



Creativity and related variables according to educational stage: a systematic review

Creatividad y variables relacionadas según la etapa educativa: revisión sistemática

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Abstract

Creativity is a capacity present in any person that arises spontaneously in order to solve problems or create knowledge. The objective of this study is to identify the variables used in existing research related to creativity and to classify these variables according to the educational stage (infant, primary, secondary and university studies). The methodology has been directed by the PRISMA statement and has been carried out by searching the Dialnet Plus and Web of Science databases. Some of the resources used in the searches have been the use of Boolean operators, a series of filters and the presentation of inclusion and exclusion criteria. The results obtained indicate how intelligence and academic performance are the most studied variables in relation to creativity regardless of the educational stage. It has been extracted how the investigations focused on children and primary school focus on aspects such as personality or control of emotions, while secondary studies analyze problem solving and the works aimed at university students are oriented towards styles of thought. In conclusion, it is necessary to highlight how creativity is present within the educational context and, therefore, it is necessary to know what variables are related to it in order to enhance said capacity through an appropriate intervention.

Keywords: Creativity, correlation, student, evaluation, questionnaire, education.

Resumen

La creatividad es una capacidad presente en cualquier persona que surge de manera espontánea para resolver problemas o crear conocimiento. El objetivo de este estudio es identificar las variables utilizadas en las investigaciones existentes relacionadas con la creatividad y clasificar estas variables según la etapa educativa (infantil, primaria, secundaria y estudios universitarios). La metodología se ha guiado por la declaración PRISMA y se ha llevado a cabo mediante la búsqueda en las bases de datos de Dialnet Plus y Web of Science. Algunos de los recursos utilizados en las búsquedas fueron la utilización de operadores booleanos, una serie de filtros y la exposición de unos criterios de inclusión y exclusión. Los resultados obtenidos indican que la inteligencia y el rendimiento académico son las variables más estudiadas en relación con la creatividad independientemente de la etapa educativa. Las investigaciones enfocadas en infantil y primaria se centran en aspectos como la personalidad o el control de las emociones, mientras que los estudios de secundaria analizan la resolución de problemas y los trabajos dirigidos a universitarios se centran en los estilos de pensamiento. En conclusión, es necesario resaltar cómo la creatividad está presente en el contexto educativo, por ello, es preciso conocer qué variables están relacionadas con ella para potenciar esta capacidad mediante una intervención adecuada.

Descriptor: Creatividad, correlación, estudiante, evaluación, cuestionario, educación.

1 Introduction

Creativity can be understood as innate behavior that involves a personal approach and is not repetitive; just as it is permanently changing and looking for ideas, combining the notions already known, but it must be considered that this is a rather complex term that can cover different fields (Barbachán *et al.*, 2020).

This term has been studied in recent years due to the emergence of certain terms such as resilience, coaching or emotional intelligence, but considering that creativity is not an exclusively modern term, but it is present since the appearance of the human being (Moral-Valiente, 2017).

Considering the origins of this concept, many authors have contributed to studying this phenomenon. The most outstanding is J. P. Guilford, who refers to creativity as the qualities that creative people have, such as originality, fluency, flexibility, and divergent thinking (Guilford, 1980). On the other hand, another classic author is P. Torrance, who relates creativity to a process that aims to test initial hypotheses and interpret the results obtained (Torrance, 1969). The existence of different definitions of creativity is because this term has evolved over the years and, in turn, can take into account different points of view (Corbalán, 2008; Garaigordobil, 2003).

Although there is no unanimous concept of creativity, many authors agree that every person has the possibility and capacity to be creative, since it is conditioned by the motivation, preparation, interest, and willingness to the creation of something original and new (Caeiro-Rodríguez, 2018; Gómez *et al.*, 2017; Hammershøj, 2014; Hernández *et al.*, 2015; Sánchez *et al.*, 2016). In addition, the close relationship existing in the creation of new ideas with different parts of the brain has been studied, allowing people to analyze, associate and interpret the new knowledge that is being acquired (Elisondo and Donolo, 2015; Ramos *et al.*, 2017).

Penagos and Aluni (2000) indicate that it is necessary to have skills and knowledge about

the topic that requires to be creative, as well as it is essential that the individual shows a high intrinsic motivation and a certain capacity to reduce extrinsic pressures. Therefore, there are different types or levels of creativity. Dow and Mayer (2004) rated creativity by referring to the predominant field in which it operates, namely verbal creativity, mathematical creativity and spatial creativity. On the other hand, Fuentes and Torbay (2004) proposed three types of creativity in relation to the amount of imagination the person adds to his/her process or product: objective creativity, imaginative creativity and inventive creativity.

The development of creativity in a person not only promotes the acquisition of skills that enhance problem solving, but also promotes certain social skills such as interaction with others (Cuetos *et al.*, 2020). Therefore, it is necessary to carry out certain strategies or resources that help to develop and/or enhance creativity. Labarthe and Vásquez (2016) held a creative writing workshop that fostered the creative capacity of the participating group. On the other hand, Aqueveque and Romo (2018) carried out an intervention with two groups of infants (one control and one experimental), applying certain multi-sensory activities based on manipulation. The effect of this research was significant, so it can be said that the development of creativity has no age limits. The same is true for sex, where studies have found no significant differences that allow the distinction of creative ability in men or women (González and Molero, 2022a).

Although creativity can be performed in different contexts and at different ages (Marrero *et al.*, 2019; Ortega *et al.*, 2016), there are more studies focus on analyzing this capacity in the educational context (Aldana *et al.*, 2021; González and Molero, 2022b). The importance of this construct at these stages is related to the fact that creativity is related to learning and processes linked to the construction of new knowledge (Elisondo and Donolo, 2016).

Schools seek to transform education through creativity to educate people capable of



developing new ways of learning, thinking, and working, thus empowering active and competent students to make decisions in the processes of change (Canelo *et al.*, 2015). In addition, social changes raise the need to promote in the student skills related to creativity and problem solving (Casado and Checa, 2020), so it is necessary to identify which variables relate to this capacity. Therefore, it is important to highlight the existence of resources such as questionnaires or instruments that have been developed with the purpose of issuing a reasoned judgment on the different lessons learned (González and Molero, 2021; Medina and Verdejo, 2020; Romo *et al.*, 2016).). This idea implies that educational institutions have committed to knowing the creative level of students and teachers (De La Torre *et al.*, 2018). Among some of the most outstanding instruments for the identification of creativity is the Test CREA (Corbalán *et al.*, 2003), which is based on measuring the creativity of students from a graphic material that allows the development of different tasks by discovering and solving problems.

Objective

The objective of this systematic review is to identify which are the most used variables in studies on creativity in students according to the educational level.

2 Methodology

This systematic review has been designed based on guidelines established for the development of quality reviews (Alexander, 2020) and following PRISMA 2020 principles (Page *et al.*, 2021; Yepes- Núñez *et al.*, 2021).

2.1 Search and procedure

A consultation was first carried out on Dialnet Plus and Web of Science databases and the Google Scholar search engine to start this systematic review. For this purpose, the descriptors

“creativity” and “instrument” were considered, as well as other synonyms such as “questionnaire”, “scale”, “assessment” and “inventory”. The Boolean operators used in search formulas have been AND, and the use of quotation marks (“”). Thus, the search has been established through the following search formulas: “Creativity” AND “instrument”; “creativity” AND “questionnaire”; “creativity” AND “scale”; “creativity” AND “assessment”; “creativity” AND “inventory”. An important aspect is that these searches have been conducted in both Spanish and English. In addition, filters such as type of document, language, availability of the text and year of publication have been taken into account. Table 1 shows the different results obtained in the databases consulted according to each search formula.

2.2 Inclusion and exclusion criteria

Once the initial search for studies has been carried out, inclusion and exclusion criteria have been established with the aim of selecting those studies that are most relevant to the subject.

First, in accordance with the inclusion criteria, the following characteristics have been considered: (A) journal article; (b) the language of the publication should be in English or Spanish; (c) direct access to the full text; d) empirical studies; (e) publications between 2000 and November 2020; (f) participants who were students in pre-school, elementary, middle, high school, or university. On the contrary, as exclusion criteria, studies with the following characteristics were not considered: a) documents belonging to book chapter, books, theses and final projects; (b) languages other than Spanish or English such as Portuguese, French, Chinese,...; c) papers without full access to the text; d) qualitative studies; e) publications before 2000; f) participants who were not students, such as adults, older people, workers.



Table 1

Results obtained according to each search formula in the databases

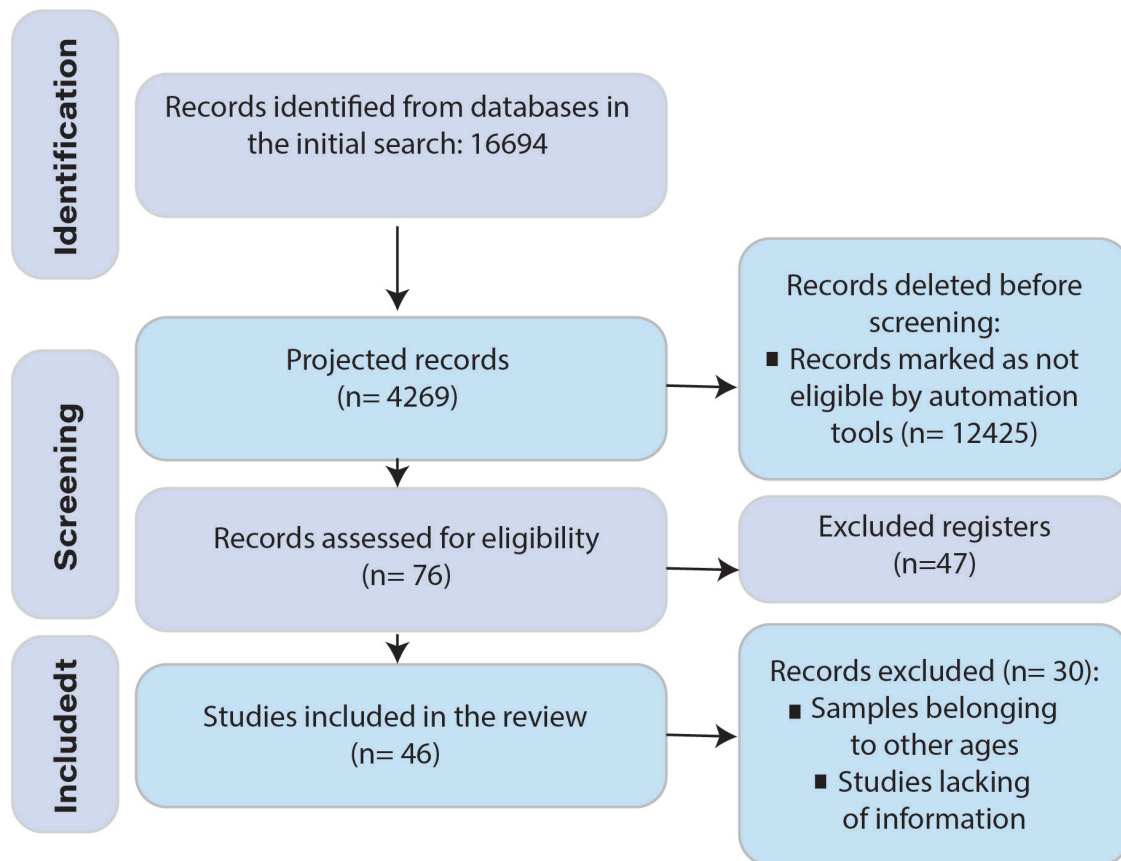
Database	Language	Search formula	Number of articles found after applying filters
Dialnet Plus	Spanish	"creatividad" AND "instrumento"	586
		"creatividad" AND "cuestionario"	271
		"creatividad" AND "escala"	230
		"creatividad" AND "evaluación"	481
		"creatividad" AND "inventario"	42
	English	"creativity" AND "instrument"	205
		"creativity" AND "questionnaire"	142
		"creativity" AND "scale"	109
		"creativity" AND "evaluation"	154
		"creativity" AND "inventory"	21
Web of Science	Spanish	"creatividad" AND "instrumento"	26
		"creatividad" AND "cuestionario"	22
		"creatividad" AND "escala"	25
		"creatividad" AND "evaluación"	67
		"creatividad" AND "inventario"	8
Web of Science	English	"creativity" AND "instrument"	184
		"creativity" AND "questionnaire"	474
		"creativity" AND "scale"	479
		"creativity" AND "evaluation"	605
		"creativity" AND "inventory"	128

Based on these criteria, a total of 46 articles were selected for further analysis in the next section of this systematic review. A total of 16 694 results were obtained by initial search based on the different search formulas listed above. Filters were applied to this first search, obtaining

4269 studies and, later, the inclusion and exclusion criteria were applied, obtaining 76 studies. These studies were reviewed manually, and 46 articles were selected. This whole process can be seen in Figure 1.



Figure 1
Flowchart



3 Results

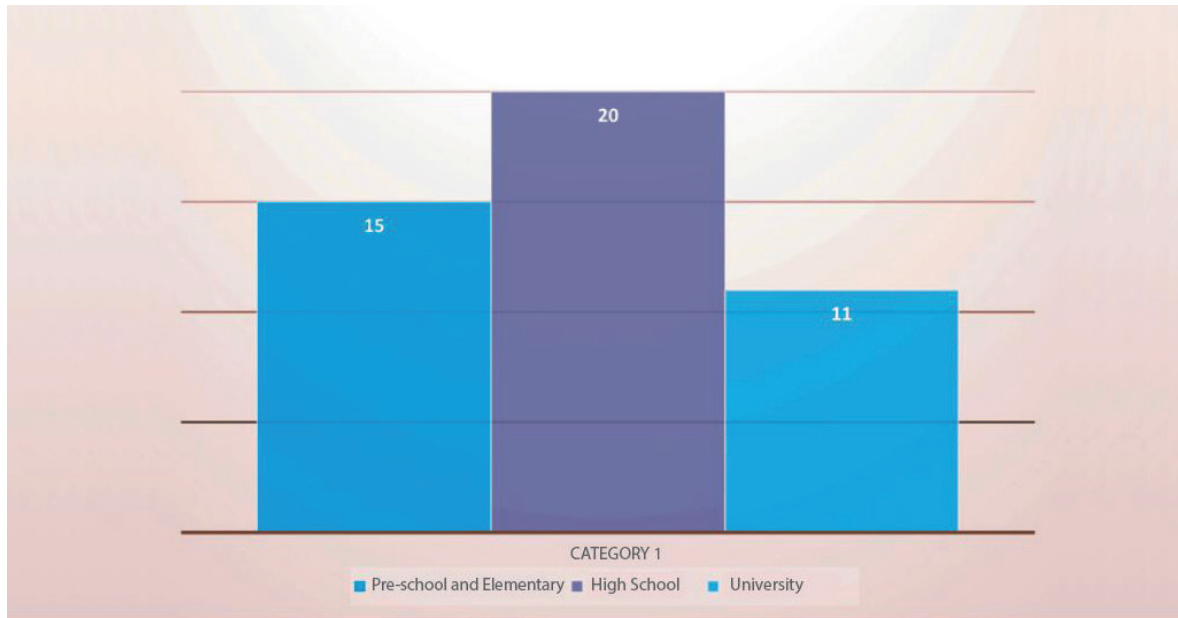
Once the articles to be included in this systematic review were selected, Figure 2 was elaborated with the intention of visually showing some highlights of these results.

Looking at Figure 2, it can be seen how these studies can be divided into three educa-

tional stages, i.e., pre-school, elementary, High School and university; thus, High school having the most studies. In addition, most of these studies have been published during the second decade of the 2000 and English is the most predominant language. Finally, regarding the age of the participants, most studies focus on individuals between 13 and 18 years old, with the least represented group being 0 to 6 years.



Figure 2
 Classification of selected studies by educational stage



To analyze the selected articles, these studies have been divided into three tables according to the educational level to which they belong. Therefore, Table 2 refers to pre-school and elementary students; Table 3 refers to high school students; and Table 4 focuses on university students.

Table 2 shows the main ideas of articles focused on both pre-school and elementary students. The most studied variables in relation to creativity at these ages are intelligence (Gatica and Bizama, 2019; Ortega *et al.*, 2017; Salavera *et al.*, 2019; Vallverdú *et al.*, 2016) and aspects related

to art and music (Fazaie and Ashayeri, 2018; Krumm and Lemos, 2012; Marchena *et al.* 2017). Other variables also studied at these ages are emotions (Hernandez *et al.*, 2020), confidence and learning (Trowsdale *et al.*, 2019), academic performance (Lamana and Peña, 2018), personality (Krumm *et al.*, 2018), aggression control (Jarareh *et al.*, 2016), creative perception and production (Krumm *et al.*, 2015), parental styles (Krumm *et al.*, 2013) and self-concept (Franco, 2006).

Table 2
 Main characteristics of the selected studies in pre-school and elementary school students

Author/s and year	Sample	Variables studied	Instrument used to measure creativity
Hernández <i>et al.</i> (2020)	N= 2540	Creativity and Emotions	Emotional Awareness and Creativity Questionnaire
Gatica and Bizama (2019)	6 to 8 years (N= 94)	Fluid Intelligence and Creativity	Creative Intelligence Test (CREA)



Author/s and year	Sample	Variables studied	Instrument used to measure creativity
Trowsdale <i>et al.</i> (2019)	9 to 10 years (N= 135)	Trust, Creativity and Learning	Three measures proposed by the Trowsdale Confidence in Competition, Creativity and Learning Indexes (TICCCCL)
Salavera <i>et al.</i> (2019)	6 to 8 years (N= 957)	Emotional Intelligence and Creativity	Torrance Test of Creative Thinking
Lamana and Peña (2018)	4º Elementary (N= 91)	Academic Performance, Coping and Creativity	CREA Test
Fazaie and Ashayeri (2018)	7 to 9 years (N= 20)	Music Education and Creativity	Torrance Creativity Questionnaire
Krumm <i>et al.</i> (2018)	9 to 13 years (N= 359)	Personality and Creativity	Torrance Test of Creative Thinking and Creative Personality Scale (EPC)
Marchena <i>et al.</i> (2017)	5 years (N= 60)	Musical Intelligence and Motor Creativity	Test of Creative Thinking in Action and Motion
Ortega <i>et al.</i> (2017)	3 to 4 years (N= 60)	Multiple Creativity and Intelligences	Tuttle Thinking Questionnaire
Vallverdu <i>et al.</i> (2016)	6 to 7 years	Multiple Creativity and Intelligences	Torrance Creative Thinking Test
Jarareh <i>et al.</i> (2016)	Pre-school age (N= 30)	Creativity and Aggression Control	Torrance Creativity Questionnaire
Krumm <i>et al.</i> (2015)	9 to 13 years (N= 359)	Creative Perception and Production	Torrance Creative Thinking Test
Krumm <i>et al.</i> (2013)	9 to 12 years (N= 219)	Parental Styles and Creativity	Torrance Creative Thinking Test Creative Personality Scale (EPC)
Krumm and Lemos (2012)	8 to 14 years (N= 301)	Artistic Activities and Creativity	Torrance Creative Personality Scale Test
Franco (2006)	5 years (N= 71)	Self-concept and creativity	Verbal Battery of the Torrance Creative Thinking Test

Table 3 refers to studies on creativity aimed at high school students. This table shows the most common variables related to creativity at these ages.

Table 3

Main characteristics of the selected studies in high school students

Author/s and year	Sample	Variables studied	Instrument used to measure creativity
Piyya-amornphan <i>et al.</i> (2020)	14 to 17 years (N= 439)	Physical Activity and Creativity	Creative Thinking and Drawing Production Test (TCT-DP)



Author/s and year	Sample	Variables studied	Instrument used to measure creativity
Pérez-Fuentes <i>et al.</i> (2020)	High school students (N= 742)	Self-esteem, Emotional Intelligence, Personality, and Self-Expressive Creativity	Creative Behavior Questionnaire: Digital (CBQD)
Méndez and Fernández (2019)	11 to 16 years (N= 312)	Motor Creativity	Evaluation of Motor Creativity (ICM)
Zainudin <i>et al.</i> (2019)	High school students (N= 313)	Mathematical Creativity	A Mathematical Creativity Instrument
Pérez-Fuentes <i>et al.</i> (2019)	13 to 19 years (N= 742)	Digital Creativity, Parenting Style, and Academic	Performance Creative Behavior Questionnaire: Digital (CBQD)
Ramírez <i>et al.</i> (2019)	High school students (N= 100)	Runco Ideational Behavior Scale (RIBS)	Runco Ideational Behavior Scale (RIBS)
Caballero and Fernández (2018)	High school students (N= 59)	Creativity and Academic Performance	Creative Intelligence Test (CREA)
Mededovic and Dordevic (2017)	N= 251	Intelligence and Creativity	HEXACO-PI-R Inventory
Belmonte <i>et al.</i> (2017)	12 to 16 years (N= 670)	Intellectual aptitude, Emotional Intelligence, and Creativity	Subtest 3 of the Figurative Version of the Creative Thinking Test (TTCT)
Ramos <i>et al.</i> (2017)	15 to 16 years (N= 51)	Creativity, memory and academic performance	CREA Test
Castañeda <i>et al.</i> (2017)	16 y 17 years (N= 32)	Creativity, attention, academic performance and group interaction	CREA Test
Nakano <i>et al.</i> (2016)	8 to 17 años (N= 987)	Creativity and giftedness	High Ability Assessment Scale (BaAH/S)
Rodríguez <i>et al.</i> (2016)	High school students (N= 51)	Creativity and multiple intelligences	Turtle Creativity Questionnaire
Rico <i>et al.</i> (2016)	12 years (N= 59)	Creativity and Emotional Intelligence	Turtle Creativity Questionnaire
Nakano <i>et al.</i> (2016)	14-18 years (N= 83)	Creativity and Personality	Torrance Creative Thinking Test
Nakano <i>et al.</i> (2015)	8 to 16 years (N= 867)	Intelligence and Creativity	Battery for assessing Intelligence and Creativity
Esparza <i>et al.</i> (2015)	12 to 16 years (N= 78)	Scientific Creativity and Gender Differences and Educational Level	Scientific Creativity Skill Test



Author/s and year	Sample	Variables studied	Instrument used to measure creativity
Alonso <i>et al.</i> (2015)	12 to 18 years (N= 84)	Creativity, Academic Attention and Creative Performance	Intelligence Test (CREA)
Bermejo <i>et al.</i> (2014)	12 to 16 years (N= 98)	Scientific-Creative Thinking and Academic Performance	Scientific-Creative Thinking Test
Gontijo and Fleith (2009)	N= 100	Motivation and Creativity in Mathematics	Torrance Creative Thinking Test and the Creativity Test in Mathematics

Intelligence is the most widely studied term (Belmonte *et al.*, 2017; Mededovic and Dordevic, 2017; Nakano *et al.*, 2016; Nakano *et al.*, 2015; Pérez-Fuentes *et al.*, 2020; Ramírez *et al.*, 2019; Rico *et al.*, 2016; Rodríguez *et al.*, 2016) after academic performance (Alonso *et al.*, 2015; Bermejo *et al.*, 2014; Caballero and Fernández, 2018; Castañeda *et al.*, 2017; Pérez-Fuentes *et al.*, 2019; Ramos *et al.*, 2017). Other studies focus

on other variables related to motor (Méndez and Fernández, 2019; Piya-amornphan *et al.*, 2020), mathematics (Gontijo and Fleith, 2009; Zainudin *et al.*, 2019;), personality (Nakano *et al.*, 2016), and knowledge of the differences between gender and educational level (Esparza *et al.*, 2015).

Finally, Table 4 presents the studies whose sample are university students.

Table 4

Main characteristics of the selected studies in university students

Author/s and year	Participants	Variables studied	Instrument used to measure creativity
Novikova <i>et al.</i> (2020)	N= 128 with an average age of 18.67	Creativity and success in foreign language acquisition	Torrance Abbreviated Test for Adults (ATTA)
Ramankulov <i>et al.</i> (2019)	N= 73 2 Groups made up of 36 and 37 students	Creativity and foreign language	Torrance Creativity Test
Caballero <i>et al.</i> (2019)	N= 206 with an average age of 21.33	Creativity, gender, age, and selection of the career	CREA test
Oseda <i>et al.</i> (2019)	N= 360 360 students from 5 universities	Emotional intelligence, self-efficacy, and creativity	Armitage and Conner's creative ability measurement tests
Tehranineshat and Rakhshan (2018)	N= 180 180 students: 120 Bachelor's and 60 Master's Degree	Knowledge management and creativity	Randsip Creativity Questionnaire
Elisondo <i>et al.</i> (2018)	N= 132 132 Students from 17 to 40 Creativity, I	Leisure and academic performance	CREA Test Creative Actions Questionnaire (CAC)



Author/s and year	Participants	Variables studied	Instrument used to measure creativity
Kuan-Chen (2018)	N= 139 with an average age of 21.11	Creativity, Creative Products and Cognitive Style	Semantic Creative Product Scale (CPSS)
Núñez-Martínez (2017)	N= 171 171 Students	Creativity and Academic Performance	Torrance Creative Thinking Test
Rodríguez <i>et al.</i> (2015)	N= 360 30 Students	Creativity and Emotional Intelligence	CREA Test
Gutiérrez <i>et al.</i> (2013)	N= 197 with an average age of 24.37	Thinking style, Metacognitive Strategies, and Creativity	Creative Intelligence Test (CREA)
Elisondo <i>et al.</i> (2009)	N= 132 with an average age of 21.60	Intelligence and Creativity	Creative Intelligence Test (CREA)

As in previous ages, intelligence is also the most studied variable in relation to creativity (Elisondo *et al.*, 2009; Oseda *et al.*, 2019; Rodríguez *et al.*, 2015).

The other variables studied are acquisition of the foreign language (Novikova *et al.*, 2020; Ramankulov *et al.*, 2019), academic performance (Elisondo *et al.*, 2018; Núñez-Martínez, 2017), thinking styles (Gutiérrez *et al.*, 2013; Kua-Chen, 2018), knowledge management (Tebranineshat and Rakhshan, 2018), and differences between gender, age, and selection of the career (Caballero *et al.*, 2019).

4 Discussion and conclusions

Creativity is a complex concept that has been present since the very beginning of humanity and that, although there is not yet a widespread concept about this term, many researchers have studied the characteristics of this construct (Barbachán *et al.*, 2020; Caeiro-Rodríguez, 2018; Corbalán, 2008; Garaigordobil, 2003; Gómez *et al.*, 2017; Guilford, 1980; Hammershøj, 2014; Hernández *et al.*, 2015; Morales-Valiente, 2017; Sánchez *et al.*, 2016; Torrance, 1969).

Different types of creativity can be considered (Dow and Mayer, 2004; Fuentes and Torbay, 2004). Thus, certain authors such as Aqueveque and Romo (2018) and Labarthe and Vásques (2016) have carried out certain strategies to pro-

mote creativity and the development of social skills (Cuetos *et al.*, 2020).

When conducted this systematic review, it was possible to verify which variables are the most studied in research on creativity in relation to the educational level. The most studied variable in all academic phases related to creativity is intelligence (Belmonte *et al.*, 2017; Elisondo *et al.*, 2009; Gatica and Bizama, 2019; Mededovic and Dordevic, 2017; Nakano *et al.*, 2016; Nakano *et al.*, 2015; Ortega *et al.*, 2017; Oseda *et al.*, 2019; Pérez-Fuentes *et al.*, 2020; Ramírez *et al.*, 2019; Rico *et al.*, 2016; Rodríguez *et al.*, 2016; Rodríguez *et al.*, 2015; Salavera *et al.*, 2019; Vallverdú *et al.*, 2016). This relationship is linked to how creativity is present in learning and in the processes involved in the creation of new knowledge (Elisondo and Donolo, 2016).

Another variable is academic performance (Alonso *et al.*, 2015; Bermejo *et al.*, 2014; Caballero and Fernández, 2018; Castañeda *et al.*, 2017; Elisondo *et al.*, 2018; Lamana and Peña, 2018; Núñez-Martínez, 2017; Pérez-Fuentes *et al.*, 2019; Ramos *et al.*, 2017).

The other variables studied are not common at different academic levels. Research in pre-school and elementary school focuses on aspects such as plastic arts, emotions, confidence, personality, aggression control, creative production, parental styles, and self-concept (Fazaie and Ashayeri, 2018; Franco, 2006; Hernández



et al., 2020; Jarareh *et al.*, 2016; Krumm *et al.*, 2018; Krumm *et al.*, 2015; Krumm *et al.*, 2013; Krumm and Lemos, 2012; Marchena *et al.*, 2017; Trowsdale *et al.*, 2019),

On the other hand, those related to high school students emphasize motor, mathematical problem solving, personality and gender and educational differences (Esparza *et al.*, 2015; Gontijo and Fleith, 2009; Méndez and Fernández, 2019; Nakano *et al.*, 2016; Piya-amornphan *et al.*, 2020; Zainudin *et al.*, 2019).

Finally, studies of university students relate to foreign language acquisition, thinking styles, knowledge management, and differences between gender, age, and selection of the career (Caballero *et al.*, 2019; Gutiérrez *et al.*, 2013; Kua-Chen, 2018; Novikova *et al.*, 2020; Ramankulov *et al.*, 2019; Tebranineshat y Rakhshan, 2018).

Each paper reveals the importance of creativity in the educational context no matter the age or educational stage of students; certain creativity-related strategies can maximize skills and thus make young people to be active and able to make decisions or solve problems on their own (Canelo *et al.*, 2015; Casado and Checa, 2020). Some of these resources to consider are the existing instruments to identify this capacity, such as CREA Test (Corbalán *et al.*, 2003).

Finally, it is worth noting that intelligence and academic performance are the most studied variables in relation to creativity at all academic levels. However, each educational stage is linked to different elements in the development of creativity, which may be determined by the needs of each educational period. Thus, the early stages of school focus more on creativity with more emotional aspects, and as the courses increase, they focus more on knowledge. Some of the limitations of this systematic review are that some of the studies initially selected did not provide information on the instrument used to measure creativity in the participants, so they had to be excluded later.

Future research can consider the evolution of studies on creativity, which, as mentioned in

the results, have increased significantly in the last decade. Some of the interpretations that can be made on this topic is that researchers now have greater access to studies thanks to new technologies, favoring the search for information. In addition, other practical implications of this work are to analyze the different instruments used to measure creativity. To conclude, it is necessary to highlight the need to know the instruments and the variables involved in the resources to determine creativity; thus, being able to develop appropriate interventions with students to strengthen this capacity and to train skilled young people in the solution of problems in their daily lives.

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