# Latest research on creativity curriculum design

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## Abstract

Curriculum designers and policymakers propose to integrate creativity into the course content and instructional strategies. This literature review summarizes fifteen relevant scholarly articles that summarize practical elements and techniques in creative curriculum design. The main categories of reports integrate and analyze findings, inspire experimental studies, and cross-disciplinary teaching experiences. This literature review will identify the right teaching philosophy and teaching behaviors for teachers to reflect on their teaching ideas and behaviors. The long-term goal of this literature review is to provide teachers and curriculum designers with thoughts and references for reforming curriculum content and instructional strategies.

**Keywords***:* creative curriculum, teaching behaviors, instructional strategies, course design.

## The introduction

My action research will focus on the application of creativity curriculum education. It will summarize the characteristics, advantages, and techniques of creativity curriculum design that have been practiced in recent years. For this research, I hope that educators and policymakers will be aware of the positive effects of designing creativity programs to improve teaching and learning quality and inspire them to create and develop creative curriculum. In addition, the value of this article is to help raise awareness of creativity in teaching and learning, improve biased perceptions, and inspire more educators to engage in creative curriculum design.

To better understand the purpose and value of the study, we need first to clarify the definition and significance. Creativity is the ability to create something new or generate new ideas, sometimes requiring careful preparation and sometimes without the influence of a specific environment (Csikszentmihalyi, 1997). Students will learn by stimulating potential abilities and maintaining motivation by developing strategies for creativity and inspiration in creative courses. In addition, the creative curriculum is different from the traditional curriculum in that it is designed to focus more on the learning needs and competencies of the students. Two reasons that support the importance of the study are the positive impact of creativity and the inadequacy of the educational field in fostering creativity. According to Kaplan (2019), the crisis of creative thinking, manifested by the decline in students' creative thinking scores, emphasizes the importance of creativity for intellectual development. As a fundamental talent development goal and skill, creativity assists in mental development, such as thinking and logic. High-quality educational innovations allow learners to learn more in less time and can improve learning ability. Another reason is that teaching creativity can help students improve their problem-solving skills, respond to changes in the world, and identify and solve problems effectively (Seechaliao, 2017). Throughout these two influences, the importance of creativity assists education design highlighted in this study is supported.

This study’s theoretical and methodological approaches will combine theoretical and methodological approaches because the concept of creativity is developed from theory. Many creative foster assist scholars conclude by designing practical actions in the curriculum. The content of creativity curriculum design is also based on creativity theory. Besides, a large body of literature that will be cited in the article conceptualizes creativity education specifically. For example, in Kaplan's (2019) study, creativity education is reflected in an open and flexible curriculum style. Through the content design of the curriculum, the researcher can take further action to assess the effectiveness and applicability for improving the quality of education.

For the framework and fundamental concepts of the article, I will synthesize the perceptions of creativity education in all the articles, including the reasons, advantages, and implications, and synthesize advanced and effective creative curriculum design elements. In more detail, I would like to examine how educators can use the important aspects mentioned in this study to design and implement creativity education. I will review and categorize the highlights of creativity curriculum design to inspire educators with general ideas for incorporating creativity-related knowledge or skills into their teaching. The framework consists of an introduction, justification, review of studies, and conclusion. The key concepts include elements, implications, and applications of the creative curriculum with practical values.

## The justification

The search procedure used in the study to locate relevant literature had three steps. In the first point, based on the definition of the research question, I expanded the 15 scholarly articles associated with the question. Creativity curriculum's potential value is to improve the quality of teaching and develop students' talents to help cope with advanced and more specialized learning and growth. I took the research question further to narrow down the study for the focus and qualities of an effective creative curriculum. In other words, when educators are designing a curriculum, they should be aware of what elements or content to add to make it most valuable and meaningful as a creative curriculum. The second point is limited to empirical studies from the last five years because this study will need to explore the elements of the creative curriculum that have practical value. The design of the curriculum is constantly being updated as education is reformed and progresses through the ages. Therefore, I have limited the relevant articles to provide the creative curriculum, background, and teaching needs appropriate for today's education. The third point is for the choice of teaching areas. The creative curriculum is not limited to a specific discipline; every discipline can design a creative curriculum to provide teaching content. Moreover, the rationale for a creative curriculum is fostering and stimulating students' creativity and applying it to multiple areas of study.

The importance of the issues examined in this literature review is considerable and valuable for instructional design. First, instruction and curriculum design are central to teaching and learning between educators and learners, and their content articulation can help both achieve their goals and competencies. Moreover, the need for this study also aims to address issues such as the perception by some teachers that creativity is innate and cannot be acquired through acquired learning, the lack of a model for teaching creativity, and Soh (2017) further states that schools should develop the talents that society needs. With the increased demand for creative people in the capital market in the community, it is the responsibility of schools to produce creative students. It follows that students need to acquire creativity in school, which means that the curriculum content should be set up to foster their creativity. Therefore, creative courses can be both a necessity for personal development and demand of this educational era.

This literature review will cover 15 scholarly articles on creativity education, creative curriculum, and teachers' pedagogical practices. It will synthesize and compare them to summarize the critical elements and contents of designing creative curricula. The 15 articles are based on theoretical and practical research on the cultivation of creativity in current classrooms of different disciplines. The main elements relate to the integration of creativity into practices that foster learners and learning environments (Kaplan, 2019; Beghetto, 2016a, 2016b), pedagogical strategies that support innovative education (Seechalio, 2017), creativity-fostering behaviors in the classroom, and teachers' concepts and behaviors of creativity (Apak et al., 2021; Cayirdag, 2017; Cremin, 2017; Perry & Karpova, 2017; Soh,2017), STEM learning models (Sirajudin et al., 2021), educational environments that foster learners' creativity (McDonald et al., 2020), the relationship and changes between creativity and learning inside and outside the classroom (Gajda, 2016; Gajda et al., 2017; Runco, 2016; Runco et al., 2017). By synthesizing and parsing the creative teaching approaches, models, or theories adopted in each article, the value and essential properties of the research are demonstrated under practical experience.

## The review of individual studies

**The integration of creativity into practices that foster learners and learning environments**

According to Kaplan (2019) & Beghetto (2016a, 2016b), the influence of the environment, both the internal psychological background and the outer physical environment, shapes the processes and outputs of creativity integration and curriculum design. The elements and characteristics of the creative curriculum in their study mainly stimulate the senses, including visual and auditory, emotions and emotional support, acquired knowledge and past experiences, emphasis on students' independence and autonomy, communication, and feedback. Creative activities related to graphics include color, shape and can help students use their imagination and insight. Past skills and knowledge-based learning can provide students with progressive learning experiences and reflection. Emotional and emotional care and support can help students reduce stress in creative education. The importance of communications is reflected in students' exposure to new and different perspectives in creative learning and the opportunity to share ideas and reflect on themselves.

The strengths of these two studies are the content design of the creative curriculum with practical advances and the consideration of the interaction between the individual and the environment. Therefore, for my research question, the value of these two articles is in helping me to think about and be aware of the multiple perspectives and factors that contribute to the design of a creative curriculum. As an example, standard curriculum design rarely considers providing emotional support. However, these two articles have enlightened me about the impact of emotion and mood on creative learning. They do not suggest how to integrate elements of this creative curriculum into professional knowledge. For example, there is no mention of when visualizing creative graphic activities applies to specific or general discipline. In other words, there is no discussion of whether it is domain-general or domain-specific—discussed in detail. In general, the focus of my research is similar and related to the focus of the above two papers. We both focus on the elements and styles of creative curriculum as the primary goal of exploration and designing curriculum. At the same time, I am aware that neither article focuses on whether the characteristics of a creative curriculum apply to all disciplines of learning or specific fields. This question deserves careful consideration and analysis in my subsequent research.

## Pedagogical strategies that support creative education

Strategies for creative curriculum and innovation education should focus on a systems approach, usually for design-based learning, problem-solving, etc. (Seechalio, 2017). The standard processes that these pedagogical strategies have been defining the problem, the solution, testing, and assessment. When students learn through the steps of these processes, they make significant progress in thinking about new ideas and divergent thinking. The focus of this study differs from mine in that Seechalio (2017) explores strategies for teaching and learning rather than curriculum design. Still, I believe the necessary value is that instructional strategies and curriculum design are mutually reinforcing. In other words, instructional strategies conduct instruction, achieve instructional goals, deliver content, and provide another perspective on what can be referenced when teaching curriculum design. When teachers have mastered specific teaching techniques, they can design them to support instruction in their courses. I am inspired by the fact that instructional strategies are usually centered around learners, learning objectives, content, instructional environment, and skills. That is, different

educators will have different teaching techniques. Thus, the field characteristics and strengths of the educator should be what distinguishes them from others in creative curriculum design. When unique and creative instructional strategies emerge, educators need to become more familiar and comfortable with their teaching style to continue to innovate. However, at the same time, this article is limited by the fact that some techniques do not work for everyone because the characteristics cannot be unified because of the differences in individual teaching skills. It also inspired me to focus on the teacher's original teaching style and promote individualization rather than uniformity.

## Teachers' creativity-fostering behaviors and attitudes

Teachers' ability to model interaction and creativity in the classroom positively fosters students' creativity (Apak et al., 2021). Teacher training includes helping teachers understand creativity in education and develop an awareness of their imagination (Cayirdag, 2017), teachers' role in facilitating students' interaction, autonomy, emotional support, and understanding and perceptions of risk-taking (Cremin, 2017), teachers' development of beliefs about students' risk-taking, creative thinking and abilities (Perry & Karpova, 2017), the methods of developing students' creativity include social modeling, reinforcement, and classroom ecology (Soh, 2017). Social modeling refers to students imitating the behavior of teachers or influential students, or public figures to gain a sense of spiritual belonging and security. On the other hand, reinforcement is the ability of teachers to identify and reinforce students' creative behaviors such as divergent thinking. Classroom ecology refers to the idea that teachers should provide and create social environments that immerse students in promoting creativity. Due to the role modeling effect of teachers in fostering creativity in the classroom, instructional design should cover the radical transformation of the school into an active learning community that builds an open environment of trust and emotional connection. Teachers are not only designers but also facilitators in the creative curriculum.

These studies focus on the positive effects of teachers' creativity beliefs, competencies, and behavioral styles on fostering students' creativity. In contrast to the focus of my research questions, these studies point to the need for teachers to focus on their creativity development by emphasizing the importance of the teacher's role in teaching. In addition, the value of these studies is that they highlight the demands of changing times on teachers' competencies. In other words, the need for creativity in these times means that teachers need to update their ideas and perceptions of creativity when considering curriculum design. The study’s limitations are also reflected in the fact that creative teachers are uncommon and the limits of traditional teaching aim at convergence rather than divergence. In other words, teachers' universal teaching primary goal is to impart the content prescribed by the learning curriculum, so they may also avoid exceeding traditionally imposed boundaries when teaching creatively (Soh, 2017).

## STEM learning models

According to Sirajudin et al. ( 2021), the value of this study is to describe the effectiveness of STEM learning models in improving students' creative thinking skills. It is reflected in the development of creative thinking skills and logic, the enhancement of innovation and productivity, the development of cooperation and communication in problem-solving, and the use of technology.

The strength of the research article is demonstrated by showing how students' creativity is fostered in specific STEM learning areas. However, students' creative behaviors can vary due to differences in their initial proficiency levels in STEM disciplines. This aspect of the study's limitations also provided me with just the right amount of reflection on my research questions. When designing creative curricula, individualization and respect for differences should be taken into account, especially in the assessment component, where appropriate and varied assessment tests are used to monitor the progress of different students.

## Educational environments that foster learners' creativity

According to McDonald et al. (2020), in environments that foster learners' creativity, educational designers should focus on designing systems and spaces that foster creativity through encouraging instruction to promote overall creative development. At the same time, teachers' already accumulated teaching experiences should not be discarded but continuously reflected and improved in the use of existing practices. The reference value of this study is the emphasis on the influence of the environment on designing an effective creative curriculum. However, it is also limited by the demands and focus on the environment, resulting in complex and challenging instructional designs that include curriculum content, teaching techniques, and environment.

## The relationship and changes between creativity inside and outside the classroom

Creative learning changes with changes in and across the classroom environment. When students are learning environments full of encouragement and emotional support, they will face creative learning with more confidence (Gajda, 2016; Gajda et al., 2017). The differences in creativity exhibited by students in school and outdoors may also be due to students' social preferences, creative attitudes and values, and creative personality traits (Runco, 2016; Runco et al., 2017). These studies focused on exploring changes in creativity in the classroom versus outside of the school. In contrast to my research questions, these studies exemplify the importance of the environment in shaping creativity and imply the need for teachers to strengthen insights about the climate in designing creative lessons. For example, when students demonstrate more creativity outdoors, teachers should intentionally add outdoor elements to the classroom environment, such as greenery, light, and smells. But, because environmental change factors are so complex and varied, teachers should be familiar with the situation and focus on this challenge in their design lessons to ensure solutions to address it.

## Summary and Reflection

This literature review has given the precious value of influencing and inspiring curriculum design changes and the actual content. First, incorporating the concept of creativity in learners' learning environment, such as allowing them to learn independently. Secondly, practical adopt corresponding teaching strategies such as encouraging divergent thinking. Moreover, design the curriculum to explicitly regulate teachers' creativity development behaviors and creative concepts and behaviors in the classroom. The last point is to explore the

relationship and changes between creativity and classroom learning. Teachers should take the timely assessment and incorporate input to improve curriculum design.

**Cross-study information or conclusions**

| **Creative curriculum design elements and features** | **Brief description** | **Advantage and Challenge** | **Recommendation for further research** |
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| Sensory stimulation | Visual art integration (graph, tables, charts...) Auditory music integration (analysis and creating message) | Attraction/Control and management | Effective sensory approach |
| Emotion | Recognize, understand, support Confidence and belief | Release pressure Self-expression | Multi-perspective on the formation of emotion |
| Autonomy and independence | Insight, observation, and analysis<br>Identify and solve problems<br>Creative thinking skills<br>Creative self-efficacy | Sense of security<br>Engagement and incentives<br>Take risks | Self-evaluation<br>Self-achievement |
| Communicatio n | Shared knowledge, team solutions, and consensus/ Cooperation | Motivation /Integration<br>Leadership /Openness to different voice | Peer-evaluation/ Feedback |
| Acquired knowledge and experience | The importance of mastering the essential knowledge Divergent and convergent thinking | Advanced learning/ Flexible thinking Multi-perspective /Self-reflection | Expansive and transcending ideas and action Updated with the time change |
| Environment | Improvisation and playfulness<br>Space and freedom /Open and trust<br>Classroom ecology | Material resources<br>Technology<br>Questions and opportunities | Class transformation into a more active learning community |
| Teachers' behaviors | Role model/ Class management<br>Awareness of students differences and learning needs/ Positive encouragement | Facilitate the acquisition of students' competencies to get prepared for complex work of the future. | System approach<br>Develop and refine based on a cumulative strategic approach |

**Cross-study Matrix**

ACTION RESEARCH QUESTION:

What are the practical elements and techniques in designing a creativity curriculum?

| SOURCE Author(s) and (Publication Date) | MAIN POINT (Claim) | SAMPLE SIZE | HYPOTHESES THEORIES ASSUMPTIONS | RESEARCH DESIGN | DATA COLLECTION METHOD | DATA ANALYSIS | FINDINGS AND RESULTS |
|---|---|---|---|---|---|---|---|
| Kaplan, D. E. (2019). | The study of creativity in education, specifically through the training of teachers and future teachers to apply theories of creativity in instructional design | Students enrolled in online critical thinking in teaching and learning courses<br>21 volunteers: 16 females/4 males<br>60 participants | Develop the online instructional technologies to support creativity development. | A weekly module focused on creativity and intelligence & a final project culminating group or individual work incorporating creativity theory into projects. | Focus groups<br>Observations | Descriptive analysis | Participants embedded creativity into lesson designs in a multitude of thoughtful applications. Benefits of creative integration: release stress/ simulation for special therapy/ intelligence |
| Seechaliao, T. (2017) | Instructional strategies that support creation of creative and innovative education | 11 experts in the field of instructional strategies that support innovation of education. | How to design the instructional strategies that support creation of creative and innovative education. | Three sets of interview questions designed for those specialists in their own expertise. | Interview and questionnaires | Descriptive analysis. | Instructional strategies which support the creation of creative and innovative education should focus on system approach. |

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| 03- | Apak, J., Taat, M. S., & Suki, N. M. (2021) | Assess the level of creativity nurturing behavior and teacher readiness for 21st century classroom management, to test the differences of this relationships towards teaching experience, and to examine the relationship between teachers' creativity nurturing behavior and their readiness for 21st century classroom management. | 500 secondary school teachers | H1: Teachers' creativity nurturing behavior significantly differs based on their teaching experience. H2: Teachers' readiness for 21st century classroom management significantly differs based on their teaching experience. H3: Teachers' creativity nurturing behavior significantly affects their readiness for 21st century classroom management. | Fixed response questionnaire: teaching experience/ creativity nurturing behavior and teacher readiness/ respondents' socio-demographic profiles. | Self-administered questionnaire | Exploratory factor analysis, ANOVA, and regression analysis | Teachers let students actively contributing to the lesson with interesting ideas and suggestions to cultivate their creativity/ Teachers are willing to encourage students to nurture creativity |
| | Sirajudin, N., & Suratno, J. (2021) | Describe the effectiveness of the STEM learning model in improving the creative thinking skills of students | 76 second-semester students | Positive effect of STEM education on students' creative thinking skills | Posttest-Only Design/<br><br>Students in the experimental class are taught with the STEM approach (control and experimental groups) | Quasi-experimental | SPSS (Statistical Product and Service Solution) | STEM can be recommended as an alternative and approach in learning biology, especially in improving students' creative thinking abilities. |
| | McDonald, J. K., West, R. E., Rich, P. J., & Hokanson, B. (2020). | Creativity instruction: (a) support creativity through system and space design; (b) encourage teaching in a manner that nurtures creativity; and (c) promote holistic creative development. | Samples from examples of learning environments that foster learner creativity | What can instructional designers and educational technologists do in helping to design educational environments that nurture learner creativity? | Three different learning environments | Documents and records | Descriptive analysis | Educators, policy makers, and other stakeholders' people should become more creative. |
| | Cayirdag, N. (2017) | Clarify the relationship between teaching creatively and teaching for creativity | 322 teachers (118 and 203 females) | Teachers' creative self-efficacy and teacher efficacy with an internal locus of control will be positively correlated with creativity fostering teacher behaviors | Creative Self-Efficacy Scale (CSES), the Teacher Efficacy Scale (TES) and the Creativity Fostering Teacher Index (CFTI) | Two phases | Descriptive statistics<br><br>Hierarchical regression analyses<br><br>Exploratory factor analysis | Teachers should serve as creativity role models<br><br>The importance of internal locus of control and teachers' personal creativity. |
| | Cremin T. (2017) | Students' and lecturers' conceptions of creativity, creative engagement in teaching and learning, and the nature of creative pedagogical practice | N/A | N/A | N/A | N/A | N/A | The significance of motivation, passion, and recognizing one's own creativity, and argues that increased attention urgently needs to be paid to creative teaching and learning in the academy. |

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| Soh, K. (2017) | CFTIndex serves both as an instructional and measurement tool of creativity fostering in the classroom context. | 299 respondents. | Teachers' own teaching behaviors play a critical role in fostering student creativity | CFTIndex: designed to meet the need of researchers working in this specific area of creativity. | The Creativity Fostering Teacher Behavior Scale (CFTIndex) | Factor analysis | A more practical and feasible approach is to promote creativity-fostering behaviors among teachers so that they habitually create classroom ecologies where students experience encouragement of foundational knowledge |
| Perry, A., & Karpova, E. (2017). | Evaluate the efficacy of a creative thinking course using three different assessments.<br><br>Investigate reasons for individual decreases in creativity after the training | Students enrolled in an undergraduate creative thinking course at a large land- grant Midwestern university (47) | Creative thinking =by TTCT is higher after training<br>Belief in t creative abilities is higher after training<br>Attitude toward risk-taking is higher after training t<br>TTCT: Pre-test score is negatively related to the creativity delta, the difference between post-test and pre-test score.<br>Creative abilities: pre-test score is negatively related to the belief's delta, the difference between post-test and pre-test score.<br>Attitude toward risk-taking: pre-test score is negatively related to the risk-taking delta, the difference between post-test and pre-test score. | During the first and last weeks of the semester, students completed the TTCT test and a survey during a class period. | The data was collected at the beginning and at the end of a sixteen-week semester | SPSS 20 and SAS 9.3<br><br>Descriptive statistics<br><br>Factor analysis<br><br>General linear model (GLM) | Creative thinking course was effective in increasing participant creativity measured by two different assessments: expert-assessed, using the TTCT, and self-assessed, using the belief in their own creative abilities scale |
| Gajda, A., Beghetto, R. A., & Karwowski, M. (2017) | Ways that researchers better understand the variations in creative learning in and across classrooms.<br><br>a multi-method approach that we used to explore the more dynamic features of creative learning in ten elementary classrooms | 10 elementary classrooms, 204 elementary students (107 girls and 97 boys), and 10 teachers (all females) | Three different patterns of student-faculty interaction for academic discussions in the classroom: one categorized as having an ineffective relationship, one with a negative relationship, and one with a positive relationship between creativity and academic achievement. | Four types of data-sources for this study: measures of student creativity, measures of student academic achievement, observational measures of teacher and student behavior, and audio-recorded teacher and student interactions. | Purposive sampling<br><br>Sample of classrooms and participants from a large cross-sectional dataset | Correlational analysis<br><br>Micro-level interactional analysis | It may be more important for teachers to show caring and emotional support to create creative learning environments that more directly encourage forms of creativity. |
| Gajda, A. (2016) | The relationship between creative abilities and school achievement as measured by using both standardized achievement tests and GPA in Polish primary, middle and high school students | 1106 students were examined (242 lower primary school, 155 upper primary school, 448 middle school and 261 high school students) | The moderating effect of intelligence and motivation | the study was carried out individually in the first and second grades, and in groups for grades three to six. | Focus groups Observations | multilevel regression models | Relationship differs depending on educational stage and school achievement measure. |

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| 03. | Runco, M. A., Acar, S., & Cayirdag, N. (2017). | Reason and results of creativity gap students display in school and not in school. | 254 Turkish undergraduates. | Self-Report of Creative Traits (SRCT), Where Are You Creative (WAYC), With Whom Are You Creative? (WWAYC), Runco Evaluation of Settings & Climate (RESC), Creative Attitudes & Values (A & V), and Creative Activities and Accomplishments Checklist (CAAC). | Creative potential as the hypothetical level at which an individual could demonstrate maximal creative productivity or behavior | Focus groups | CAAC subscales regression analysis | students have creative potential<br><br>there is more structure and more restrictions in school, creativity entails autonomy and independence |
| | Beghetto, R. A. (2016) | previous re- search on the relationship between learning and creativity<br><br>A new model of creative learning<br><br>Apply the model to an example of classroom learning | N/A | The hypothetical aspects pertain to the creativity-in-learning portion of the model. | N/A | N/A | N/A | The article opens with a brief discussion of previous work on learning and creativity. Next, a model of creative learning is introduced, specific assertions based on the model are discussed, and an example of how the model might be applied to classroom learning is presented. The article closes with a discussion of implications for future research on creative learning. |

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