effective method of facilitating the reconstruction of teachers' conceptions about creativity and teaching for creativity. Kandemir and Gur (2007) demonstrated that a problem-solving approach could reconstruct the views of pre-service mathematics teachers on creativity and the improvement of creative thinking. Reilly and colleagues (2011) found that out-of-school collaborations could help teachers promote student creativity. Robson and Janniste (2010) suggested that cooperation with arts organisations

could foster the professional development of teachers by providing access to and experimentation with new media or technologies. They also found that arts-integrated cooperation in terms of teaching and learning could expand curricula and pedagogies.

Self-efficacy is a widely accepted key predictor of teachers' professional performance (Bandura, 1997). Several approaches have been suggested that can improve teacher self-efficacy in culturing student creativity. Downing and colleagues (2007) suggested that teachers could collect first-hand experiences to demonstrate the impact of teaching for creativity on children and to confirm or verify the effects. Braund and Campbell (2010) used practitioner action research to involve teachers in the process of planning teaching by revising and evaluating lessons to strengthen and improve teacher confidence and their ability to teach for creativity. By integrating technology or arts, teachers also have more opportunities to explore the possibilities of planning teaching, and these processes can contribute to their self-efficacy in teaching for creativity (Lee, Chalmers, Chandra, Yeh, & Nason, 2014; Robson & Janniste, 2010). The findings of this study are also a reminder that improving teacher creative self-efficacy in the process dimension should be the focus throughout intervention projects or training programmes.

Limitations

This study presents important findings; however, several limitations must be addressed in future research to obtain a better understanding of teachers' self-concept with regard to teaching for creativity. First, the data were collected mainly through self-reporting questionnaires. Teachers' attitudes towards the implementation of teaching for creativity may not be consistent with their behaviour (Al-Nouh et al., 2014; Cachia & Ferrari, 2010). Further research should use other sources to evaluate teachers' creative behaviour in the classroom. Second, it should be noted that all the respondents in this study were female, which may limit the generalisation of the findings in this study due to the fact that gender differences in creativity have been discerned in previous research (Baer & Kaufman, 2008). Third, this study collected data in Chongqing City, and the study should be replicated in other cities of China to compare the findings and draw more meaningful conclusions. Notwithstanding these limitations, the findings provide an impetus for further research into the effects of teachers' creative role identity and the mediating role of self-efficacy in teaching for creativity. The construct of the two concepts should be supplemented by further analysis to a better understanding of how the school climate and teachers' personal traits can encourage teachers' willingness to engage in culturing student creativity by stimulating teacher self-efficacy with regard to teaching for creativity.

Acknowledgement

The authors would like to thank reviewers for their constructive suggestions and insightful comments.

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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