**Creative Self-Efficacy**

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Albert Bandura's work on self-efficacy has impacted a variety of fields of study. Bandura defined perceived self-efficacy as:

> people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has but with the judgments of what one can do with whatever skills one possesses. 


Within the field of creativity studies, work on the concept of *creative self-efficacy* (CSE) has rapidly developed. Although CSE represents a relatively recent area of study in the field, work on this concept represents one of the most active areas of scholarly work by creativity researchers interested in understanding the creative self.

This entry will provide an overview of creative self-efficacy starting with a brief discussion of how the construct has been defined, how work on CSE evolved in the field of creativity studies, and current conceptualizations and measurement approaches. The entry concludes with recommendations for future research.

**Emergence of Creative Self-Efficacy in the Field of Creativity Studies**

One of the earliest mentions of creative self-efficacy in the creative studies literature was a 1998 article by Jonathan Plucker and Mark Runco, in which they discussed the importance of researchers identifying task-specific and task-general aspects of creative production “during each creative moment” (Plucker and Runco, 1998, p. 37).

Four years later, Pamela Tierney and Steven Farmer published an influential study entitled, Creative self-efficacy: Its potential antecedents and relationship to creative performance (2002). They offered a definition of the construct, developed a measure, and provided empirical evidence indicating that CSE serves as a unique and significant predictor of creative performance.

Tierney and Farmer defined creative self-efficacy as *the belief one has the ability to produce creative outcomes* (2002, p. 1138). They measured the construct with a three-item scale (e.g., “I have confidence in my ability to solve problems creatively”) measured on a seven-point scale (1 = very strongly disagree; 7 = very strongly agree).

Research regarding CSE rapidly expanded to include explorations of the construct in and across various cultural contexts and domains (e.g., business, psychology, education). Much of this research used Tierney & Farmer's initial definition or an adapted version of the concept and scale. Specifically, researchers examined correlates and antecedents of CSE, the role CSE plays as a mediator and moderator, and CSE's role as a unique predictor of various creative outcomes.

Of central concern for many creativity researchers is how well measures of CSE predict creative outcomes. Previous studies exploring this issue yielded variable and, at times promising, results ranging from virtually no variance in creative outcomes accounted for by CSE to evidence of moderate effects (see Beghetto and Karwowski, 2017 for a discussion). The relationship between CSE and creative outcomes were also examined in several meta-analyses. In an extensive review of work on CSE, Farmer and Tierney (2017) discussed the results of several meta-analyses, which indicated that CSE has been found to account for 8.4% to 20.25% of variance in non-self-reported creative outcomes and 20.25% to 45.99% of variance in self-reported creative outcomes (pp. 36–37).

**Current Conceptualization of Creative Self-Efficacy**

Recently, creative self-efficacy was conceptualized as representing one of a family of nested creative self-beliefs, which constitute one's creative identity (Karwowski et al., 2019). More specifically, creative self-efficacy represents a particular type of creative confidence belief that works in conjunction with creative self-awareness beliefs (i.e., beliefs about one's strengths and limitations) and creative self-image beliefs (beliefs about one's creative aspirations and sense of creative self) to comprise an overall sense of one's creative identity.

Creative self-beliefs can be further distinguished along three different dimensions (Beghetto and Karwowski, 2017): specificity (ranging from global to specific), temporality (ranging from past to future oriented), and stability (ranging from static to dynamic). CSE falls on the more specific, dynamic, and future oriented sides of these dimensions. CSE beliefs are activated when people are presented with a creative performance task or prompted to judge their ability to perform creatively on a specific task or specific set of broader activities in a domain. An example may help illustrate the nature and facets of CSE beliefs.

Consider an instructional consultant who is asked to come up with creative ways for introducing two scientific topics that students have difficulty learning (e.g., buoyancy and sublimation). For the first concept, the designer responds, “I'm confident I can come up with at least three creative ways to introduce buoyancy.” For the second concept, the designer responds, “I'm less sure about sublimation, I can maybe come up with one creative idea, but I'm much less confident about it.”
As this example illustrates, the instructional consultant's CSE beliefs are triggered by the presentation of two specific creative performance tasks. Moreover, it illustrates how creative self-efficacy differs from other forms of creative confidence on the dimensions of specificity, temporality, and stability.

With respect to specificity, although the two tasks represent the same performance domain (i.e., instructional design in science education) the particular consultant's creative self-efficacy beliefs vary based on the specific nature of each task. Indeed, CSE beliefs can vary from task to task within and across domains. Researchers interested in understanding how different tasks within the same domain may result in different CSE judgements would therefore need to measure CSE using more specific measures, rather than a more global or general measure of creative confidence (e.g., "I am good at coming up with creative solutions to problems").

With respect to temporality, CSE beliefs are future oriented beliefs. CSE pertains to a person's confidence to perform creatively on an upcoming task, whereas more global creative confidence beliefs are based on retrospective judgements of performance (Beghetto and Karwowski, 2017). Empirical research indicated that global measures of creative confidence tend to be more strongly related to past performance, whereas task-specific measures administered prior to a performance tend to be stronger, unique predictors of creative performance (Pretz and McCollum, 2014; see also Karwowski et al. in press).

This is not to say that more global beliefs have no influence on CSE beliefs. Indeed, more global and retrospective creative confidence beliefs have been found to be related to task-specific beliefs, particularly when first approaching a task (Pretz and McCollum, 2014; Karwowski et al. 2019). This makes sense because more crystalized confidence beliefs (i.e., developed, in part, from past experiences) can be thought of as contributing to the development of subsequent CSE beliefs. However, once a person engages with a task the more immediate and proximal CSE beliefs likely will play a greater role in predicting task performance.

Finally, with respect to stability, CSE beliefs tend to be more dynamic than other creative confidence beliefs. In fact, CSE not only varies based on the nature of the task but other factors including physiological state (e.g., how one is feeling), social persuasion (e.g., whether trusted others are providing supportive messages), vicarious judgments (e.g., seeing someone who is relatable model successful performance), and various other socio-psychological factors (e.g., personal or social supports or impediments to performing a particular task) (Bandura, 1997). In this way, CSE beliefs (like all efficacy beliefs) are more than simple reflectors of prior performance, because they are influenced by a variety of situational, social, and individual factors (Bandura, 2012).

Returning to the hypothetical example of the instructional consultant, the consultant's more general creative confidence beliefs likely would influence CSE judgments for each scientific topic. However, given the differences in the two topics, the CSE beliefs would differ when initially presented with each task and those differences likely would influence CSE and ultimately performance across the duration of task engagement. Fig. 1 provides an illustration of one possible trajectory of the consultant's CSE beliefs for each task over time.

As illustrated in Fig. 1, the hypothetical designer's general creative confidence informs more specific CSE judgments. However, once two separate tasks are presented, CSE judgments become activated. Indeed, the designer makes two different judgments of creative performance based on the two different design tasks. CSE beliefs continue to operate and fluctuate throughout each subsequent phase of task engagement. In this way, CSE plays a key role in determining whether a person will even try to engage with the task and to what extent the person will stay with the task when facing challenges (Bandura, 1997).

CSE, conceptualized in this way, highlights the more nuanced and dynamic features of this creative confidence belief, which has implications for how it is assessed in studies. The following section highlights some current approaches for studying CSE.

Current Approaches for Studying Creative Self-Efficacy

As mentioned, creativity researchers traditionally measured creative self-efficacy beliefs using more static and general measures. Consider the following global measure of, which uses three items rated on a five-point scale (1 = not true; 5 = very true) scale (Beghetto, 2006, p. 450): I am good at coming up with new ideas; I have a lot of good ideas; I have a good imagination
Although this global three-item measure (and scales like it) can provide some insights into people's creative ideational confidence, such measures tend to fall short in capturing the more nuanced, situated, and potentially volatile nature of CSE. Consequently, the predictive strength of such measures on creative performance likely will be weaker than more focused and specific measures of CSE. Indeed, as Bandura (2012) explained, global measures of self-efficacy usually “bear weak relation both to domain-related self-efficacy beliefs and to behavior” and thereby “have problems of predictiveness” (p. 17).

This does not mean that existing scales that measure global creative confidence have no value. Rather, the value of such scales likely will be realized when used in conjunction with more tailored and dynamic measures of CSE. As mentioned, a recent study by Karwowski et al. (2019) found that more global measures of creative confidence were predictive of more tailored creative confidence measures, which indicates that global measures do inform more task and situationally specific CSE beliefs. However, when it comes to creative task performance, more tailored CSE measures serve as stronger predictors of performance than do more global measures (Karwowski et al., 2019).

In addition to designing more tailored measures of CSE, it is also important to design tasks that have clear performance criteria. Indeed, in situations where the performance criteria of a task are ambiguous or a person has limited experience with a domain, the difference between more global and more specific measures of creative confidence beliefs likely would be negligible because the person's confidence performing a specific task would be largely based on a more general sense of creative confidence. As Bandura (2012) explained, task ambiguity interferes with people's ability to accurately judge their performance confidence.

Consequently, creativity researchers interested in developing a more nuanced understanding of CSE beliefs, likely would benefit from designing and including more tailored, specific, and dynamic measures and tasks in their studies. A brief discussion of recommendations and an example for how to design more tailored and dynamic measures and tasks are presented the sections that follow.

Designing More Tailored CSE Measures and Less Ambiguous Tasks

As mentioned, existing measures of creative confidence often lack the task and situational specificity necessary to elicit people's confidence to perform creatively on given tasks under particular situational demands. As Bandura asserted:

There is no all-purpose measure of perceived self-efficacy. The “one measure fits all” approach usually has limited explanatory and predictive value because most of the items in an all-purpose test may have little or no relevance to the domain of functioning. Moreover, in an effort to serve all purposes, items in such a measure are usually cast in general terms divorced from the situational demands and circumstances. This leaves much ambiguity about exactly what is being measured or the level of task and situational demands that must be managed. (2006, p. 307)

Creativity researchers have therefore started to recognize the importance of designing and using measures that are more tailored to the unique situational features of creative performance tasks. Again, such measures are not meant to replace existing creative confidence measures. Rather, more tailored CSE measures can be used in conjunction with more static and general measures to provide insights into how creative confidence beliefs and other related factors can work in concert with each other.

When designing more tailored CSE measures and performance tasks, creativity researchers may find it helpful to work from the following general recommendations (adapted from Bandura, 2006, 2012; Beghetto and Karwowski, 2017; Bong and Clark, 1999; Bong and Skaalvik, 2003):

- **Assess Perceived Capabilities.** Measures should tap into people's perceived capabilities by using language focused on what people can do (e.g., “I am confident I can creatively solve three of these problems”);
- **Clarify Future Orientation.** The future orientation of CSE beliefs should be designed into studies by making sure that measures are provided prior to (immediate or more distal) performance;
- **Specificity of Measures and Tasks.** Design tailored measures and tasks that assess performance in specific activity domains;
- **Challenge and Constraints.** Items and performance tasks should include gradations of challenge or performance constraints to avoid ceiling effects;
- **Avoid Ambiguity.** Performance tasks and efficacy measures should avoid ambiguity and, instead, specify key features or levels of task performance;
- **Use Broader Range of Responses.** Use response scales that include a broad range of intervals, such as 0 to 100 or 0–10 (as they have been found to have greater predictive power as compared to scales with fewer points (see Pajares et al. 2001); and
- **Consider Dynamic Features.** When designing measures and tasks, recognize that CSE beliefs can change between initial measurement and performance; during different moments of performance; and across similar tasks within the same activity domain.

Creativity researchers can draw on the above recommendations to design more tailored and sensitive CSE measures and performance tasks for their studies. As mentioned, one way to think of creative confidence measures is that they run on a continuum from a more general to specific focus. As a result, even tailored CSE measures can range from assessing broader creative performance in a particular activity domain to specific performance on particular tasks within that domain. The key is that creativity researchers design tailored, multidimensional efficacy measures and performance tasks that represent the complexity of an activity domain and thereby elicit people's judgments of their capability to perform creatively (see Bandura, 2012).

Fig. 2 provides an example of what a CSE scale task might look like that has been tailored to a particular performance task.
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Figure 2  Example of a CSE scale tailored to a particular task.

As illustrated in Fig. 2, the CSE measure and task is tailored to a specific performance (i.e., generating a creative way to introduce the structure of matter to seventh grade science students). Moreover, this example aligns with the general guidelines discussed above. Specifically, it uses the language focused on what people can do (e.g., “Can come up with a creative way ...”), it is future oriented (i.e., CSE measured prior to performing the task); assesses confidence of capability to perform in a specific activity domain (e.g., CSE related to different concepts in teaching seventh grade science), includes various constraints that may help differentiate performance between people (e.g., grade level constraints, time constraints, spending constraints), minimizes ambiguity (e.g., provides clear description of task and performance criteria), and uses a broad range of intervals (i.e., 0–100 scale).

The dynamic features of CSE are also taken into consideration by minimizing the time from initial measurement to performance. A key benefit of designing a CSE measure tailored to be administered immediately prior to a performance task is that doing so addresses a key validity threat when it comes to assessing efficacy beliefs. Specifically, it can help eliminate what Bandura (2012) described as “temporal disparities between assessed self-efficacy beliefs and performance under conditions in which self-efficacy has changed in the interim” (p. 10). Consequently, measuring CSE beliefs in close proximity likely will enhance the accuracy and predicative performance of those measures.

With respect to assessing the creative performance on CSE tasks, researchers can use standard techniques in the field of creativity studies, such as the Consensual Assessment Technique (Amabile, 1996). Specifically, a panel of relevant domain experts (e.g., science educators) could assess the creativity of the ideas produced from this task. Moreover, this task could be used as one of several tasks to provide a broader representation of the activity domain and used in conjunction with other measures of interest to better understand the role CSE beliefs play in concert with various other related factors.

In sum, a more tailored CSE measure, designed to assess a person’s confidence performing creatively on a specific task, likely will be a more reliable measure of creative confidence and, in turn, have a stronger association with actual performance.

Dynamic Methods

In addition to designing CSE items that are more tailored to specific situations and tasks, creativity researchers have also started recognizing the importance of designing studies that are more in line with the dynamic nature of CSE. Indeed, creativity researchers recognize that CSE, like many creative phenomena has dynamic properties (Corraza, 2016).

This is illustrated in the hypothetical example of Fig. 1. The instructional consultant’s CSE beliefs vary not only across the two different tasks, but change across the duration of task engagement.

Fluctuations in CSE beliefs makes sense theoretically. As discussed, people’s creative confidence likely changes as they engage with the particular features of a performance activity. Depending on the task, their confidence may decline a bit as they encounter a surprising setback, steadily grow as they overcome challenges, and stay consistent through periods of task engagement, or some combination thereof. Consequently, researchers interested in understanding how such beliefs fluctuate within and across tasks have started to design studies using micro-longitudinal methods.
A micro-longitudinal approach refers to taking measurements with brief intervals between each measure in an effort to explore potential patterns and profiles of change in key variables of interest. With respect to CSE and related creative confidence beliefs, micro-longitudinal designs coupled with tailored tasks and measures offer researchers opportunities to identify and examine the more nuanced dynamics of CSE beliefs. Work along these lines is nascent, but recognition of using such methods to study confidence beliefs in and outside the field of creativity studies is growing (Beghetto and Karwowski, 2019; Marsh et al., 2018).

Karwowski et al. (2019) for instance, used a micro-longitudinal design to explore potential changes in creative confidence beliefs and emotions across the duration of a creative writing task. Participants creative confidence and emotions were measured at three intervals: prior to, during, and following task engagement. Results from this study indicated that both creative confidence beliefs and emotions changed over the duration of the task. Specifically, creative confidence, on average, increased across the three intervals. Moreover, negative emotions tended to decrease and positive emotions tended to increase.

The findings from Karwowski et al. (2019) provide support for the dynamic nature of creative confidence beliefs and also suggest that as the participants in the study became more familiar and engaged with the task their creative confidence grew and, in turn, so did their positive emotions. Indeed, micro-longitudinal designs allow researchers to explore cross-lagged effects to examine directionality of relationships and, in this case the findings indicated that as participants creative confidence increased so did their positive emotions.

In sum, researchers interested in developing a better understanding of how of CSE beliefs change in and across tasks likely will find it beneficial to design and use micro-longitudinal designs in conjunction with more tailored tasks and measures. Doing so can help uncover the more nuanced and variable patterns and roles that CSE beliefs play in people's creative performance.

Conclusion

The purpose of this entry was to provide a brief overview of the emergence and evolution of creative self-efficacy research and theory in the field of creativity studies. There are few constructs that have generated as much attention in such a short period of time. This growing attention has resulted in exciting and important developments in how CSE has been conceptualized and studied.

As the field of creativity studies continues to evolve, creative self-efficacy likely will continue to play an important role in understanding factors that contribute to creative performance and the role that self-beliefs play in shaping people's creative identity and experiences.

References