HABITS OF MIND AS PREDICTORS OF CREATIVE PERSONALITY: THE MEDIATION EFFECT OF CREATIVE SELF-EFFICACY AND CREATIVE ENVIRONMENT

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The terminal objective of this study was to investigate the contribution of habits of mind (i.e. taking responsible risks, thinking flexibility, thinking about thinking [metacognition], persistence, striving for accuracy, creative self-efficacy and creative environment), on the creative personality. The questionnaire, which included eight scales, was administered to a sample of 205 secondary school students in the State of Kuwait. Data were analysed using Structural Equation Modelling (SEM). The results revealed that: (1) habits of mind contribute to the creative personality; (2) the creative environment and creative self-efficacy contribute to the creative personality; (3) the creative environment mediates the relationship between habits of mind (i.e. taking responsible risks, thinking flexibility, persistence and striving for accuracy) and the creative personality; and (4) creative self-efficacy mediates the relationship between habits of mind (i.e. taking responsible risks and persistence) and the creative personality.

Keywords: *Creative Environment, Habits of Mind, Personal Creativity, Creative Self-efficacy*

The creative personality or creativity is increasingly valued as an important outcome of education, frequently as part of the so-called "21st century skills", aspects of which are also referred to as "non-cognitive" or "soft skills" (Kautz et al., 2014). In the State of Kuwait, there has been a focus on developing critically thinking skills, creativity and self-confidence for several years. In 2010, the Sabah Al-Ahmad Centre for Giftedness and Creativity was established as one of the centres of the Kuwait Foundation for the Advancement of Science, which explores and nurtures distinguished, talented and creative people by providing the appropriate environment and climate needed to highlight their distinctiveness and develop their talents and creativity. It also provides appropriate opportunities for them to transform their ideas into concrete creations. It seeks to support people in investing their creativity and capabilities for the purposes of national development by promoting a culture of creativity among members of the community, monitoring the distinct creative potential of emerging and youth groups, revealing and embracing them, developing experiences and honing the skills of talented and creative people and investing in national creativity (Sabah Al-Ahmad Centre for Giftedness and Creativity, 2020). The Gifted Academy was established in 2016; it has been distinguished as an educational institution that specialises in caring for gifted students in many fields. It provides the appropriate educational environment in which they can nurture their

capabilities, interests, inclinations, orientations, aspirations, patterns of thinking and personalities (Al-Harbi, 2019).

The significance and active role of gifted and creative people in the renaissance and progress of societies in all fields requires that researchers and those in charge of the educational process pay attention to and identify the creative personality, or try to identify the variables and circumstances that affect the development of the creative personality. As such, this article offers a model of the factors that contribute to the creative personality (i.e. habits of mind, creative environment and creative environment).

One of the factors that contribute to developing the creative personality and creating creative products is high creative self-efficacy (Haase et al., 2018; Plucker & Makel, 2010. As Plucker and Makel (2010, p. 58) noted: "a broader view of creative self-efficacy examines creative person identity". Therefore, it is reasonable to suggest that creative self-efficacy can play a role in creative action or creative personality.

Jordanous (2016) stressed the need to study the ways in which the creative environment impacts the creative personality, such as: how the environment affects an individual's creativity and how criticism impact's an individual's creative work products. Thus, many researchers have emphasised the role of culture in the relationship between the creative environment and the creative person (e.g. Lee & Kim, 2010; Garcês et al., 2016). Puccio and Cabra (2010, p. 149) provided a model for organisational innovation, and they emphasised that "innovation comes as a result of the interaction between people, the processes in which they participate, and the environment in which they operate". Ferrari et al. (2009) pointed to the enhanced environmental determinants of creativity in the school context. These factors are divided into eight main areas: evaluation, culture, curriculum, individual skills, form of teaching and learning, teachers, technology and tools. Although there is an extensive body of literature on the creative climate in organisations, there is no similar information on the educational sector. However, Ekvall (1999) stressed the need for creativity and alternative ways of teaching in the classroom. Education should aim to prepare children or students for a future that we do not know.

With regard to how the creative environment contributes to the creative personality, and within the limits of the researcher's science, only one study was found that explored the relationship between creative environments and the creative personality (Garcês et al., 2016). Garcês et al. (2016) aimed at investigating the impact of the creative environment on the creative personality, creative process and creative product. The results showed that the creative environment has a statistically significant effect on the creative process and the creative product, but it has no statistically significant effect on the creative personality. Therefore, more studies are needed to understand the contribution of the creative environment to the creative personality. Creativity can be understood by considering personal factors, environmental factors, and their interactions. High compatibility between the individual and the environment will generate high creativity from the individual (Tierney et al., 1999).

Studies that employ programmes based on habits of mind in developing educational learning outcomes and various aspects of behaviour have indicated the effectiveness of habits of mind in the cognitive and creative development of students (Al-Gassem et al., 2020; Costa & Garmston, 1998). However, little is known about how habits of mind impact the creative personality. With this in mind, the present study aimed to investigate the direct and indirect ways in which habits of mind impact the creative personality via creative self-efficacy and the creative environment.

Creativity

Creativity is a core motor of development and innovation in different fields, including education. According to Lemons (2010), creativity is: "a mode or essence of being that

represents pure human potential" (p.151). Although there are many definitions of the concept of creativity, almost all of them include two key aspects: usefulness and novelty (Runco & Jaeger, 2012). In his 4P's model, Rhodes (1961) postulated that creativity can be studied as a process, product, person and environment (PRESS). Furthermore, creative performance is often described as a result of creative personality (Csikszentmihalyi, 1996). According to Amabile (1988), creative performance will be easily achieved when an individual possesses the knowledge, information, and skills that support creative personality. Guilford (1950) proposed the existence of several latent factors of creative thinking, including novelty, flexibility, synthesizing and analyzing, sensitivity to problems, fluency, ability, and reorganization. However, recent work often describes the four factors of creative thinking as originality, flexibility, fluency, and elaboration (Torrance, 2008). The definition of creativity differs across cultures, especially from East to West (Tsai, 2012), as 120 definitions of creativity are categorized into four broad categories - generating ideas, deepening thoughts, openness, courage to explore ideas, and listening to one's inner voice (Treffinger et al., 2002).

Although there is no consensus on the structure or methods of measuring and evaluating creativity, scientists agree that the fundamental aspect of creativity is the human ability to produce new and useful ideas or products. This simple definition of creativity requires two basic aspects - creativity and usefulness, in sum, creativity - "is the ability to generate ideas, visions, and authentic and possible solutions" (Sternberg & Lubart, 1999). Creativity is also defined as "the interaction between efficiency, process, and environment in which an individual produces a tangible new and useful product as defined in the social context" (Pluckeret al., 2004, p. 90). It is also known as "the ability to generate authentic and possible ideas, visions and solutions" (Kleibeuker, De Dreu, & Crone, 2016).

Creative self-efficacy

Self-efficacy refers to the awareness of an individual's ability to organize and implement procedures to demonstrate specific skills (Bandura, 1986). Baron and Byrne (2000) defined self-efficacy as an individual assessment of ability or competency to perform a task, achieve a goal, and produce something. However, creative self-efficacy (CSE) and general self-efficacy (GSE) are two distinct concepts ((Jaussi et al., 2007), CSE focuses on an individual's beliefs about his or her creative skills and potential. Building on Bandura's definition of self-efficacy, CSE is an individual's belief in his or her ability to invent a new product or creative ideas. CSE is defined as "the belief one has the ability to produce creative outcomes" (Tierney & Farmer, 2011, p. 1138). One of the factors that contribute to developing creative thinking and creating creative products is high creative self-efficacy (Haase et al., 2018). Intrinsic-motivation and self-confidence also encourage and contribute to creative personality and coping with life (Anggarwati & Eliyana, 2015). As Plucker and Makel (2010, p. 58) noted: "a broader view of creative self-efficacy examines creative person identity, which is also reflective of how much someone values creativity." A creative personality, arising from seeing the self as a creative individual, is defined as the belief that creativity is an important element in describing oneself. Creative personality may represent a stable identity construct, applicable to different environments and various situations (Jaussi et al., 2007).

CSE has two dimensions: creative thinking self-efficacy and creative performance self-efficacy. Creative thinking self-efficacy is an individual's belief in his or her own ability to express creative thinking over a lifetime, whereas, creative performance self-efficacy is an individual's belief in his or her own ability to express creative performance.

Creative Personality

William (Wiliam, 1994) defined the creative character as a construction consisting of four dimensions: curiosity, tendency to complexity, risk-taking, and imagination. The researcher

defines the creative personality as the personality that is characterized by high self-efficacy, and a tendency to issues that challenge and thinking, and is characterized by independence, and able to adapt to difficult situations, serious at work, open, perseverance, speed of intuition, sensitive to problem solving, and able to assume responsibility flexibly.

Creative personality is partially the result of a social process in which others in their environment stimulate and support their creativity (De Stobbeleir, Ashford, & Buyens. 2011; Park, Kim, & Jang, 2017; Xu et al.,2016). The search for the common characteristics of creative people from different groups and fields found a somewhat stable set of essential features for creative individuals, including: broad interests, affinity for complexity, high energy, autonomy, self-confidence, a high evaluation of aesthetics, openness to experience, conscience, Self-acceptance, hostility, and impulsivity (Amabile, 1996; Feist, 1998). All these characteristics that they enjoy are only a result of various factors: subjective, social, biological, educational, or psychological, and this is what made many researchers explain the creative and creative personality behavior through human traits that we express about the extent of enjoying the ability to produce new ideas (Bin Omar, 2018).

Creative Environment

Rhodes (1961) emphasized that creativity is a process in which an individual develops new products, through implicit cognitive thinking, and an environment that promotes this process. According to Keller-Mathers (2011) and Jordanous (2016), it is possible to employ the Rhodes model to study creativity in teaching and learning.

The creative environment refers to where the individual is located and the creative product in which the creative process occurs (Scritchfield, 1999), and involves understanding an array of individual and contextual factors, such as climate and culture (Isaksen, 1995), and the creative environment must be seen as the relationship among individuals and their environments, this is important for assessing environmental conditions that prevent or enhance creativity. Also, resources and experiences influence the development of creativity (Keller-Mathers, 2011).

Ekvall (1996) identified ten factors that support the creative environment of the organization, namely: (1) Challenge, (2) Freedom, (3) Idea Support, (4) Trust / Openness (5) Dynamism / liveliness, (6) Playfulness / humor, (7) debating, (8) risk-taking, (9) idea time, and (10) conflicts. de Souza Fleith (2000) identified classroom behaviors that foster creativity and are aligned with Ekvall dimensions: allowing time for ideas and creative thinking (time of thought), rewarding creative ideas and products (challenge), encouraging reasonable risks (risk), allowing errors, imagining perspectives of others or making assumptions (discussion), exploring the environment, searching for interest and problems, generating multiple assumptions, focusing on general ideas rather than specific facts and thinking about thinking processes. Despite their importance in the educational context, there is only a limited amount of research on issues of classroom creative climate.

Habits of Mind

Studies and research on cognitive psychology and human thinking revealed many theoretical trends that dealt with habits of mind, and the most prominent of these theories is the theory of Marzano (Marzano, 1992). Marzano (1992) defined habits of mind according to three basic components: self-regulation, creative thinking, and critical thinking. Self-regulation is self-reflection, planning, awareness and sensitivity to feedback or reactions. Creative thinking is the skills needed to broaden and deepen knowledge, establish and trust specific assessment criteria, and generate new unfamiliar methods. As for critical thinking, it is represented by the skills of research, clarity, openness to others, resistance to impulsion, taking and maintaining positions, and sensitivity towards others. Habits of mind are characterized by several

advantages, most notably: they are a mixture of attitudes, experiences, inclinations and skills that the individual possesses, and it also requires a high level of skill to use behaviors effectively and persist in it, and individuals with high mental habits are distinguished by a preference for a pattern of behavioral patterns over other patterns, Mental habits are sensitive to contextual hints of a situation, indicating that the time to use this pattern is appropriate and beneficial (Costa & Kallick, 2009).

Also, the mental habit calls at the conclusion of using the behaviors employed therein to reflect on the impact of this use, evaluation, modification and progression towards independent and subsequent applications, and every mental habit requires looking at old ideas with a new vision and creative imagination, and proposing many alternatives of solutions when solving the problem (Costa & Kallick, 2009).

Costa & Kallick (2009) pointed out a set of characteristics and results achieved through individual mental habits, which are the behavioral tendencies of teachers' teaching such as tendency, value, sensitivity, politics, and ability.

Daniels (1994) categorized habits of the mind into four categories: mental openness, mental justice, mental independence, and investigative or critical direction. It was also classified by Hyerles (1999) into three sections: maps of thinking processes, brainstorming, and graphic organizers. The Costa & Kallick (2000) classification of habits of mind is one of the most comprehensive and clear categories of explaining and interpreting mind habits; It is based on the empirical studies on the human brain and on the Marzano model. The Costa and Kellick classification is a new mental perspective related to the nature of the components of the brain and is an educational framework for supporting and developing continuous intelligence, creativity, and learning. According to Costa and Kalick, Habits of Mind are a mixture of smart behaviors, cognitive processes and thinking skills. Costa and Kallick have come up with a list of sixteen learning and training habit (Costa & Kallick, 2003, 2009). Based on creative habits of mind model (Lucas, 2015), five of habits of mind, namely: taking responsible risks, thinking flexibility, thinking about thinking, persistence, and strive for accuracy, were included in this study.

Thinking in thinking (Metacognition) realizes the student's ability to plan a strategy or thinking skills that he practices and assesses its quality. It also realizes the learner's ability to mention the steps necessary for his work plan, describe what he knows, what he needs to know, and the ability to evaluate the efficiency of his plan and explain the steps of his thinking.

Strive for Accuracy: Understand the student's ability to work continuously to master, examine and review information to ensure it is correct, and review and examine what has been accomplished to ensure that a specified level of standards and criteria is established.

Taking responsible risks: embarking on new experiences and thinking. Being adventuresome. Living on the edge of one’s competence. To meet the challenge posed by the problem-solving process, the teacher provides a safe environment for his students and accepts all their ideas about the experiences of others, their vision, and their views on them.

Thinking Flexibly: conscious of the learner’s ability to change ideas, views, opinions, and situations when exposed to new, accurate, and decisive information even if this information contradicts established beliefs, in addition to addressing problems in more than one way, looking at things from more than one angle, and studying issues from different dimensions.

Persisting: awareness of commitment to the task upon which the individual is based on the melody of its completeness, not giving in to difficulties, the ability to analyze problems, and the use of various strategies; To solve it in an organized and systematic way.

As a result of global trends and the apparent emergence of the global knowledge economy, successful learning and traits of learners have re-emerged as major issues in educational research in recent years (Meier, 2003). Within this context, "mind habits" are claimed to be smart thinking behaviors used by thinkers to solve problems and organize

learning within professional, relational or academic settings (Costa & Kalick, 2000). Several researchers claim that mind habits can help learners self-organize their learning, and find solutions in relationships and work (Marzano, 1992). In this context, habits of the mind have emerged as a relatively innovation in learning and education and have gained prominence in the educational learning process. The importance of mind habits is to apply them to lifelong learning such as reciprocal thinking, the pursuit of accuracy, openness to continuous learning, communicating clearly and precisely, and taking responsible risks. As such, habits of mind can build students' learning abilities, which is necessary if learners are to keep pace with changing aspects and cognitive explosion (Costa & Kalick, 2000).

The theoretical and conceptual framework for mind habits was developed primarily through the works of Arthur Costa and Pena Kallick, and then through the work of Robert Marzano (1992) related to the dimensions of learning. Costa (1985) developed a hierarchy of thinking that includes concepts of separate thinking skills (comparison, classification, hypothesis); Thinking strategies (for example, problem solving, and decision making); Creative thinking (model making, figurative thinking); Cognitive spirit (openness, the search for alternatives, and withholding judgment). Campbell (2006) links mind habits with theories related to the nature of intelligence, theories of cognitive learning, theories of social learning, and brain research.

Research Purpose

The aimed of the present study was to investigate the direct effect of habits of mind (i.e., taking responsible risks, thinking flexibility, thinking about thinking, persistence, and strive for accuracy) on creative personality. Also, to examine the indirect effect of habits of mind on creative personality via creative self-efficacy and creative environment.

Problem Statement

Despite the long history of the State of Kuwait in caring for talented and creative people, and when looking at their reality between the theory and practice, we find some obstacles that hinder the success of the Kuwaiti experience in directing its energies, capabilities and resources in caring for its talented and creative children (Al-Qattan, 2016), and these obstacles can be summarized in three dimensions: the ways of early identification of talented people, preparing integrated enrichment programs for the care of these talented people, and selecting and preparing the creative teacher who implements the programs of enriching the creative and talented person.

Through reviewing the previous literature, great efforts have been made in caring for creators in the last period by the government of the State of Kuwait, but we see it without ambition compared to the knowledge and demographic explosion and the challenge before it and rapid changes in all aspects of social, economic, scientific and technical life that appeared at the end of the twentieth century and at the beginning of the third millennium, this may lead to the emergence of new problems that require additional efforts in line with those changes, and this is what many studies in Kuwait have indicated the need for caring the gifted and creators from a young age. For instance, Al-Holi (2014) indicated that gifted students in the primary stage in the State of Kuwait are not receiving adequate care. In another study, Al-Dhafiri (2015) indicated that talented students in the State of Kuwait feel some family pressures that affect their harmony with individuals, curricula, educational methods and evaluation methods. Furthermore, Al-Shammari (2016) confirmed that the educational services offer to creators talented in the State of Kuwait is weak and they need more care and attention, and the study (Al-Harbi, 2019) concluded that there is a lack of interest in Gifted people in various media, the absence of an educational guidance and guidance office for the gifted, and the inability of teachers to perform new and innovative methods in caring for the gifted.

Although there is a great deal of literature on the creative climate in organizations, there is no similar information in the educational sector. However, Ekvall (1999) stresses the need for creativity and alternative ways of teaching in the classroom. Education should aim to prepare children or students for a future that we do not know, so "the only way to prepare for the future is to make the most of ourselves on the assumption that doing so will make us as flexible and productive as possible" (Robinson, 2009, p. 20). With creativity, one can become more active in achieving the desired situation, and the future becomes an opportunity rather than a threat (Zakiei et al., 2020). In this sense, creativity can be key to future education. According to the researcher's experience, most schools in the State of Kuwait usually evaluate diligence, adaptation, and good behavior, and overlook creative or non-compliant students, who often disturb the educational learning process in the classroom; Most workplaces do not require creativity, which means that anyone with creative skills can live with these skills only in recreational activities, not at work.

Research Objectives

This study tried to achieve the following objectives:

1. To examine the effects of habits of mind on creative personality.
2. To examine the mediation effects of the creative environment on the relationships between habits of mind and creative personality.
3. To examine the mediation effects of creative self-efficacy on the relationships between habits of mind and creative personality.

Research Questions

The present study sought answers to the following questions:

1. Do habits of mind significantly affect creative personality?
2. Does the creative environment significantly mediate the relationships between habits of mind and creative personality?
3. Does creative self-efficacy significantly mediate the relationships between habits of mind and creative personality?

Research Hypotheses

This study was designed specifically to test the following hypotheses:

1. Habits of mind do not significantly affect (predict) the creative personality.
   To test the first hypothesis, it was further divided into following seventh sub-hypotheses:
   H_1: Taking responsible risks habit does not significantly affect the creative personality.
   H_2 Thinking flexibility habit does not significantly affect the creative personality.
   H_3: Thinking about thinking habit does not significantly affect the creative personality.
   H_4: Persistence habit does not significantly affect the creative personality.
   H_5: Strive for accuracy habit does not significantly affect the creative personality.
2. The creative environment does not significantly mediate the relationships between habits of mind and the creative personality.
   To evaluate the second hypothesis, it was further divided into following five sub-hypotheses:
   H_6: The creative environment does not significantly mediate the relationships between taking responsible risks and the creative personality.
   H_7: The creative environment does not significantly mediate the relationships between thinking flexibility and the creative personality.
   H_8: The creative environment does not significantly mediate the relationships between thinking about thinking and the creative personality.

H_9: The creative environment does not significantly mediate the relationships between persistence and the creative personality.

H_{10}: The creative environment does not significantly mediate the relationships between strive for accuracy and the creative personality.

3. Creative self-efficacy does not significantly mediate the relationships between habits of mind and the creative personality.

   To evaluate the third hypothesis, it was further divided into following five sub-hypotheses.

   H_{11}: Creative self-efficacy does not significantly mediate the relationships between taking responsible risks and the creative personality.

   H_{12}: Creative self-efficacy does not significantly mediate the relationships between thinking flexibility and the creative personality.

   H_{13}: Creative self-efficacy does not significantly mediate the relationships between persistence and the creative personality.

   H_{14}: Creative self-efficacy does not significantly mediate the relationships between persistence and the creative personality.

   H_{15}: Creative self-efficacy does not significantly mediate the relationships between strive for accuracy and the creative personality.

Methodology

This section presents the research design, sample, and measures.

Research Design

This study intended to examine the role of habits of mind, creative self-efficacy, and creative environment play in creative personality. To achieve this goal, the correlational design used to describe and measures the degree of relationship between two or more variables or to test hypotheses regarding expected relationship.(Creswell, Hanson, Clark Plano, & Morales, 2007). The research model includes the exogenous (i.e., Taking Responsible Risks, Thinking Flexibility, thinking about thinking, Persistence, Strive for Accuracy) and endogenous variables (i.e., Creative Environment, Creative Self-efficacy, and Creative Personality),

Sample

Data were collected by 55-item digital countrywide survey questionnaire employed to a random sample of 200 (49% female and 51% male) from different public schools in Kuwait City. Among these, 65 were from tenth grade, 60 were from eleventh grade, and 75 were from twelve grade.

Measures

The questionnaire includes four scales, namely: Creative self-efficacy scale (CRSELF), Person–Environment Fit Scale (PEFSC), and five subscales of habits of mind scale. Creative self-efficacy (CRSELF) (Karwowski et al., 2018) includes six statements measured on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

Person–Environment Fit Scale (Sen, Acar, & Cetinkaya, 2014) (PEFSC) was used to measure creative personality (CRPER: 7 statements) and creative environment CRINV: 7 statements). Each of the statements of PEFSC subscales was measured on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

Habits of mind subscales (Al-Garrah et al., 2017), namely: Taking Responsible Risks (TRR) (5 items), Thinking Flexibility (TFL) (5 items), Thinking about Thinking (TAT) (5 items), Persistence (PERSIS) (5 items), Strive for Accuracy (SFA) (5 items), were used to

measure student's habits of mind. Each of the statements of the five subscales was measured on a 5-point Likert scale (1 = never, 5 = always).

Confirmatory factor analysis (*CFA*) was conducted to confirm the one-factor model of Creative self-efficacy scale. Results confirmed a one-factor model of Creative self-efficacy scale [i.e., *CMIN/df=2.137, p=.080*; comparative fit index (*CFI)* = .957, Adjusted Goodness of Fit (*AGFI*) = .952, Goodness of Fit Index (*GFI*) = .962; Tucker-Lewis Index (*TLI*) = .961, Normed Fit Index (NFI)= .952, root mean square error of approximation (*RMSEA*) = .048].

Confirmatory factor analysis (*CFA*) was performed to confirm the one-factor model of Creative personality scale. Results confirmed a one-factor model of Creative personaliry scale [i.e., *CMIN/df=2.392, p=.061; CFI* = .953, *AGFI* = .952, *GFI* = .957; *TLI* = .951, NFI) = .982, and *RMSEA* = .055].

Confirmatory factor analysis (*CFA*) was performed to confirm the one-factor model of Creative environment Scale. Results confirmed a one-factor model of Creative environment scale [i.e., *CMIN/df=1.267, p=.064; CFI* = .953, *AGFI*= .952, *GFI* = .954; *TLI*= .954, *NFI* = .952, and *RMSEA* = .049].

Confirmatory factor analysis (*CFA*) was performed to confirm the one-factor model of Thinking Flexibility subscale. Results confirmed a one-factor model of Taking Responsible Risks subscale [i.e., *CMIN/df=1.467, p=.074; CFI* = .959, *AGFI*= .962, *GFI* = .964; *TLI*= .951, *NFI* = .951, and *RMSEA* = .069].

Confirmatory factor analysis (*CFA*) was performed to confirm the one-factor model of Thinking Flexibility subscale. Results confirmed a one-factor model of Thinking Flexibility subscale [i.e., *CMIN/df=2.467, p=.062; CFI* = .949, *AGFI*= .952, *GFI* = .961; *TLI*= .952, *NFI* = .931, and *RMSEA* = .059].

Confirmatory factor analysis (*CFA*) was performed to confirm the one-factor model of Thinking about Thinking subscale. Results confirmed a one-factor model of Thinking about Thinking subscale [i.e., *CMIN/df=1.967, p=.032; CFI* = .929, *AGFI*= .962, *GFI* = .951; *TLI*= .942, *NFI* = .942, and *RMSEA* = .049].

Confirmatory factor analysis (*CFA*) was performed to confirm the one-factor model of Persistence subscale. Results confirmed a one-factor model of Persistence subscale [i.e., *CMIN/df=1.793, p=.044; CFI* = .959, *AGFI*= .942, *GFI* = .921; *TLI*= .912, *NFI* = .922, and *RMSEA* = .037].

Confirmatory factor analysis (*CFA*) was performed to confirm the one-factor model of Strive for Accuracy subscale. Results confirmed a one-factor model of Strive for Accuracy subscale [i.e., *CMIN/df=2.109, p=.058; CFI* = .923, *AGFI*= .932, *GFI* = .911; *TLI*= .925, *NFI* = .942, and *RMSEA* = .053].

The Cronbach Alph coefficient for TRR, TFL, TAT, PERSIS, SFA, CRPER, CRINV, and CRSELF scales were, .82, .89, .79, 87, .88, .80, .88, and .83, respectively, and all above the threshold value of .90 (Cronbach, 1953).

Results

Preliminary analyses were performed to check the assumptions of multivariate normality and univariate normality. As shown in Table 1, the absolute values of skewness values were less than one and there were no kurtosis values greater than 3, suggesting no severe deviations from normality (Leach et al., 2011; Kline, 2015) Since the Mardia's coefficient value is lower than the critical value (5.729), it is mean that the data is in the normal multivariate categorical (Mardia, 1974). However, bootstrapping analysis has been conducted for data processing. Furthermore, the measurement model was examined in terms of reliability and validity (convergent and discriminant validity).

The hypothesized models were tested by means of AMOS-22. The assessments of the structural models are based on the p-value for the $\chi 2$-statistic, comparative-fit index (CFI), root

mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), and Tucker–Lewis index (TLI). The standard criteria ($p > 0.05$; RMSEA < 0.06, SRMR < 0.08, CFI > 0.95, and TLI > 0.95) were used for good fit (Kline, 2015).

Table 1
Summary of Descriptive Statistics

Variable	Mean	Std. Deviation	Skewness	Kurtosis
CRSELF	3.817	1.089	-.828	-.762
CRINV	3.682	1.030	-.074	-.310
CRPER	3.768	1.097	-.851	-.501
PERSIS	3.671	.990	.771	.990
SFA	3.619	1.135	-.585	-.223
TRR	4.081	1.125	-.962	-.295
TFL	3.802	.779	.082	-.539
TAT	3.706	.841	-.895	-.612

Table 2 illustrates the correlation matrix for the eight variables included in the model. Results of the correlation examination illustrated that Taking Responsible Risks (TRR), Thinking Flexibility (TFL), Thinking about Thinking (TAT), Persistence (PERSIS), Strive for Accuracy (SFA), Creative Self-efficacy (CRSELF), and Creative Environment (CRINV) were positively and significantly related to Creative Personality (CRPER) ($p < 0.01$). In another words, the increase in the seventh variables led to the increase in creative personality. Table 2 shows that the distribution of data of the eight variables approached to normal (Leach et al., 2011). Furthermore, students exhibited high levels of Taking Responsible Risks (TRR), Thinking Flexibility (TFL), Thinking about Thinking (TAT), Persistence (PERSIS), Strive for Accuracy (SFA), Creative Self-efficacy (CRSELF), Creative Environment (CRINV), and Creative Personality.

Table 2
Correlation Matrix Among The Research Variables

Variable	TRR	SFA	TAT	TFL	PERSIS	CRINV	CRSELF
TRR	1						
SFA	.440**	1					
TAT	.223**	.221**	1				
TFL	.024	.577**	.465**	1			
PERSIS	.539**	.406**	.215**	.079	1		
CRINV	.556**	.508**	.267**	.266**	.596**	1	
CRSELF	.645**	.352**	.286**	.222**	.570**	.592**	1
CRPER	.366**	.627**	.287**	.188**	.543**	.574**	.442**

The measurement model has been run including Taking Responsible Risks (TRR), Thinking Flexibility (TFL), Thinking about Thinking (TAT), Persistence (PERSIS), Strive for Accuracy (SFA), Creative Self-efficacy (CRSELF), Creative Environment (CRINV), and Creative Personality. The model indicates absolute model fit, CMIN/df=2.760, which is below the threshold value (3.0; $p > 0.05$) (Kline, 2005). Other fit indices, AGFI= .948, *TLI*=.971, *CFI* = .955, GFI=.963, are all above the threshold value of .90. Furthermore, the *RMSEA* of 0.039

is lower than the threshold value (.06). Based on this finding, it can be stated that our data is a good fit for the structural model. Figure 1 depicts the final structure model of the present study.

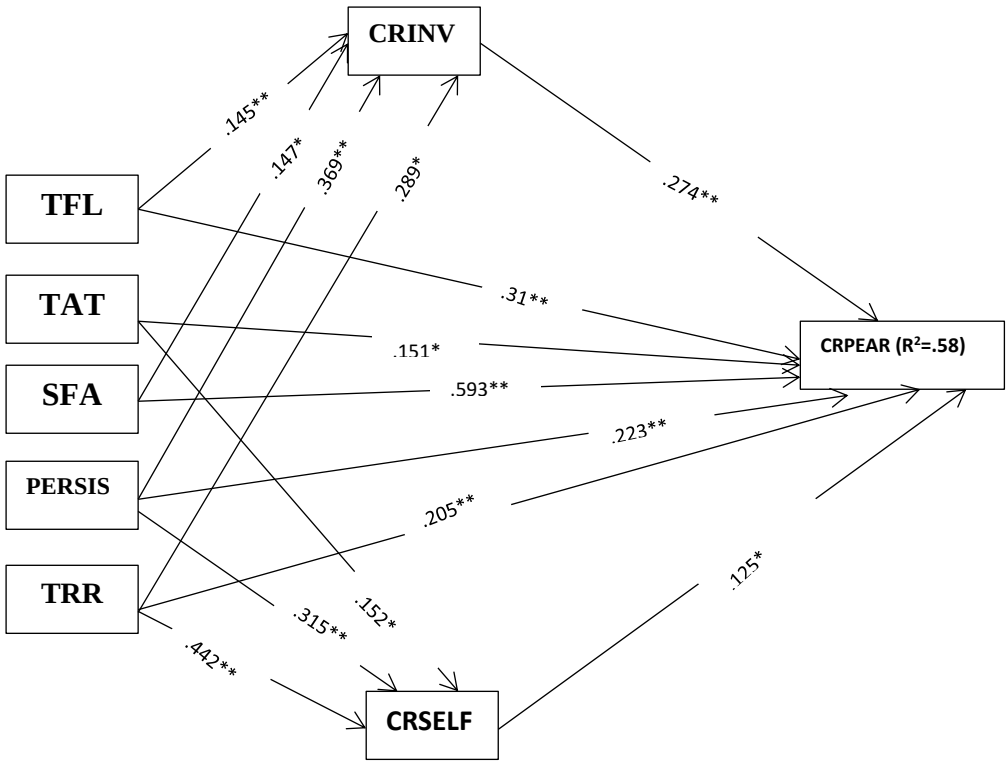

Figure 1. Final Structural Model

Path Analysis

The significance of path coefficients values (Beta values) using *t*-values were examined. As shown in table 3, taking responsible risks has significant direct effects on creative personality (β =.205, t = 2.983, P < 0.01), creative self-efficacy (β = .442, t = 7.451, P < 0.01), and creative environment (β = .289, t = 4.533, P < 0.01). Thinking about thinking (Metacognition) has significant direct effects on creative personality (β = .151, t = 2.784, P < 0.01) and creative self-efficacy (β =.152, t = 3.016, P < 0.01). Persistence has significant direct effects on creative personality (β = .223, t = 3.514, P < 0.01), creative self-efficacy (β =.315, t = 5.415, P < 0.01), and creative environment (β = .369, t = 6.081, P < 0.01). Strive for accuracy has significant direct effects on creative personality (β = .593, t = 8.753, P < 0.01) and creative environment (β = .147, t = 2.007, P < 0.05). Thinking flexibility has significant direct effects on creative personality (β =.310, t = 4.409, P < 0.01) and creative environment (β = .145, t = 2.262, P < 0.05). Furthermore, creative self-efficacy has significant direct effect on creative personality (β = .125, t = 1.967, P < 0.05). It was found that creative environment has significant direct effects on creative personality (β = .274, t = 4.305, P < 0.01). Based on these results, the hypotheses H_1, H_2, H_3, H_4, and H_5 were rejected.

The exogenous variables (i.e., TRR, TFL, TAT, SFA, and PERSIS) account for 49% (moderate effect) of creative environment variance and 51% (moderate effect) of creative self-efficacy variance. Lastly, it was observed that TRR, TFL, TAT, SFA, PERSIS, CRINV, and CRSELF account for 58% (moderate effect) of creative personality variance.

Table 1
Path Analysis (Estimate, t-values, and Beta)

Path			Estimate	S.E.	Beta	t-values	P
TRR	---->	CRSELF	.442	.059	.442	7.451	***
PERSIS	---->	CRINV	.335	.055	.369	6.081	***
SFA	---->	CRINV	.180	.090	.147	2.007	.045
TFL	---->	CRINV	.133	.059	.145	2.262	.024
TRR	---->	CRINV	.273	.060	.289	4.533	***
TAT	---->	CRSELF	.212	.070	.152	3.016	.003
PERSIS	---->	CRSELF	.302	.056	.315	5.415	***
TRR	---->	CRPER	.205	.069	.205	2.983	.003
TAT	---->	CRPER	.211	.076	.151	2.784	.005
PERSIS	---->	CRPER	.215	.061	.223	3.514	***
SFA	---->	CRPER	.769	.088	.593	8.753	***
CRSELF	---->	CRPER	.125	.065	.125	1.967	.048
CRINV	---->	CRPER	.290	.067	.274	4.305	***
TFL	---->	CRPER	.301	.061	.310	-4.909	***

Mediation Effect

Corrected bootstrap and corrected error method analysis was conducted (Preacher & Hayes, 2008) to investigate the indirect effect of habits of mind on creative personality via creative environment (table 4). Results revealed that creative environment plays a complete mediation effect on the relation between TRR and CRPER (β = .314, t = 4.751, P < 0.01) and on the relation between TFL and CRPER (β = .130, t = 2.239, P < 0.01). Furthermore, environment creativity plays a partial mediation effect on the relation between SFA and CRPER (β = .175, t = 2.608, P < 0.01) and on the relation between PERSIS and CRPER (β = .231, t = 4.057, P < 0.01). Whereas, no mediation effect of creative environment on the relation between: TAT and CRPER (β =.101, t = 1.398, P > 0.05). Based on these results, the hypotheses H_6, H_7, H_9, and H_{10} were rejected, whereas, the hypothesis H_8 was supported.

Table 2
The Mediation Effect of Creative Environment on the Relation Between Habits of Mind and Creative Personality

Path		Indirect effect	S. E	t-value	Bootstrapping		Decision
					95% LL	95% UL	
TRR	⟶CRPER	.314	.066	4.751	.184	.443	Complete Mediation
TFL	⟶CRPER	.130	.067	2.239	.019	.281	Complete Mediation
TAT	⟶CRPER	.101	.099	1.398	-.229	.055	No mediation

SFA	⟶CRPER	.175	.067	2.608	.043	.306	Partial Mediation
PERSIS	⟶CRPER	.231	.057	4.057	.120	.343	Partial Mediation

Table 5 shows that creative self-efficacy plays a complete mediation effect on the relation between TRR and CRPER (β = .288, t = 3.450, P < 0.01). Furthermore, creative self-efficacy plays a partial mediation effect on the relation between PERSIS and CRPER (β = -.112, t = 1.995, P < 0.01). Whereas, no mediation effect of creative self-efficacy on the relation between: TAT and CRPER (β =.137, t = 1.398, P > 0.05), TFL and CRPER (β =.101, t = 1.388, P > 0.05), and SFA and CRPER (β =.089, t = 1.295, P > 0.05). Based on these results, the hypotheses H_{11} and H_{13} were rejected, whereas, the hypotheses H_{12}, H_{14}, and H_{15} were supported.

Table 5
The Mediation Effect of Creative Self-efficacy on the Relation Between Habits of Mind and Creative Personality

	Path	Indirect effect	S. E	t-value	Bootstrapping		Decision
					95% LL	95% UL	
TRR	⟶CRPER	.288	.066	3.450	.098	.357	Complete Mediation
TAT	⟶CRPER	.137	.098	1.398	-.329	.055	No mediation
TFL	⟶CRPER	.101	.099	1.388	-.229	.067	No mediation
SFA	⟶CRPER	.089	.089	1.295	-.119	.025	No mediation
PERSIS	⟶CRPER	.112	.056	1.995	.002	.221	Partial Mediation

Discussion

The Pearson Product Moment correlation coefficients revealed that taking responsible risks, thinking flexibility, thinking about thinking (Metacognition), persistence, strive for accuracy, creative self-efficacy, and creative environment were positively and significantly related to creative personality. Furthermore, results revealed that taking responsible risks, thinking flexibility, thinking about thinking (Metacognition), persistence, strive for accuracy had shown positive contribution (significant direct effect) on creative personality. These results could be attributed to the situation that schools in Kuwait provide students with more enrichment and extracurricular activities, which assist them to use knowledge, information, skills, and self-regulated learning strategies and the enhancement of higher order thinking. There are factors affecting the extent to which students acquire habits of mind, such as the curriculum, the educational environment, the scheduled skills, the evaluation process used, and thus work to develop the creative personality. According to Amabile (1988), creative performance will be easily achieved when an individual possesses the knowledge, information, and skills that support creative personality. Furthermore, students reported that they: (1) persevering in a task through to completion (not giving up), (2) considering options and changing perspectives, (3) being aware of their thoughts, feelings and actions and their effect on others, (4) setting high standards and finding ways for improvement, and (5) Living on the edge of efficiency. According to Lucas (2015), taking responsible risks, thinking flexibility, thinking about thinking (Metacognition), persistence, strive for accuracy are considered creative habits of mind. Moreover, Marzano (1992) defined habits of mind according to three basic components: self-regulation, creative thinking, and critical thinking.

Habits of mind push the student to creativity, by expressing his thoughts, asking questions, and what is related to aspects of his life, and when teaching is done through habits of mind, attention is not based on the multiplicity of correct answers that the student presents, but how the student behaves when he does not know the answer, This is through the student's ability to produce knowledge more than retrieve and remember it (Costa & Garmston, 1998). Likewise, the habit of the mind is a skill that can be practiced until it reaches the stage of habit, and it is also an organized and systematic thinking that includes mechanisms and strategies related to a goal that was consciously planned, and that this habit leads intelligence in a specific direction and the use of its capabilities, capabilities, assets and software to reach a goal. Each mental habit requires looking at old ideas with new vision and creativity, proposing many alternatives to solutions when solving a problem (Costa & Kallick, 2009). Habits of Mind have emerged as a relatively innovation in learning and education and have gained prominence in the educational learning process. The importance of mind habits is to apply them to lifelong learning such as reciprocal thinking, the pursuit of accuracy, openness to continuous learning, communicating clearly and precisely, and taking responsible risks. As such, habits of mind have the ability to build students' learning abilities, which are necessary if learners are to keep pace with changing aspects and cognitive explosion (Costa & Kalick, 2000).

Also, results revealed that creative self-efficacy positively related to creative personality. This result supported the results of several studies (e.g., Haase et al., 2018; Karwowski et al., 2018; Karwowski, 2014; Jaussi et al., 2007). For instance, Haase et al (2018) found that creative personality is most strongly linked to creative self-efficacy. Also, Chuang, Shiu, and Cheng (2010) found strong relations between CSE and creativity. Therefore, individuals with high creative self-efficacy can perform specific tasks confidently and successfully and attain creative goals in the face of challenges (Gong et al., 2009; Tierney & Farmer, 2011). Research revealed significant contributions of creative self-efficacy to creativity outcomes in education and in other contexts (Farmer & Tierney, 2017; Jaussi et al., 2007; Shin & Zhou, 2007). As such, creative self-efficacy could be considered a significant trait of creative personality.

Creative environment positively related to creative personality. The theory of compatibility between the individual and the environment (Person-Environment) was applied in the study of creativity (Livingstone et al., 1997), as none of the personal or environmental factors can independently reveal the full picture of creativity. For example, when new ideas encounter resistance from the environment, individuals may abandon these new ideas to maintain good relationships (Coelho et al., 2011), and creativity can be well understood when considering personal factors, environmental factors, and their interactions, so high compatibility between the individual and the environment will generate high creativity from the individual (Tierney et al., 1999). The association between individuals and their environments is also associated with high levels of product novelty (Puccio et al., 2000). The highly significant correlation between creative personality and creative personality is consistent with previous theoretical accounts (Amabile, 1988; Csikszentmihalyi, 1998; Runco, 2007) that underscored the importance of the interaction between person and environment for creative performance. The Treffinger model (1988) suggests that creative productivity is the dynamic interaction of four factors: the personal characteristics of people, the processes they perform (such as strategies and techniques for problem-solving and decision-making), the specific context with cultural and climatic factors (such as: physical environment characteristics, situational factors, and communication Collaboration), and final results (e.g. products and ideas).

Hamlin & Sawyer (2007) emphasized that the work environment affects almost certainly the creativity of individuals and groups, and recent research on the impact of the work environment on creativity indicates some elements of the work environment that can stimulate the creative personality, among these factors is providing support for collective work that

requires sharing and discussion of ideas, and the presence of difficult and complex tasks that require the process of creative problem solving (Meusburger, 2009).

On a more specific note, this study also tested whether habits of mind affect creative personality via self-efficacy. It was observed that creative self-efficacy had a partial mediation effect on the relation between persistence and creative personality and a complete mediation effect on the relation between taking responsible risks and creative personality. This result could be attributed to the fact that, students with high creative self-efficacy are more likely to persistent and inclined to take responsible risks, which in turn, will increase the level of creative personality. Surprisingly, this study did not confirm the mediating effect of creative self-efficacy on the relation between three habits of mind (i.e., thinking flexibility, thinking about thinking (Metacognition), and strive for accuracy) and creative personality. As such, further studies are needed to investigate the indirect effect of creative self-efficacy on the relation between three habits of mind (i.e., thinking flexibility, thinking about thinking (Metacognition), and strive for accuracy) and creative personality.

With respect to the mediation effect of creative environment on habits of mind-creative personality linkage, results revealed that creative environment had a complete mediation effect on the relation between four habits of mind (i.e., taking responsible risks, thinking flexibility, Metacognition, persistence, and strive for accuracy) and creative personality. This result could be attributed to the fact that, the availability of creative environment are more likely to acquire habits of mind (i.e., taking responsible risks, thinking flexibility, Metacognition, persistence, and strive for accuracy, which in turn, will increase the level of creative personality. Surprisingly, this study did not confirm the mediating effect of creative environment on the relation between metacognition and creative personality. As such, further studies are needed to investigate the indirect effect of creative environment on the relation between metacognition and creative personality.

Puccio & Cabra (2010, p 149) provide a model for organizational innovation, and they emphasize that "innovation comes as a result of the interaction between people, the processes in which they participate, and the environment in which they operate." The social environment of the creative institution (e.g., the school) is characterized by freedom and independence with regard to choosing tasks, encouraging ideas, a non-threatening environment, sufficient time to generate ideas, clearly defined goals, common interest in excellence, allowing risks, the opportunity to make mistakes, and appropriate feedback and recognition, Expectation and support for attempts to present new ideas. These factors play a crucial role in the creative school climate as well. Also, organizational creativity includes four broad areas: (1) mutual trust, support for ideas, and open relationships; (2) challenge and motivate, and commit to the organization's goals and operations; (3) Freedom to search for information and show initiative; (4) Plurality of perspectives, knowledge, experience, and exchange of opinions and ideas (Ekvall, 1996).

Conclusion

The results of this study provided evidence that taking responsible risks, thinking flexibility, thinking about thinking (Metacognition), persistence, strive for accuracy, creative self-efficacy, and creative environment were significant predictors of creative personality. The present study provides new insight in the relationship between habits of mind and creative personality. Specifically, this study explained this relationship by demonstrating that habits of mind were related to creative personality through teaching creative environment and creative self-efficacy. Hence, creative environment and creative self-efficacy can be considered partially as mediators of a relationship between habits of mind and creative personality. The findings of this study provide support that part of the habits of mind and creative personality association is mediated by creative environment and creative self-efficacy. Therefore, one may assume that an

improvement of creative environment and creative self-efficacy might contribute significantly to the enhancement of creative personality. However, the finding was unclear, so, further studied are needed for better understanding of the mediation effect of creative environment and creative self-efficacy on the relation between habits of mind and creative personality.

The findings of the present study may provide directions for school principals, and policy makers who recognize reverberation in the context, issue, and findings that are portrayed in this study. In the present study, a model of the factors contributed to creative self-efficacy has been developed for better understanding of habits of mind-creative personality linkage. In other words, the main contribution of this research is that it has highlighted the factors affecting creative personality. This study provided an empirical research that investigated the direct as well as indirect effect of these parameters on creative personality. No data was available from developing countries (e.g. the state of Kuwait) with respect to habits of mind-creative personality linkage. Moreover, no one had studied the combined effect of these parameters (habits of mind, creative self-efficacy, and creative environment) on creative personality. The results of our study add several important theoretical contributions to the existing knowledge about habits of mind-creative personality linkage. Our findings support the results of previous empirical studies that showed an important relationship between habits of mind and creative personality. Furthermore, the current study opens the door for researchers to conduct more research related to student's habits of mind to deepen understanding of habits of mind-creative personality.

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