

17 Emotional Creativity

Emotional Experience as Creative Product

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Emotional creativity (EC) is an interesting psychological construct that combines creative abilities on one hand and emotional processing on the other. It is a set of cognitive abilities and personality traits related to originality and appropriateness in emotional experience (Averill, 1999; Ivcevic et al., 2007). When considering the four basic stages of the creative process – preparation, incubation, illumination and verification – emotional creativity abilities play an important role at the preparation stage as well as at the verification stage of the creative process (Averill, 1999; Soroa et al., 2015). It supports making connections with the reasons for and consequences of emotional responses at the preparation stage of the creative process and is related to the experience of and expression of novel and original emotions at the verification stage (for more detail, see Averill, 1999).

In the original theoretical conceptualization of EC, three components of EC were distinguished: novelty, preparedness, and effectiveness/authenticity (Averill, 1999). Emotional novelty denotes how a person perceives his or her own emotions as being original, unique, uncommon, and improbable. This ability describes the personal disposition of how a person understands the originality of their own emotional experience. In contrast, emotional preparedness includes thinking about one's own emotional reactions and emotional experiences, searching for the reasons for one's own feelings, as well as paying attention to other people's emotions in an effort to better understand one's own feelings. This dispositional ability is closely related to the processing of emotional life events and memory retrieval of details from emotional life events. Finally, emotional effectiveness/authenticity includes responding effectively in situations requiring new or unusual emotional responses and the tendency to believe that emotions may help to achieve one's life goals. This component is more heterogeneous in comparison to emotional novelty and preparedness and covers the aspects of emotional responding in real life situations as well as deeper personal beliefs about the role of emotions in one's life.

Figure 17.1 provides a more complex view of EC. In the upper cone of this theoretical model, personal dispositions related to EC can be found, namely,

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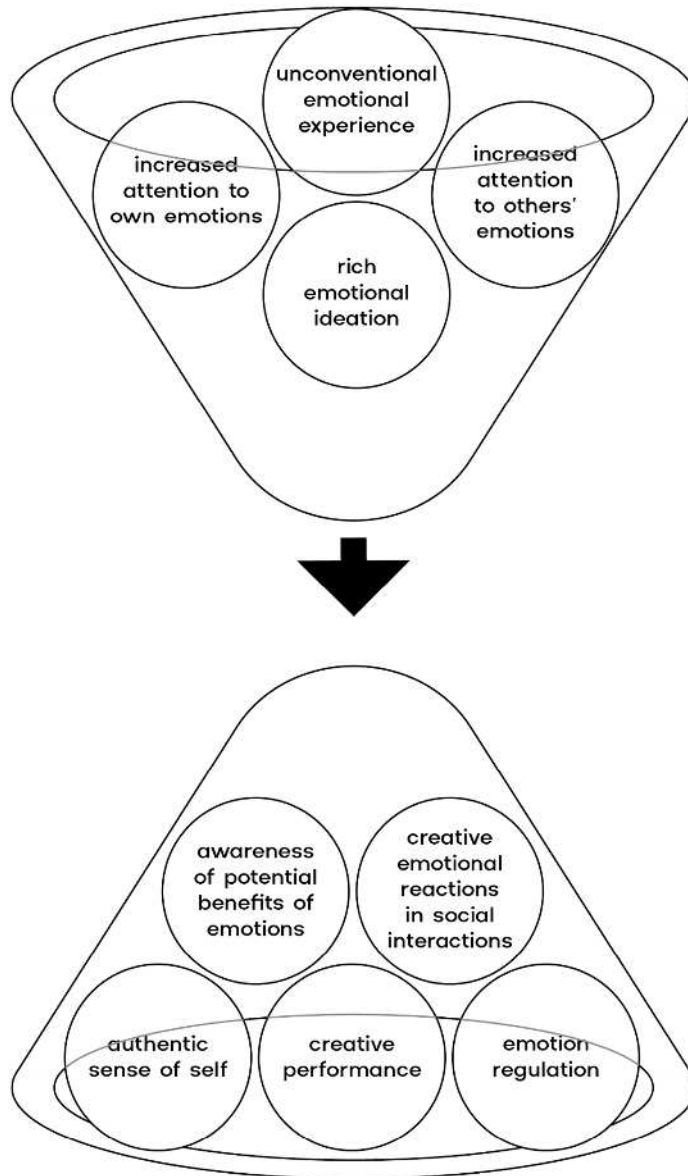


Figure 17.1 *Two-cone model of emotional creativity.*

unconventional emotional experience, rich emotional ideation, increased attention to one’s own emotional life, and increased attention to the emotions of others. These personal dispositions are suggested to be underlying “prerequisites” of EC. For example, unconventional emotional experience is a disposition to experience highly original emotions in comparison to other people. In other words, this aspect of EC is related to how different an emotional experience is in comparison to the norm (Ivcevic et al., 2017). In contrast, rich emotional ideation is an imaginative disposition and denotes the ability to imagine various

instances of hypothetical emotional situations, reactions, episodes, or experiences. Increased attention to one's own emotional life and increased attention to the emotions of others are dispositional aspects of EC closely related to the cognitive style of an individual. These aspects consider the degree to which an individual is accustomed to focusing his or her attention on his or her own emotional life or to the emotions of others. Consistent with the definition of emotional preparedness (Averill, 1999), people who pay increased attention to their own emotions are also suggested to think more about their own emotional reactions and emotional experiences and to search for the reasons for their feelings. This means that focusing attention on emotions is closely linked to more effort to cognitively process one's own emotional experience.

Among the personal dispositions related to EC in the upper cone of the model (Figure 17.1), unconventional emotional experience seems to play a primary role and may also influence other personal dispositions related to EC. For example, it can be expected that a disposition to experience highly original emotions may also attract more attention and thinking about a person's own emotions in the long-term perspective. At the same time, a disposition to experience highly original emotions may also stimulate imaginative ideation related to emotional aspects of life. Together, personal dispositions related to EC in the upper cone are expected to be highly interconnected and to work as a complex in a coherent manner.

In the lower cone of the model (Figure 17.1), there are aspects of EC that represent rather the consequences of personal dispositions related to the EC depicted in the upper cone. The awareness of potential benefits of emotions is a part of the subjective knowledge of how emotions may help one to achieve his or her life goals or improve well-being. This awareness is an outcome of the dispositional aspects of EC, namely, increased attention to one's own emotions, increased attention to others' emotions, and rich emotional ideation. People who pay increased attention to their own emotional life and to the emotions of others and have rich emotional ideation are expected to also have deeper and more diverse awareness of the potential benefits of emotions. This EC-related knowledge, as well as the perceptual information gained from observing others' emotions, may be utilized in social interactions, for example, by the performance of creative emotional reactions that respond suitably to the actual development of a social interaction.

Furthermore, personal dispositions related to EC depicted in the upper cone are also suggested to influence creative performance. An unconventional emotional life and rich emotional imagination may in particular stimulate creativity during creative performance. These dispositions for being emotionally creative are considered to be resources for the creative process. People who have an unconventional emotional life and a rich emotional imagination may utilize these resources in creative production (e.g., artistic creative production or development of problem-focused creative solutions).

Unconventional emotional experience may also support an authentic sense of self. EC is generally suggested to involve the dispositions to be genuine and

sincere (Ivcevic et al., 2017). This indicates that one's reaction accurately reflects one's inner feelings, meaning they are therefore authentic. However, it is necessary to point out that accuracy in reflecting one's own inner feelings cannot alone predict high EC, because even though the reactions of an individual may accurately reflect his/her inner feelings, the individual may indeed have an ordinary emotional life in comparison to others.

Increased attention to one's own emotions can also be expected to influence emotion regulation. For example, people who pay increased attention to their own emotions may detect emotional feelings earlier and start to regulate these feelings more effectively, if necessary. However, sometimes increased attention to one's own emotions may also be maladaptive. For example, people who ruminate too much about their past failures may experience more stress and unpleasant feelings.

From the perspective of cognitive psychology, EC is linked to both exploratory and generative cognitive processes (Trnka et al., 2020). The experience of an unusual combination of discrete emotions, a variety of different emotions at the same time, or responding to emotional situations with original emotional reactions all are abilities that require cognitive flexibility in generative processes. In contrast, creative thinking about past emotional reactions and experiences is closely linked to exploratory cognitive processes. During cognitive processing of a new emotional event, a subject tries to ascribe sense to this emotional event by categorizing it. The conceptual knowledge of the subject involves prototypical categories of emotional events built on the basis of events that the subject experienced in the past. By seeking the common attributes of a new emotional event with the prototypical categories of emotional events, the subject constructs the subjective meaning of the new emotional event. Highly emotionally creative people have a rich past emotional life, and they are even suggested to have a more differentiated spectrum of prototypical categories of emotional events in their conceptual knowledge about emotions. High EC thus enables more flexibility in the conceptual interpretation of past emotional events due to the presence of more differentiated prototypical categories in the conceptual knowledge about emotions, which provide a broader and more fine-grained basis for exploratory cognitive processing of emotional events.

The construct of EC is relatively young (Averill, 1999) and its investigation is in dynamic progress. The Emotional Creativity Inventory (ECI, Averill, 1999) is the only available trait measure of EC at present. The ECI consists of 30 items rated on a 5-point scale divided into three subscales: Preparedness, Novelty, and Effectiveness/Authenticity. A recent meta-analysis examined the reliability of use of the ECI across past empirical studies (total $n = 5,479$) and revealed excellent generalized reliability for the ECI total score and very good, generalized reliabilities for all three of its subscales: Preparedness, Novelty, and Effectiveness/Authenticity (Kuška et al., 2020).

Aside from the ECI, there are also two ability measures of EC, the Emotional Consequences test and the Emotional Triads test (Averill & Thomas-Knowles, 1991). In the Emotional Consequences test, participants are presented with

emotionally salient hypothetical situations and are asked to produce various possible consequences. In the Emotional Triads test, participants are given four sets of three dissimilar emotions and are asked to imagine a situation in which all three feelings would occur simultaneously. Responses from the tasks are then scored by external evaluators using the Consensual Assessment Technique.

This chapter aims to provide an overview of research conducted on EC. At the beginning, EC is introduced in the context of its relationships to basic personality traits and everyday behavior. The chapter then shows how EC and other cognitive creative abilities are mutually related. The next subsection explains how EC varies with age and how EC is related to age-related cognitive changes in older adulthood. The subsequent subsections then describe the gender differences found in EC and introduce research on EC within the applied and clinical contexts. Finally, current promising avenues for future research on EC are outlined.

Emotional Creativity, Personality, and Everyday Behavior

Past research explored how EC relates to basic personality traits. The ECI has been positively correlated with openness to experience (Averill, 1999, Study 3; Ivcevic et al., 2007; Luke & Zychowicz, 2014), with agreeableness (Averill, 1999, Study 3), and with hope and positive affectivity (Sharma & Mathur, 2016). The correlation found between EC and openness to experience in particular was quite strong (Averill, 1999), and this finding was also replicated in the study of Ivcevic et al. (Study 3, 2007). It is not clear whether openness to experience is a key ingredient in EC or whether EC independently predicts behavioral creativity in cases when the creative product involves the direct expression of emotion (e.g., during artistic creative activities (Ivcevic et al., 2007)). However, for persons high in openness to experience, involvement in creative activities is suggested to be internally satisfying, because engagement in creative activities is in accordance with their openness to new experience trait.

Research investigating real-life involvement in creative leisure-time activities revealed that higher EC was related to five of the seven proposed types of creative hobbies (Trnka et al., 2016). Specifically, real-life engagement in creative writing (poems, prose, or blogs), painting, composing music or music improvisation, performing drama (i.e., dance improvisation or theatrical improvisation), and do-it-yourself activities (i.e., handmade production of material creative products for daily use) was found to be significantly related to higher EC in participants (Trnka et al., 2016). In contrast, making creative sculptures or ceramics and any kind of inventing were found to be unrelated to EC. Ivcevic et al. (2007) suggested that emotional abilities play a significant role in creativity only when the products express emotional content. This may explain why inventing was found to be unrelated to EC. Even though inventing definitely requires creative cognition and possibly also divergent thinking, its products are often practically oriented and do not involve emotional content.

Emotional Creativity and Other Cognitive Creative Abilities

Research on the relationship of EC and cognitive creative abilities involving divergent thinking has thus far brought inconsistent results. Past studies used either a trait measure of EC (i.e., the ECI (Alzoubi et al., 2021; Martskvishvili et al., 2017; Zenasni & Lubart, 2008), or both the ECI and ability measures of EC (Study 1, Ivcevic et al., 2007).

Starting with a study that utilized only a trait measure of EC, Alzoubi et al. (2021) found a positive relationship between EC and the ability to generate novel unfamiliar associations to stimuli words. In this study, the participants were required to find another word that can be associated with the stimuli words in a meaningful way. All three components of EC were found to predict creative performance in this experiment. In contrast, EC was not found to be related to the ability to produce original and useful ideas about the potential uses of common objects in a study by Martskvishvili et al. (2017). Nor was any direct link between EC and divergent thinking creative performances found when participants were asked to generate unusual uses for a cardboard box and generate unusual ideas when imagining what would happen if there were no traffic in their city (Zenasni & Lubart, 2008).

Let us turn our attention to the results of a study that used both the trait measure as well as the ability measures of EC (Study 1, Ivcevic et al., 2007). This study explored how EC relates to the ability to generate possible consequences of hypothetical situations and the ability to make connections between distant ideas when associating with similar semantic meaning to stimuli words. The trait emotional novelty was found to be positively correlated with both creative event consequences and remote associations, whereas the trait emotional preparedness and the trait effectiveness/authenticity were not. This study also involved two ability measures of EC, Emotional Consequences and Emotional Triads (Averill & Thomas-Knowles, 1991). The cognitive ability measured by the Emotional Triads task (i.e., the ability to imagine a situation in which a combination of three dissimilar emotions would be experienced simultaneously) was found to be unrelated to the above-mentioned cognitive creativity measures. The cognitive ability measured by the Emotional Consequences task (i.e., the ability to produce various possible consequences to hypothetical emotional situations) was found to be related to the ability to generate the possible consequences of hypothetical situations measured by the Torrance Tests of Creative Thinking (Torrance, 1974) but was unrelated to the ability to make connections between distant ideas when associating with similar semantic meaning to stimuli words (Study 1, Ivcevic et al., 2007).

Furthermore, the study of Gutbezahl and Averill (1996) examined the relations between EC and artistic creativity. In this case, the participants drew pictures of discrete emotions. Participants with higher EC used a more expressionistic style: that is, they used color and space more creatively and represented emotions in a symbolic, nonfigurative way. In contrast, less emotionally

creative participants used a more pictographic style: that is, they used figurative forms and articulated the story through pictures.

A further question is: how is EC related to emotional intelligence (EI), the set of abilities related to emotional processing that appears to be quite similar to EC? EI is defined as the ability to perceive emotions accurately, use emotions to enhance thinking, understand and label emotions, and regulate emotions in the self and others (Mayer & Salovey, 1997). Empirical evidence shows that EI and EC are distinct but related abilities (Ivcevic et al., 2007). The main difference lies in the engagement of convergent and divergent thinking in EI and EC. EI requires convergent thinking and the solving of emotional problems. This includes accurate recognition, reflection, and regulation of the subject's emotions in order to cope more successfully with negative feelings or maintain or increase positive feelings. In contrast to EI, EC requires divergent thinking and the generation of an appropriate, but also original, response. EC often involves manipulation and transformation of the subject's emotional experience to deal with an emotional problem or challenge.

Age-Related Changes in Emotional Creativity

The levels of EC have been found to differ with age. A cross-sectional study involving younger, midlife, and older adults revealed that age was negatively associated with the ECI total score and two of the three ECI components, emotional novelty and emotional preparedness (Trnka et al., 2020). In contrast, age was not associated with emotional effectiveness/authenticity. This ECI component was found to be constant across adulthood (Figure 17.2).

When taking a closer look at these age-related differences, the lower emotional preparedness in older age implies a decreased tendency to think about one's emotional reactions and emotional experiences and to search for reasons for one's own feelings in older adulthood. These results are in accordance with the more flexible and emotionally mature functioning of older adults (Blanchard-Fields, 2007, 2009). This advantage is suggested to be reached due to the accumulation of experience with various emotions during the life course. Investing less effort into thinking about one's own and other's emotions may be an adaptive strategy enabling cognitive resources to be saved in older adulthood (Trnka et al., 2020).

The accumulation of experience with varied emotional events with aging may also explain the other finding, that is, why older adults perceive their emotions as less unique, novel, and uncommon than younger adults (Figure 17.2). In other words, the older the participants were, the weaker was their tendency to evaluate their emotions as novel and unique (Trnka et al., 2020). Older people are expected to have met with more emotional episodes during their lives, and this experience may also cause lower emotional novelty in older age compared to younger age. Repeated experience of similar emotional events may lead to future utilization of patterns and scripts from previously experienced emotional

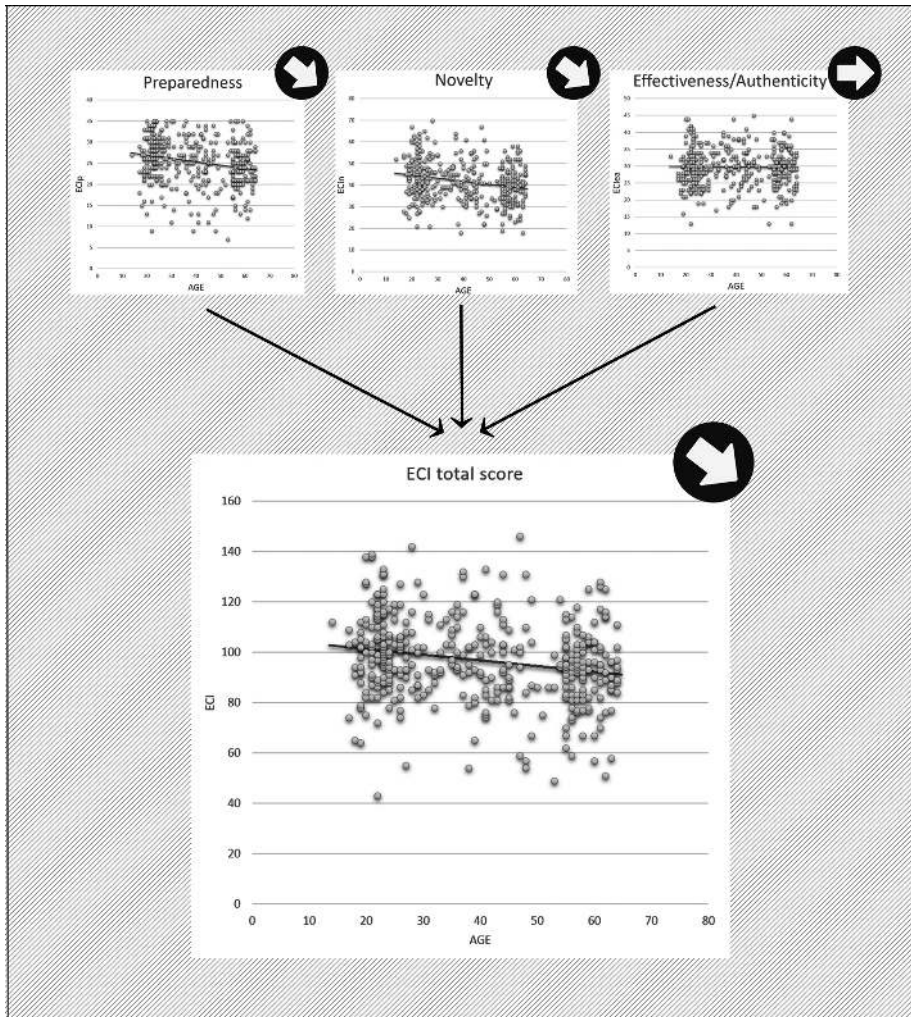


Figure 17.2 Age-related trends for the ECI and its three components: Preparedness, Novelty, and Effectiveness/Authenticity. (Source: Trnka et al., 2020)

episodes stored in memory, which may explain the decreased emotional novelty in older adulthood.

The weakened tendency to evaluate emotions as novel and unique in older adulthood is also in accordance with the decrease of the trait openness to experience in older adulthood (Lucas & Donnellan, 2009; Roberts et al., 2006). As mentioned above in this chapter, openness to experience is a trait highly correlated with trait EC. A meta-analysis of longitudinal studies (Roberts et al., 2006) revealed that the trait openness to experience started to decrease after the age of 55 years but interestingly increases from adolescence to middle adulthood. In contrast to these findings, the trait emotional novelty was found to be highest in adolescents and lowest in older adults (Figure 17.2).

In contrast to decreased emotional novelty and emotional preparedness in older age, emotional effectiveness/authenticity was found to be constant across adulthood. This component of EC includes effective responding in situations requiring new or unusual emotional responses and the tendency to believe that emotions may help a person achieve his or her life goals. Because longitudinal research on EC has been lacking, these insights may inspire future longitudinal studies of EC.

Interestingly, the levels of EC were found to be sensitive to the degree of age-related cognitive decline. For example, older adults with more apathy were less emotionally creative than older adults with less apathy (Trnka et al., 2019). Increased apathy is an indicator of cognitive decline caused by worsened functioning of the frontal-subcortical brain circuits in older adulthood (Grace & Malloy, 2001). As apathy is linked with symptoms such as unconcern, loss of interest, or lack of energy, the lower levels of EC in more apathic older adults is not surprising.

However, some findings in this area are very interesting. Older adults with more cognitive deficits in inhibitory control were found to have higher EC compared to older adults without cognitive deficits in inhibitory control (Trnka et al., 2019). In this study, the deficits in inhibitory control were measured in line with the conception of Grace and Malloy (2001), that is as a decreased cognitive control of emotions given by worsened functioning of the frontal-subcortical brain circuits in older adulthood. Cognitive deficits in inhibitory control are expressed by behavioral hallmarks, such as irritability, emotional lability, sudden emotional outbursts, disinhibited emotional expressions, or increased swearing. It is possible that the experience of disinhibited emotional reactions may represent a source of novelty for older adults (Trnka et al., 2019). As disinhibited emotional expressions involve irritability, emotional lability, and frequent sudden emotional outbursts (Grace & Malloy, 2001; Prado-Jean et al., 2010; Zuidema et al., 2009), the experience of such emotional reactions may be perceived as a divergence from common experience and may stimulate the cognitive processing of emotional events. For this reason, deficits in inhibitory control may surprisingly also lead to increased EC compared to older adults without such inhibitory deficits (Trnka et al., 2019).

It is important to note that older adults are otherwise considered to show some improvements in controlling their emotions in late age (see Scheibe & Carstensen, 2010; Urry & Gross, 2010). However, when age-related changes in the brain start, they perform lesser levels of cognitive control of emotions (Opitz et al., 2012), which may explain the findings mentioned above.

Interestingly, higher EC related to deficits in inhibitory control in older adults (Trnka et al., 2019) is also in line with research in other domains of creativity. For example, diminished inhibitory control in cognitive functioning was found to cause more creative performance in creative tasks in older adults compared to younger adults (Carpenter et al., 2020; Kim et al., 2007). These experiments involved distractions, and older adults were found to generate more creative solutions when exposed to distracting information. In the context of EC,

disinhibited emotional expressions, such as sudden emotional outbursts or increased swearing, may be considered to play the role of an emotional distractor for a person. Such emotional distractions may focus the subject's attention on their emotional reactions more and also stimulate more thinking about emotional events.

Gender Differences in Emotional Creativity

A meta-analysis covering the available nine empirical studies presenting gender differences revealed that women tend to be more emotionally creative than men (Kuška et al., 2020). The total sample size was 3,555 participants and involved samples from studies that varied in sample sizes as well as the countries where the research was conducted (Figure 17.3). All of these studies measured EC as a trait using the ECI (Averill, 1999).

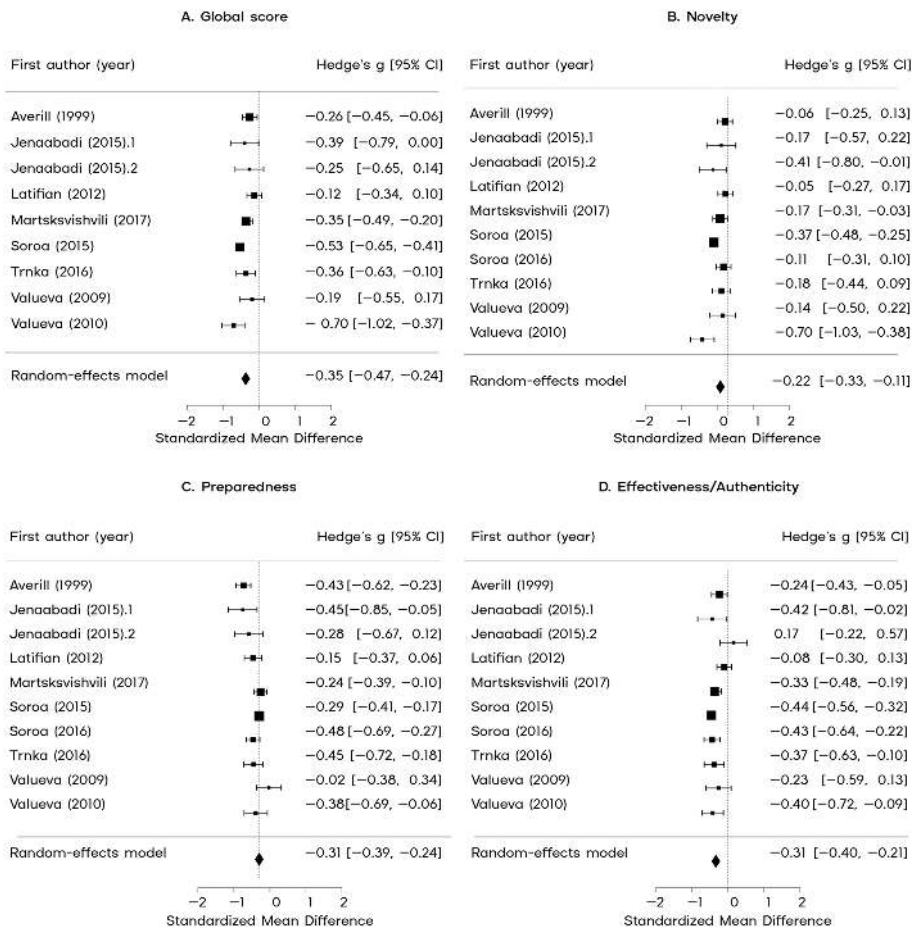


Figure 17.3 Summarization of gender differences in EC from past studies. Negative values mean higher scores in women than in men. (Source: Kuška et al., 2020)

This meta-analysis identified higher ECI total scores in women than in men and also showed that women scored higher in all three subscales – Novelty, Preparedness, and Effectiveness/Authenticity (Figure 17.3). Let us take a closer look at these gender differences found from the perspective of the three main trait components of EC. From the perspective of emotional novelty, women were found to perceive their own emotions as more original, unique, uncommon, and improbable when compared to men. From the perspective of emotional preparedness, women also reported thinking more about their own emotional reactions and emotional experiences and searching for the reasons for their own feelings. They also pay more attention to other people's emotions than men in an effort to better understand their own feelings. The higher scores of women in the authenticity/effectiveness component indicate that women respond more effectively in situations requiring new or unusual emotional responses and have a stronger belief that emotions may help in achieving one's own life goals.

Emotional Creativity in Applied Settings

There are few studies exploring the role of EC in applied contexts. Wang et al. (2015) explored EC in both employees and their supervisors in 18 commercial enterprises in China. The organizations were engaged in the management of electronic information and technologies focused on resources, environmental, and new materials. The participants were employed in production, marketing, research and development, and management activities. The results showed that high EC had significant positive effects on the innovative performance of employees. This relationship was moderated by the employees' intrinsic motivation and supervisors' support for creativity. The authors interpreted the results such that EC enhances the employees' self-efficacy and motivation for engagement in future innovative performance, because it stimulates innovative activities and solutions that are in accordance with the needs of organizations. High EC is suggested to be a very desirable personality trait, especially in positions with high uncertainty, such as research and development, front service reception, service, and sales. Thus, assessing EC is generally recommended during the selection of applicants for these positions.

Song (2016) explored EC, professional identity, teaching efficacy, and their relationships to the leadership style of teachers' supervisors in college English teachers. The leadership style of supervisors was measured as the degree of "paternalistic leadership." Paternalistic leadership is a fatherlike leadership style in which strong authority is combined with concern and considerateness. Taken together, a stronger paternalistic leadership style among supervisors and the teachers' EC were found to have a moderating effect on the teaching efficacy of teachers. At the same time, this moderating effect was found to be mediated via the teachers' professional identity (covering professional competence, behavior, and emotions). Based on these results, the following

recommendations for organizational and university leaders were formulated: (a) strengthen the ability of staff members at the management level to handle their emotions; (b) encourage staff members to improve their EC, such as making time for regular emotional management; (c) suggest that staff members take part in psychological counseling training; (d) improve staff members' ability to deal with their emotions; and (e) strengthen staff members' ability to express themselves in innovative ways.

The role of EC in applied settings has evidently been studied only rarely thus far. The above-mentioned studies have brought first very interesting findings, but this field is still waiting for further exploration in the future.

Emotional Creativity in Clinical Practice

Interestingly, the construct of EC seems to have quite big potential to be utilized in clinical psychological assessment. Already in 2007 (Fuchs et al., 2007), EC was found to be negatively related to alexithymia (the inability to identify, describe, and express one's own emotions). This study was conducted on a general sample of students, not on a clinical population sample. Less emotionally creative participants also reported higher dispositional alexithymia.

Furthermore, EC was investigated in the context of psychodiagnostics of neurodegenerative diseases. Early diagnosis of neurodegenerative diseases via neuropsychological assessment is highly desirable because psychic changes often occur before the apparent motor symptoms are detectable. Early diagnosis of neurodegenerative diseases supports the efficacy of further treatment and the possibility of decelerating the development of degenerative changes in patients. Because EC was found to be related to cognitive decline in a sample of healthy older adults (Trnka et al., 2019), it was plausible to ask if changes in EC could be detected in early stages of some neurodegenerative diseases that are also accompanied by cognitive decline. This idea was explored on patients suffering from Parkinson's disease (PD), a progressive neurodegenerative disease affecting the nerve cells in the brain that produce dopamine (Nikolai et al., 2022). PD is characterized by cardinal motor symptoms, such as tremor, bradykinesia, and muscular rigidity, as well as a wide range of non-motor symptoms (e.g., cognitive deficit, apathy, or anhedonia: a reduced ability to experience pleasure). Both PD patients and healthy controls underwent a complex neuropsychological assessment and were administered the ECI. PD patients showed lower scores in the cognitive tests and a lower score in emotional preparedness compared to healthy adults (Table 17.1). The decreased emotional preparedness in PD patients indicates that PD influences processes such as thinking about one's emotional reactions and emotional experiences and paying attention to other people's emotions (Nikolai et al., 2022). Interestingly, the trait measure of EC was found to be uncorrelated to most neuropsychological tests for monitoring cognitive functions. It seems that the

Table 17.1 Differences in the ECI components between patients suffering from Parkinson's disease and healthy controls (Source: Nikolai et al., 2022)

	HC (n = 40)		PD (n = 22)		Z	p	r_b
	$M \pm SD$	(min-max)	$M \pm SD$	(min-max)			
Preparedness	25.5±5.1	(14–35)	20.6±4.6	(11–29)	–3.41	0.001	–0.525
Novelty	39.4±8.7	(20–57)	37.5±7.4	(26–55)	–1.00	0.317	–0.155
Effectiveness/ Authenticity	29.6±4.6	(19–38)	27.3±4.9	(18–38)	–1.92	0.055	–0.295

Note. HC – healthy controls; PD – Parkinson's disease; M – arithmetic mean; SD – standard deviation; Z – test statistic of the Mann-Whitney test. The p is for the p -value of the Mann-Whitney test. The p -values for significant differences are marked in bold. r_b is the rank-biserial correlation representing the effect size (absolute values close to zero represent no effect, 0.3 is considered as a threshold for the medium effect and 0.5 as a threshold for a strong effect).

levels of trait EC could be a distinctive diagnostic marker of patients' emotional functioning, independent of other measures of cognitive functions (Nikolai et al., 2022). This study opens up an area for future psychodiagnostic use of the construct of EC in clinical practice.

EC was also examined in relation to the degree of schizotypy of participants (Holt et al., 2008). Schizotypal traits include being warily apprehensive, watchful, and suspicious, being alienated from the self and others, having a sense of strangeness and nonbeing, and feeling to be bland, barren, indifferent, and insensitive. Schizotypal traits indicate a greater trait disposition toward schizophrenia and are suggested to increase the risk of future development of psychopathology, such as Schizotypal Personality Disorder (Claridge, 1997). The study of Holt et al. (2008) distinguished between several types of schizotypal personality: high schizotypes (scoring highly on cognitive disorganization and introvertive anhedonia, i.e., a reduced ability to experience pleasure), negative schizotypes (reporting only introvertive anhedonia), positive schizotypes (reporting only unusual experiences, such as hallucinations, paranormal ideation, or psychopathological delusion), and low schizotypes. High schizotypes and positive schizotypes were also found to show higher trait EC. These results indicate that high trait EC could be related to a schizotypal personality involving the use of nonlinear cognition, cognitive disorganization, and impulsive nonconformity (disinhibited and impulse-ridden characteristics). At the same time, high trait EC was also found to be related to "positive schizotypal" personality with a disposition to hallucinations, paranormal ideation, and psychopathological delusion. This study was conducted on a healthy, non-clinical sample of undergraduate and graduate students; thus, research on samples of patients suffering from schizophrenia or other schizotypal disorders is needed in the future.

Emotional Creativity: Future Directions

Currently, the ECI (Averill, 1999) is the most frequently used method for measuring EC. It is a measure based on self-reporting of the subject's inner traits and abilities and provides information about the subject's self-perception of his or her own EC. In other words, it provides insights about how subjects perceive their own emotionally creative behaviors, mental processes, and personality traits. For future possible use of the construct of EC in clinical practice, the development of new performance tests that could measure EC as an ability is needed. Currently, there are two ability measures of EC available, the Emotional Consequences test and the Emotional Triads test (Averill & Thomas-Knowles, 1991). However, the scoring of these tests is based on the Consensual Assessment Technique, which involves evaluations of creative performance by several independent evaluators. This scoring technique can be utilized in experimental research; however, it cannot be used in clinical practice because it is too lengthy and time-demanding. For clinical use of EC, for example, in the context of early psychodiagnosis of neurodegenerative diseases, the validation of EC ability tests in different clinical populations and the establishing of norms for such performance tests for healthy populations are needed. This is an important task for future applied research on EC and methodological development in the field.

In the context of basic research on EC, a further question is whether EC varies from moment to moment. Thus far, EC has been approached and defined as a sum of relatively stable dispositional traits and abilities. However, one may ask if and how EC varies in different creative experimental tasks or different real-life situations. Furthermore, how a subject's actual mood (see Ying et al., 2021) or emotional state may influence the actual levels of EC and how strongly they may influence creative production or performance is not known. When looking back at Figure 17.1 depicting the theoretical model of EC, some possible hypotheses for future research can be developed. First, more creative production can be expected from a subject who has a sufficient actual cognitive capacity available to utilize their dispositional trait EC in creative activity. For example, in the case when a subject's cognitive capacity is loaded by another parallel task or tasks (e.g., work duties or real-life demands unrelated to creative performance), it is less likely to expect a subject to invest as much cognitive effort into emotional ideation, which could possibly influence the degree of subsequent creative performance, despite their trait disposition to rich emotional ideation. Second, it can also be hypothesized that there are more dispositional types in terms of dispositions to unconventional experience. For example, some types of personalities may tend to experience more positive emotions simultaneously, because they are high in trait positive emotionality and generally tend to experience pleasant emotions more frequently than negative ones. In contrast, some other types of personalities may show high trait negative emotionality and tend to experience unpleasant emotions more frequently across various real-life situations. It can be hypothesized that trait

positive emotionality may positively interact with EC and together support more creative performance compared to trait negative emotionality. The experience of positive emotions was found to broaden people's momentary thought action repertoires, which support building both intellectual and physical personal resources (see Fredrickson, 2001). Merely the broadened momentary thought action space related to the experience of positive emotions may support the utilization of personal trait EC-dispositions in creative performance. The outlined hypotheses may be incentives for further detailed exploration.

Past research has also shown inconsistent results in the field of the relationship between EC and cognitive creative abilities (for a detailed description, see the subsection Emotional Creativity and Other Cognitive Creative Abilities). This inconsistency may indicate that the influence of EC on creative performance could be dependent on the nature of the creative experimental task. When comparing the results of studies that measured EC as a trait, EC was found to be positively related to the ability to generate novel, unfamiliar associations to stimuli words (Alzoubi et al., 2021). On the other hand, EC was found to be unrelated to the ability to produce original ideas about the potential uses of common objects (Martsksvishvili et al., 2017) and to the ability to generate unusual uses for a cardboard box (Zenasni & Lubart, 2008). These opposite findings may be possibly interpreted by the assumption that EC influences performance in relatively simple associative cognitive tasks but does not influence performance in tasks requiring more complicated cognitive activity, such as mental manipulation with objects. Indeed, the studies of Martsksvishvili et al. (2017) and Zenasni and Lubart (2008) both measured cognitive creative abilities requiring mental manipulation with objects (i.e., the ability to produce original ideas about the potential uses of common objects and the ability to generate unusual uses for a cardboard box). These mental processes can be expected to require more complex cognitive activity than the creation of novel unfamiliar associations to stimuli words, as measured in the study of Alzoubi et al. (2021). More research is needed in this field to verify this assumption.

Furthermore, another study found that the trait emotional novelty positively influenced the ability to generate possible consequences of hypothetical situations, but the trait emotional preparedness and the trait effectiveness/authenticity did not (Study 1, Ivcevic et al., 2007). The ability to generate possible consequences of hypothetical situations can also be expected to require more complex cognitive activity in comparison to the ability to generate novel associations to stimuli words (measured in the study of Alzoubi et al., 2021). Taking all these insights together, it can be hypothesized that the influence of EC on cognitive creative performance may be dependent on the complexity of the cognitive creative task. For future research, it can be proposed that EC influences cognitive creative performance in tasks requiring relatively simple associative cognitive processes, but its influence weakens with increasing complexity of the cognitive creative task. More experimental studies are needed in this field to show further insights on the variations of the impact of trait EC on creative performance in different types of creative tasks.

A recent study by Zhai et al. (2021) has opened a new, topical avenue for future research. This study explored the role of EC in a population of college students and employed people during the COVID-19 pandemic in China. Under the control of COVID-19-related life events and age, EC was found to support post-traumatic growth as well as protect participants against mental health problems, including somatization, depression, and anxiety. These results showed that trait EC played an important role in coping with stressful life events during the COVID-19 pandemic. Thus, EC can be expected to be an important predictor of a subject's resiliency against stress. At the same time, another study indicated that a negative mood during the COVID-19 pandemic could promote an individual's creative ideation and EC (Ying et al., 2021). Nevertheless, it is necessary to point out that causal effects are difficult to determine in this study, as it is a purely correlational one.

This chapter defined EC, reviewed past research on EC, and showed some avenues for future research at the end. As mentioned at the beginning, research on EC is relatively young and is still undergoing dynamic development. Many questions about EC still remain unanswered, as was also shown in this concluding section. A big part of past research measured EC as a trait. For the future, more studies approaching EC as an ability are needed to contribute to a more complex understanding of EC. Some preliminary studies also indicate that the construct of EC could be utilized practically in clinical settings as well as in commercial and educational sectors. Future applied research should pay increased attention to the potential of EC to be used in these areas.

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