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REVIEW

Creative thinking strategies in primary education classrooms

Estrategias de pensamiento creativo en aulas de educación primaria

Estratégias de pensamento criativo em salas de aula do ensino fundamental

Inés Varías[1]

Universidad César Vallejo, Chiclayo – Lambayeque, Perú

iD https://orcid.org/0000-0001-5378-1283

ABSTRACT. The development of creative thinking must be considered as a necessity in pedagogical practice in every educational system. The objective of this article was to present some concepts and strategies that are being developed in the classrooms. The methodology used was the experimental documentary technique. In addition, a search was done for articles of a scientific nature, published in various reliable databases. Concluding that, creative thinking is a capacity that the person must possess in the 21st century. Therefore, every student must develop it to produce innovative ideas that allow them to solve problematic situations.

RESUMEN. El desarrollo del pensamiento creativo debe ser planteado como una necesidad en la práctica pedagógica en todo sistema educativo. El objetivo de este artículo fue dar a conocer algunos conceptos y estrategias que se vienen desarrollando en las aulas. La metodología que se empleó fue la técnica documental exploratoria. Se hizo una búsqueda de artículos de carácter científico, publicados en diversas bases de datos confiables. Concluyendo que, el pensamiento creativo es una capacidad que debe poseer la persona en el siglo XXI. Todo estudiante debe desarrollarlo para producir ideas innovadoras que le permitan resolver situaciones problemáticas planteadas.

RESUMO. O desenvolvimento do pensamento criativo deve ser considerado uma necessidade na prática pedagógica em todos os sistemas educacionais. O objetivo deste artigo foi apresentar alguns conceitos e estratégias que estão sendo desenvolvidos em sala de aula. A metodologia utilizada foi a técnica documental exploratória. Procedeu-se à procura de artigos de carácter científico, publicados em várias bases de dados fiáveis. Concluindo, o pensamento criativo é uma capacidade que a pessoa deve possuir no século XXI. Cada aluno deve desenvolvê-lo para produzir ideias inovadoras que lhes permitam resolver situações problemáticas.

[1] Master's degree from the César Vallejo University. **Correspondence:** Vpalaciosi@ucvvirtual.edu.pe

1. INTRODUCTION

According to Carvalho et al. (2021) schools will have to train students to face jobs that have not yet been created, handle technologies that have not yet been invented and solve social problems that we do not yet know about.

In different countries, creative thinking is supported to innovate and break with the established paradigms, giving priority to the imagination that is the source of all human achievement. Likewise, Casillas and Sternberg (1999) consider it essential to develop creativity in the classroom, taking advantage of the times and spaces that the school has when they accept challenges to solve problems that directly affect their lives.

To meet educational challenges, 21st-century skills must be strengthened and formed by talents such as creative and critical thinking, communication, collaboration, entrepreneurship, problem-solving, and productivity. Those that allow you to contribute to society, making critical decisions in an era of globalization and innovation. Creativity is related to the characteristics of the knowledge societies of the present century and should be considered in school (Ambrose & Sternberg, 2016).

Creative thinking is a cognitive component of creativity, and it is essential to stimulate it to solve problems critically (Prieto et al., 2002). Creative thinking is a cognitive component of creativity, and it is essential to stimulate it to solve problems critically (Dogan et al., 2020).

Students are willing to take risks and are open to new experiences that allow them to solve everyday problems creatively (Van Broekhoven et al., 2020).

When facing an innovative and technological world, it is appreciated that children are increasingly immersed in digital technologies, fostering critical and creative thinking skills. Therefore, teachers must offer strategies that allow students to develop skills that promote autonomy and problem-solving originally and innovatively.

In Turkey, a study was conducted to explore the relationship between creative thinking and scientific process skills of preschool children. In that study, it was determined that there was a moderately significant relationship between creative thinking skills and scientific processes (Yildiz & Guler, 2021).

In Spain, metacognition was investigated as a means to train creative thinking. It was found that students undergoing intervention increased their initial levels of this thinking (Cachinero, 2007).

Similarly, an evaluation was made of a creativity development program at early childhood education and the first cycle of primary education. Again, we conclude that creative thinking can be developed, taking into account the pedagogical strategies to be used (Prieto et al., 2002).

In Colombia, a study was carried out that aimed to promote didactic tangram and soma cube games in students as didactic tools to develop creative thinking, based on activities where students approach mathematical concepts and ideas, allowing them to understand and solve problems in this area (Africa et al., 2020).

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In Peru, a study was carried out that aimed to evaluate how the application of playful strategies improves the development of creative thinking in students. The results found show that the application of these strategies does improve this thinking in students (Paredes, 2015).

In this context, this research aimed to review various sources of information and analyze the proposals about some concepts and strategies of creative thinking developed in primary school classrooms.

2. METHOD

In the preparation of this article, original bibliographic documents of scientific papers have been compiled in the databases of Scopus, Ebsco, Pro-Quest, Scielo, and Dialnet. The search began as of July 2021; the records obtained correspond to 70 articles; of which those documents that are related to creative thinking developed at the primary level have been selected.

The experimental documentary technique was used to extract the information and critical reading of the articles, data obtained from the information sources, and the management of the information collected.

Table 1

Universe of study and sub-axes of study

Study universe	Axes	Sub axes of study
Theoretical review of strategies for creative thinking in the classroom.	Conceptual bases of creative thinking	- Ability - Capacity. - Cognitive component - Human quality
	Benefit / importance of developing creative thinking.	- Generate processes - Systematic and divergent thinking - Autonomy and independence - It encourages creativity and innovation. - Generate ideas - Encourage innovation
	Didactic strategies for the development of creative thinking.	- Riddles - Formative game Cuatro C: create, connect, understand and build - ABP strategy - The tales - The audiovisuals - Stimulation of creative thinking - The mural

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- Metacognitive strategies
- Whirlwind of ideas
- Case studies
- The robotic

3. RESULTS

3.1. Conceptual bases of creative thinking

Through time, various investigations have been carried out that have allowed us to contrast definitions of creative thinking.

Table 2
Systematization of information on the definition of creative thinking

Author / Authors	Key Considerations
Dogan et al. (2020).	Skill that develops with the use of appropriate materials.
Parra et al. (2020).	Learning condition that involves experiences.
Medina y Rodríguez (2018).	The medium that encourages problem-solving.
Flannery et al. (2013).	The cognitive component of creativity is used to solve problems.
Carvalho et al. (2021)	Allows personal development through problem-solving.
J. Gómez et al. (2017)	Ways to solve problems for decision making.
Vallejo et al. (2020)	New ideas and original concepts to satisfy a need.
De Bono (2004)	Lateral thinking is creative thinking that can be acquired, practiced, and used by anyone.
Ргпу у Герцена (2014)	A higher form of thought integrates other ideas such as logical, divergent and convergent, visual-direct, practical, concrete, and abstract.
Logroño y Romero (2012)	Human qualities that are developed with adequate learning.
Flannery et al. (2013)	The cognitive component of human creativity.
Bolívar y Morin (2021)	The ability that allows you to have valuable and innovative thoughts.
Diaz et al. (2016)	Ability to solve problems creatively or in an innovative way.
Chaverra y Gil (2017)	A vital component that is acquired when facing various situations.
Cachinero (2007)	Particular structuring of psychological functions that allow the solution of problems in open-thinking circumstances.
Gómez (2020)	Potential that requires a favorable environment to develop.
Jenaro et al. (2019)	Set of capabilities and dispositions that generate innovative products.

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Escobar y Gómez (2006)	Brain function that integrates knowledge to obtain new ideas.
DiFonzo y Bordia (2002)	Motor creativity is the ability to express thoughts and feelings.
Romero (2005)	A social and cultural phenomenon that facilitates a creative education.
Benedek et al. (2014)	High expression of new ideas.
Puertas (2016)	An essential skill for 21st-century learning.

From the previous considerations, it can theoretically be stated that there are several conceptual bases of creative thinking. It is conceived as the ability, capacity, environment, and cognitive component to solve problems. Likewise, creative thinking is conceptualized and can be acquired, practiced, and used by anyone to face various situations.

Another perspective of researchers conceptualizes it as a potential social and cultural phenomenon that requires space to develop.

3.2. Benefits of creative thinking

When developing creative thinking, many benefits are acquired that are mentioned, considering the opinion of several authors:

Table 3

Sistematización de información sobre beneficios del pensamiento creativo

Author / Authors	Benefit
Hernández et al. (2018)	It generates processes of search and discovery of solutions.
Prada et al. (2020)	It allows children to cultivate systematic and divergent thinking.
Groyecka et al. (2020)	They encourage people to be more sensitive to others.
Mench (2006)	They achieve autonomy and independence.
Chancahuaña et al. (2020)	Encourage students to think, design, try, and participate.
Moura et al. (2021)	The most favorable conditions allow time to think and develop your ideas. Evaluate products and ideas. Consider error as a stage in the learning process. Encourage imagining constructive feedback on their performance and promote self-evaluation.
Casillas y Sternberg (1999)	Generates lots of ideas.
Cevallos (2016)	Encourage creativity and innovation.
Alzamora (2019)	Encourages generating ideas by thinking creatively.

From table 3, it can be stated that creative thinking achieves autonomy and independence in the student. It encourages creativity and innovation, generating them to produce ideas.

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Likewise, creative thinking promotes self-evaluation, makes students value their products, and considers error as a source of learning. But, on the other hand, it encourages people to be more sensitive to others.

3.3. Strategies

The strategies promote independence, responsibility, and the ability to control students' learning process (Prieto et al., 2002). In addition, learning strategies allow the student to coordinate the knowledge that she needs to fulfill an activity depending on the characteristic of the educational situation in which the action occurs (Monereo, 2008). That is why educational institutions must promote up-to-date novel strategies that allow students to achieve significant learning that encourages creativity and creative thinking.

Table 4

Systematization of information on strategies

Author / Authors	Strategies
Castro (2011)	Riddles This strategy seeks to adapt traditional riddles to a multimedia language to stimulate children's creative thinking when solving puzzles.
Albornoz (2019)	Formative game four C: create, connect, understand and build The implementation of the 4C methodological strategy seeks to enhance students' creative thinking from the knowledge of being and its relationship with the environment. This proposal allows the student to create, connect, understand and build actions that promote individual and social change (Navarrete et al., 2021).
Acuña (2016)	Problem-Based Learning Strategy (ABP) Numerous studies show satisfactory results in the development of creative thinking when applying the PBL strategy. This is based on work respecting the autonomy of the student and motivation that arouses interest.
Ramírez (2014)	In this sense, through PBL, students manage to make use of new knowledge and articulate it with previous ones to solve a problem collaboratively.
Franco and Alonso (2011)	The tales Through the story, students are taught concepts and values, amusing, beautifying the child's life, and awakening their curiosity. with levels, imagination and playful activity are stimulated by developing creative potential.
Núñez et al. (2020)	Audiovisual

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	It is a strategy that allows contact with art, thus being a powerful teaching tool to improve creativity.
Triviño and Vaquero (2020)	Audiovisual resources become an ideal setting for the child as it leads him to analyze, decipher and evaluate ideas in a motivating way that favors his creativity.
Muñoz (2010)	**Strategies to stimulate creative thinking** Consider the following strategies for stimulating creative thinking: **Humor:** Fosters an atmosphere of trust, fluency. **Games:** They create a pleasant environment to develop the creative process in students. **Creative visualization:** It allows moving the individual towards the projection of a goal by moving it towards the most intimate of his being. **Brainstorming:** Allows students to express prior knowledge on specific topics. **Mental map:** Through the graphic representation in images and the logical sequence, the coherence of the ideas. **Concept map:** It allows creating associations that will serve as a starting point to develop combined ideas and others.
Moreno (2020)	**The mural** This strategy is used to evaluate the knowledge, skills, and creative attitudes of students. Through this, the child communicates what they think, feel, and perceive in the context.
Sánchez (2002)	**Metacognitive strategies** This author conceives a proposal to stimulate creative thinking skills that include comparing, analyzing and synthesizing, until resolving problems or decision making.
Flórez et al. (2018)	This allows the control of learning progress considering the planning, monitoring, and evaluation processes.
Rodríguez et al. (2010)	**Whirlwind of ideas** The idea whirlwind proposal favors creative thinking, where groups first generate ideas and later evaluate them. It is a strategy designed to avoid the inhibiting critical attitude that so often appears informal meetings.
Echazarreta et al. (2009)	**Case studies** Another collaborative work technique using the Moodle platform.
Astupiña (2018)	**The robotic** This strategy enables the student to express his imagination by proposing prototypes to be applied in various environmental situations.

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The strategies promote autonomy, responsibility, and the ability to control the learning process of students. In addition, they allow you to select in a coordinated way the knowledge you need to fulfill an activity depending on the characteristic of the educational situation in which the action occurs. That is why the classrooms must promote updated strategies that allow students to achieve learning for their daily lives that encourage creativity and creative thinking.

4. DISCUSSION

J. Gómez et al. (2017) define creative thinking as solving problems necessary for decision-making. On the other hand, Medina and Rodríguez (2018) consider it as a means that encourages problem-solving. Despite the multiple definitions of this term, the authors agree that creative thinking can solve problems and innovatively make decisions.

According to the demands of the current world, there are new studies carried out to develop creative thinking in students. Therefore, it is evident that all the articles reviewed current creative thinking as one of the skills of the 21st century and that they are developed using various strategies, which have boosted their progress. They conclude that the development of this type of thinking takes time, but its improvement is possible. Among the methods identified we have: riddles, a whirlwind of ideas, ABP, robotics, formative game four C: create, connect, understand and build that is suggested to be applied in the classrooms (Acuña, 2016; Albornoz, 2019; Astupiña, 2018; Castro, 2011; Rodríguez et al., 2010).

After analyzing the information reviewed, several studies have been found that propose different strategies to improve creative thinking; however, some limitations lead to continuing taking it into account as a priority in the educational system with the purpose that students develop complex skills that today's society requires.
It should be considered that creative thinking is a primary ability. Therefore, it should be stimulated in schools so that students solve various situations in applying the acquired knowledge.

5. CONCLUSIONS

After conducting the search and analysis of information, it is concluded that creative thinking is vital in education because it allows generating ideas and concepts. It will enable the student to achieve autonomy and independence from it, promoting creativity and innovation to solve situations.

Developing creative thinking in the classroom represents the possibility of facing challenges in a different way, of keeping an open mind to new ways of seeing things. In the same way, promoting various strategies to develop creative thinking is achieved by developing their ideas; assessing products and ideas considering error as a stage in the learning process. Therefore, it should be stimulated in both students and teachers.

Several studies have been found that propose different strategies to improve creative thinking. However, it is still an aspect that needs to be taken as a priority in the educational system for new students to develop the complex skills that today's society requires.

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REFERENCES

Acuña, J. (2016). *Una propuesta didáctica. El dibujo como principio fundamental en el proceso creativo de las formar tridimensional y su praxis*. Universidad de Sevilla.

Africa, S., Development, S., Acyl, F., Free, T., Area, T., Summit, T., Committee, T., Tfta, T. C. E. A., African, S., Community, D., Market, C., Africa, S., Africa, S., Union, A., Tfta, T., Fta, G., Summit, T., Secretary, C., Sindiso, G., … Summary, E. (2020). Análisis de la estructura de covarianza de los indicadores relacionados con la salud en el anciano en el hogar con un enfoque en la salud subjetiva. *Human Relations*, *3*(1), 1-8.

Albornoz, E. (2019). El juego y el desarrollo de la creatividad de los niños/as del nivel inicial de la escuela Benjamín Carrión. *Conrado*, *15*(66), 209-213. https://conrado.ucf.edu.cu/index.php/conrado/article/view/900

Alzamora, R. (2019). *Taller de Dibujo y Pintura para mejorar el Pensamiento Creativo en los Estudiantes de Primaria del Colegio "Liceo Trujillo" - Trujillo 2017* [Escuela Superior de Formación Artística Pública Macedonio de la Torre]. https://renati.sunedu.gob.pe/handle/sunedu/432586

Ambrose, D., & Sternberg, R. (2016). Creative Intelligence in the 21st Century. En *Creative Intelligence in the 21st Century* (Vol. 11). https://doi.org/10.1007/978-94-6300-506-7

Astupiña, T. (2018). *Robotica y desarrollo del pensamiento creativo de los estudiantes de la Institución Educativa 22533 Antonia Moreno de Caceres Ica* [Universidad Nacional de Huancavelica]. https://repositorio.unh.edu.pe/handle/UNH/1671

Benedek, M., Jauk, E., Fink, A., Koschutnig, K., Reishofer, G., Ebner, F., & Neubauer, A. (2014). To create or to recall? Neural mechanisms underlying the generation of creative new ideas. *NeuroImage*, *88*, 125-133. https://doi.org/10.1016/j.neuroimage.2013.11.021

Bolívar, J., & Morin, E. (2021). *Educación, confianza y vida* [Universidad Simón Bolívar]. https://hdl.handle.net/20.500.12442/8205

Cachinero, A. (2007). Una experiencia de entrenamiento del pensamiento creativo en alumnos de 2º ciclo de educación primaria. *Psicología educativa*, *13*(1), 79-91. https://journals.copmadrid.org/psed/art/0771fc6f0f4b1d7d1bb73bbbe14e0e31

Carvalho, T., Fleith, D., & Almeida, L. (2021). Desarrollo del pensamiento creativo en el ámbito educativo.

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Revista latinoamericana de estudios educativos, *17*(1), 164-187. https://doi.org/10.17151/rlee.2021.17.1.9

Casillas, M., & Sternberg, R. (1999). Aspectos importantes de la creatividad para trabajar en el aula. *Educar*, *10*, 10-18. https://biblat.unam.mx/es/revista/educar-guadalajara-jal/articulo/aspectos-importantes-de-la-creatividad-para-trabajar-en-el-aula

Castro, J. (2011). Adivinanzas audiovisuales para ejercitar el pensamiento creativo infantil. *Grupo Comunicar*, *36*(1). https://www.torrossa.com/en/resources/an/2501985

Cevallos, D. (2016). *La importancia del pensamiento creativo* [Universidad Nacional de Educación del Ecuador]. http://repositorio.unae.edu.ec/handle/56000/333

Chancahuaña, P., Rojas, R., & Soria, M. (2020). *Propuesta didáctica para el desarrollo de competencias en el área de ciencias sociales en estudiantes del primer año de educación secundaria de una institución educativa privada de San Miguel, Lima* [Universidad Marcelino Champagnat]. https://repositorio.umch.edu.pe/handle/UMCH/3121

Chaverra, D., & Gil, C. (2017). Habilidades del pensamiento creativo asociadas a la escritura de textos multimodales. Instrumento para su evaluación en la educación básica primaria. *Folios: revista de la Facultad de Humanidades*, *45*, 3-15. https://doi.org/10.17227/01234870.45folios3.15

De Bono, E. (2004). *El pensamiento creativo. El poder del pensamiento lateral para la creación de nuevas ideas*. Paidós. http://www.utntyh.com/wp-content/uploads/2013/04/El-Pensamiento-Creativo_De-Bono.pdf

Diaz, C., Llamas, F., & López, V. (2016). Relación entre creatividad, inteligencias múltiples y rendimiento académico en alumnos de enseñanza media técnico profesional del área gráfica. Programa de intervención neuropsicológico utilizando las TIC. *Academia y Virtualidad*, *9*(2), 41-58. https://doi.org/10.18359/ravi.1891

DiFonzo, N., & Bordia, P. (2002). Corporate rumor activity, belief and accuracy. *Public Relations Review*, *28*(1), 1-19. https://www.infona.pl/resource/bwmeta1.element.elsevier-b6484a59-999f-307d-b9ca-64c3136c73c2

Dogan, N., Manassero, M., & Vázquez, Á. (2020). El pensamiento creativo en estudiantes para profesores de ciencias: efectos del aprendizaje basado en problemas y en la historia de la ciencia. *Tecné, episteme y didaxis: TED*, *48*, 163-180. https://doi.org/10.17227/ted.num48-10926

Echazarreta, C., Prados, F., & Poch, J. (2009). La competencia «El trabajo colaborativo» una oportunidad para incorporar las TIC en la didáctica universitaria. Descripción de la experiencia con la plataforma ACME. *revista sobre la sociedad del conocimiento*, *8*. https://documat.unirioja.es/servlet/articulo?codigo=3041332

Escobar, A., & Gómez, B. (2006). Creatividad y función cerebral. *Revista Mexicana Neurociencias*, *7*(5), 391-399. https://www.imbiomed.com.mx/articulo.php?id=39133

Flannery, L., Silverman, B., Kazakoff, E., Bers, M., Bonta, P., & Resnick, M. (2013). Designing ScratchJr: apoyo para el aprendizaje de la primera infancia a través de la programación informática. *Actas de la 12a conferencia internacional sobre diseño de interacción y nños*. https://doi.org/10.1145 / 2485760.2485785

Flórez, J., López, L., Peña, D., Mejía, E., Flórez, X., Montero, D., Espinosa, V., Fonseca, T., Prieto, F., & Torres, P. (2018). Pensamiento metacognitivo y creativo como predictor de éxito escolar. *Revista Espacios*, *39*(30), 26. https://www.revistaespacios.com/a18v39n30/a18v39n30p26.pdf

Inés Varías

Franco, C., & Alonso, J. (2011). Diferencias entre cuentos conocidos y desconocidos en la estimulación de la creatividad infantil. *Aula abierta*, *39*(2), 113-122. https://dialnet.unirioja.es/servlet/articulo?codigo=3621387

Gómez, J., Mart, L., & Domínguez, C. (2017). Resignificación del currículo desde la perspectiva del pensamiento crítico para el fomento y conservación del ambiente: Hogar infantil John F. Kennedy. *Escenarios humanos*, *1*(1). http://revistas.unisimon.edu.co/index.php/eschum/article/view/2436

Gómez, M. (2020). Bases psicobiológicas de la creatividad en los niños con altas capacidades. *Psiquiatría biológica*, *27*(1), 28-33. https://doi.org/10.1016/j.psiq.2020.01.004

Groyecka, A., Sorokowski, P., Kowal, M., Sorokowska, A., Białek, M., Lebuda, I., Dobrowolska, M., Zdybek, P., & Karwowski, M. (2020). Can Information about Pandemics Increase Negative Attitudes toward Foreign Groups? A Case of COVID-19 Outbreak. *Sustainability*, *12*(12), 4912. https://doi.org/10.3390/su12124912

Hernández, J., Jiménez, Y., & Rodríguez, E. (2018). Desarrollo de competencias de pensamiento creativo y práctico para iniciar un plan de negocio: diseño de evidencias de aprendizaje. *Revista Iberoamericana para la investigación y el desarrollo educativo*, *9*(17). https://doi.org/10.23913/ride.v9i17.383

Jenaro, C., Castaño, R., & García, A. (2019). La experiencia de un taller para el fomento de la creatividad en niños de Primaria. *Arte, Individuo y Sociedad*, *31*(4), 735-752. https://doi.org/10.5209/aris.60841

Logroño, M., & Romero, P. (2012). *La expresión plástica para el desarrollo del pensamiento creativo en las niñas del primer año de educación general básica de la escuela Santa Teresita del D.M.Q durante el año lectivo 2010-2011* [Universidad Central del Ecuador]. http://www.dspace.uce.edu.ec/handle/25000/222

Medina, J., & Rodríguez, M. (2018). La fenomenología del pensamiento creativo en Matthew Lipman. *Revista electrónica de Investigación, Docencia y Creatividad*, *6*, 105-117. https://dialnet.unirioja.es/servlet/articulo?codigo=6541327

Mench, M. (2006). Youth and non-formal education. *Revista Estudios de Juventud, 74*, 11-26.

Monereo, C. (2008). *Ser estratégico y autónomo aprendiendo: Unidades didácticas de enseñanza estratégica para la ESO* (Número February 2008). GRAÓ. https://doi.org/10.13140/2.1.4282.7842

Moreno, A. (2020). El mural como recurso didáctico para el desarrollo del pensamiento creativo en un grupo multigrado. *Educando para educar2*, *38*, 70-86. https://beceneslp.edu.mx/ojs2/index.php/epe/article/view/60

Moura, T., Fleith, D., & Almeida, L. (2021). Desarrollo del pensamiento creativo en el ámbito educativo. *Latinoamericana de Estudios Educativos*, *17*(1), 164-187. https://doi.org/10.17151/rlee.2021.17.1.9

Muñoz, W. (2010). Estrategias de estimulación del pensamiento creativo de los estudiantes en el área de educación para el trabajo en la III etapa de educación básica. *Congreso iberoamericano de educación*.

Navarrete, S., Asarchuk, A., & Fernández, M. (2021). Cuadernos del centro de estudios en diseño y Comunicación Nº109. *Creatividad, emoción y espacio*, *109*. https://doi.org/10.18682/cdc.vi109

Núñez, P., Rodrigo, L., Rodrigo, I., & Mañas, L. (2020). Autoconfianza y expectativas de carrera profesional en los menores en función del género. El uso de la creatividad para determinar el modelo aspiracional. *Espacios*, *41*(46). https://doi.org/10.48082/espacios-a20v41n46p05

Paredes, R. (2015). *La calidad del desempeño docente en el rendimiento académico en los estudiantes de la facultad de ingeniería agraria, alimentaria y ambiental en la Univerdad Nacional JoséFaustino Sánchez*

Inés Varías

Carrión 2012 [Universidad Nacional Enrique Guzmán y Valle]. https://repositorio.une.edu.pe/handle/UNE/922

Parra, M., Segura, A., & Romero, C. (2020). Análisis del pensamiento creativo y niveles de activación del alumno tras una experiencia de gamificación. *Educar*, *56*(2), 475-489. https://doi.org/10.5565/rev/educar.1104

Prada, M., Jaillier, E., Cardona, J., & Betancur, R. (2020). *¿Cómo trabajar la innovación social como estrategia pedagógica en procesos de innovación educativa?* [Universidad Pontificia Bolivariana]. https://repository.upb.edu.co/handle/20.500.11912/8772

Prieto, D., López, O., Bermejo, R., Renzulli, J., & Castejón, J. (2002). Evaluación de un programa de desarrollo de la creatividad. *Psicothema*, *14*(2), 410-414. http://www.psicothema.com/psicothema.asp?id=741

Puertas, S. (2016). La estimulación de los diferentes tipos de pensamiento creativo en niños entre los 8 y los 11 años, a través de la escritura de mitos sobre el origen del universo. *Forma y Función*, *29*(1), 103-131. https://doi.org/10.15446/fyf.v29n1.58510

Ramírez, C. (2014). El Aprendizaje Basado en Problemas: estrategia didáctica que fortalece el pensamiento creativo. *Papeles*, *6*(11), 61-71. http://revistas.uan.edu.co/index.php/papeles/article/view/232

Rodríguez, J., Rubio, E., & Hernández, Z. (2010). VPL: laboratorio virtual de programación para Moodle. En *Jornadas de Enseñanza Universitaria de la Informática (JENUI)* (pp. 429-435). Escola Técnica Superior d'Enxeñaría. https://upcommons.upc.edu/handle/2099/11840

Romero, A. (2005). *Creatividad e innovación en empresas y organizaciones: Técnicas para la resolución de problemas*. Diaz de Santos.

Sánchez, M. (2002). La investigación sobre el desarrollo y la enseñanza de las habilidades de pensamiento. *Revista electrónica de investigación educativa*, *4*(1), 1-32. https://redie.uabc.mx/redie/article/view/55/101

Triviño, L., & Vaquero, C. (2020). Educación artística y ciudadana en la formación inicial de maestras/os. Un estudio de caso sobre el desarrollo del pensamiento crítico-creativo-social a través de «Malamente». *Revista Complutense de Educación*, *31*(3), 375-385. https://doi.org/10.5209/rced.63488

Vallejo, A., Daher, J., & Rincón, T. (2020). Investigación y creatividad para el desarrollo de competencias científicas en estudiantes universitarios de la salud. *Educación Médica Superior*, *34*(3). http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-21412020000300010

Van Broekhoven, K., Cropley, D., & Seegers, P. (2020). Differences in creativity across Art and STEM students: We are more alike than unalike. *Thinking Skills and Creativity*, *38*. https://doi.org/10.1016/j.tsc.2020.100707

Yildiz, C., & Guler, T. (2021). Exploring the relationship between creative thinking and scientific process skills of preschool children. *Thinking Skills and Creativity*, *39*(2), 100795. https://doi.org/10.1016/j.tsc.2021.100795

Ргпу, N., & Герцена, М. (2014). Estética experimental: problemas compositivos y pedagógicos de la etapa moderna de la creatividad musical por computadora. *Teoría y práctica del desarrollo social*, *21*, 289-293. https://cyberleninka.ru/article/n/eksperimentalnaya-estetika-kompozitsionnye-i-pedagogicheskie-problemy-sovremennogo-etapa-kompyuternogo-muzykalnogo-tvorchestva

Inés Varías