

Artistic Teaching and Creative Thinking in University Contexts: Analysis of Research Trends

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Abstract: The education sector faces complex transformations. Encouraging artistic teaching and creative thinking in higher education allows increasing the student's collaborative, autonomous, and self-critical capacities. The study's objective is to identify scientific publications related to the teaching of Art Education and creative thinking in university contexts. The study analyzed the evolution of world research on this topic in the period 1969-2019. A bibliometric analysis of 913 articles was performed. The analysis results revealed that scientific productivity has increased since 2015, with the primary category being Social Sciences and Arts and Humanities. Six lines of research related to: creativity, university, visual culture, arts, perception, and sustainability were identified. It is found that the research topic has a growing and dynamic interest in the scientific activity at an international level. This study supposes an analysis of the scientific production and of the actors that energize the research and identify the research lines. The study documented a rapidly growing knowledge base, written mainly by academics located in developed societies..

Key-words: artistic education; visual thinking; ICT; higher education; educational research.

1. Introduction

Education is immersed in increasingly complex challenges. The current society exposed to constant challenges of various kinds: social, environmental, political, technological, economic, and ethical; it requires training that adapts to the new scenarios of the 21st century. In this sense, the University, as a fundamental pillar of economic and social development, must

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contribute to the common good of citizens. Supporting students and future professionals to prosper personally and professionally is one of its fundamental objectives, thus promoting the constitution of stable families and communities (Davies, Fidler & Gorbis, 2011).

In this context, the competency assessment introduced in 2010 with the Bologna Plan and the European Higher Education Area (EHEA) seeks among its objectives the methodological renewal at the didactic level, fostering the development and application of new methodological models by university teachers; Information and Communication Technologies (ICT) being one of the central axes of many of these proposals.

Another of its primary axes consists of bringing education closer to work practice (Larson & Miller, 2011), developing skills and capacities required in this changing current world. Promoting harmonious continuity between present and future requires preparing students for this purpose. That is, to train students with a holistic educational approach that allows them to enhance their skills and abilities.

Since its origin, man has had the need to express himself through drawings, with graphic and visual expression constituting an essential element in his development and evolution, serving as a source, medium and form of expression. Thus, art arises as part of the tangible and intangible culture of the peoples, which in addition to its social role serves as an instrument for those who belong to it. Art allows the expression of ideas, emotions, perceptions sensations (Efland, 1990). This is where its usefulness resides and one of its ultimate purposes is also manifested as an interaction tool, allowing people to activate their senses, making known the perceptions that the environment generates in them and being able to express them together with their feelings, sensitizing the mind and the body with the world (Vigotsky, 2003).

Nowadays, one of the key skills to develop in university students to face challenges and progress in the complex present context is to foster creativity and creative thinking. Rethinking the training of future professionals requires developing new capacities such as resilience and adaptation.

Visual thinking is an educational tool that can help young university students to face the future, fuelling effective communication (Hailey, 2014). The communication skills acquired act as a competitive advantage over other students who have not developed them during their academic process. Studies focused on the academic effects of learning based on artistic and visual development have shown to have an impact on character acuity, motivation, increased social interactions and greater responsiveness to conflicts (Hetland, 2013; Niu & Sternberg, 2003).

Although today's society is focused on approaching knowledge considering reason and scientific thought, the emotional and social aspects of the individual should not be overlooked, which will be those that provide the sensitivity to understand reality, communicate experiences and express

feelings. From this general perspective, artistic expression is an effective way of expressing feelings and experiences, while it represents an educational opportunity for personal and social development (Van de Kamp et al., 2015).

Educating in creativity is educating a skill essential for the cognitive development of the student. In this way, it is possible to form confident, original, flexible, and initiative individuals. Educating in creativity offers an innovative tool to possible changes, since by creating it is possible to evolve and improve educational quality (Craft, 2001).

Art can connect and engage feelings, emotions, and affections, intensely humanizing the student. In this sense, and under the umbrella of the diversity in which we find ourselves, art admits everyone, strengthening self-discovery, and a more affective and effective inclusion in the community environment, this being one of the purposes of expression artistic, becoming a tool for integration (González-Zamar et al., 2020).

In 2010, UNESCO celebrates the II World Conference on Arts Education in which a series of objectives were set for the development of Arts Education. The established guidelines highlight the conviction of the Member States that Art Education must play a fundamental role in the transformation of education systems. To do this, they focused on highlighting three aspects as their goal. The first, to develop the creative thinking of the individual. The second objective seeks to recognize the empowering capacity of Art Education when it comes to valuing and preserving cultural identity and heritage. Finally, the third objective seeks to promote social and environmental responsibility in individuals (UNESCO, 2010).

Therefore, the main objective of this study is to analyse research trends on the implications of artistic teaching and creative thinking in higher education, to elucidate the trends of its application.

To obtain responses to the research questions, a sample of 913 articles extracted from the Scopus database, from 1969 to 2019, has been analysed. This review uses the bibliometric method to synthesize the knowledge base on research in artistic teaching and creative thinking in university contexts. The results show the publications on this subject, thus allowing to identify the main driving agents and trends in this field of research. In this way, this work provides and suggests themes and questions for future research.

2. Methodology

This work aims to analyse research trends on the implications of artistic teaching, creative thinking, and visual learning in higher education, from 1969 to 2019. For this purpose, mathematical, statistical, and mapping tools have been used. Bibliometric is defined as the application of mathematical and statistical methods to journals, books, and other media (Osareh, 1996). The purpose of this methodology is to identify and analyse the main elements

found in a specific field of research. Likewise, it is intended to inquire about the evolution that the subject of study has had and the interest it has aroused, by pointing out the most relevant authors, countries, journals, and keywords in recent years (Guerrero-Baena et al., 2014; Vinkler, 2010).

The research works of a scientific discipline can be classified through bibliographic analysis according to their information, such as the sum of documents, number of citations, number of references used, keywords, organizations, countries, authors, h-index, among others (Abad-Segura & González-Zamar, 2019).

The search string used included the following terms that combine the production of this research field, in English: "artistic", "artistic education", "creativity", "arts visual", "visual thinking" and "higher education". The choice of search terms attends to those with the highest descriptive value and representativeness, according to the literature review carried out. Consequently, the title, abstract and keywords fields are included. The temporal coverage corresponds to the period from the beginning of the first publication (1969) to 2019, that is, 50 years. The initial sample included 913 articles, with a wide diversity of variables to be analysed for each registry. The journal where it is published, the year, the area of knowledge, the author and co-authors of the publication, the institutions, and countries of affiliation of the authors and the keywords that define the document and have originated successful publications have been considered (Abad-Segura et al., 2020).

Using bibliometric techniques, bibliographic maps can be created, viewed, and explored. In these, the links show the connections between the different elements. This work shows the links based on the methods of co-authorship, for authors, organizations, and countries, and of co-occurrence, for keywords. Therefore, the links and the articles form a joint bibliographic network (Leydesdorff & Vaughan, 2006). To analyse and visualize the scientific literature, the VOSviewer software tool was used (Van Eck & Waltman, 2010).

3. Results and Discussion

3.1. Analysis of Scientific Production

This section presents and discusses the main results of the evolution of scientific production in a global context on artistic teaching and creative thinking in university environments.

Figure 1 shows the evolution of scientific production at a global level in the field of research on artistic teaching and creative thinking in university contexts, in the period 1969-2019. It is observed that, of the 913 contributions in the 50-year period studied, 499 have been published in the last 5 years (2015-2019), that is, 54.65% of the total documents, confirming the interest in the subject of research in recent years. In the last year, 2019, 157 articles

(17.20%) have been published. Thus, interest in studying this area of research is manifested at an international level, with a growing publication since the beginning and exponentially with the beginning of the new century. The documents analysed have been written in 21 different languages, with 826 in English (90.47%).

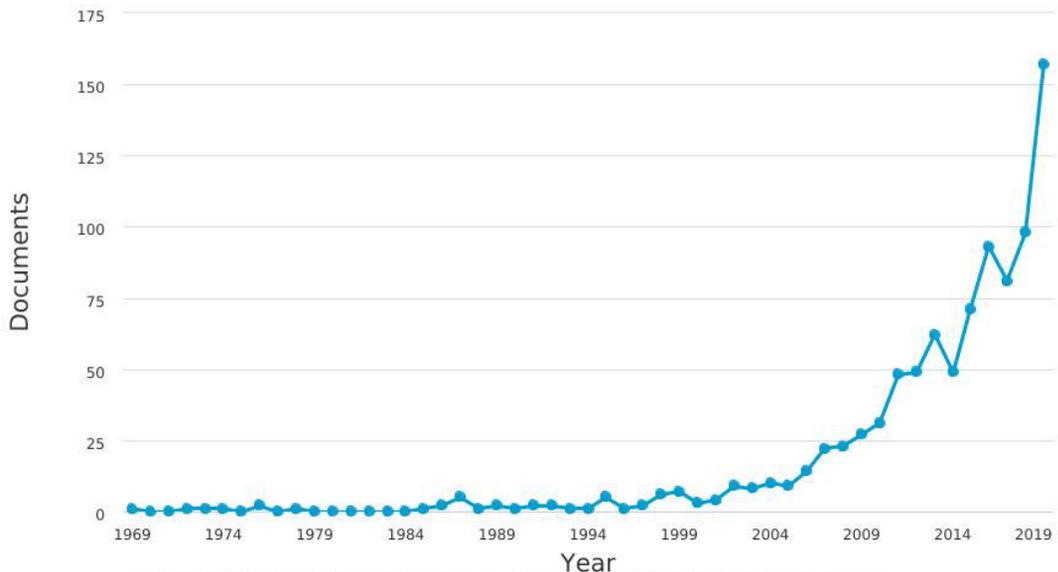


Figure 1. Evolution of scientific production (1969-2019) Source: Scopus

The first article dates from 1969, with the title “Creative responses to higher education of the future, published in the journal *Nursing Outlook*”, by the author Mayhew, L.B. Likewise, the most cited article, published in 2011 by *Higher Education* journal, is entitled “Higher education in East Asia and Singapore: Rise of the Confucian Model”, written by Marginson, S.

Figure 2 shows the thematic areas where contributions are classified during the period 1969-2019. In the first place, Social Sciences stands out significantly, with 678 articles; Arts and Humanities (195); Business, Management and Accounting (110); Engineering (90); Computer Science (71); and Psychology (60). The rest of the thematic areas do not exceed 4% of the contributions. It should be noted that the same article can be classified in more than one area, following the criteria of the editor, the journal, and the author.

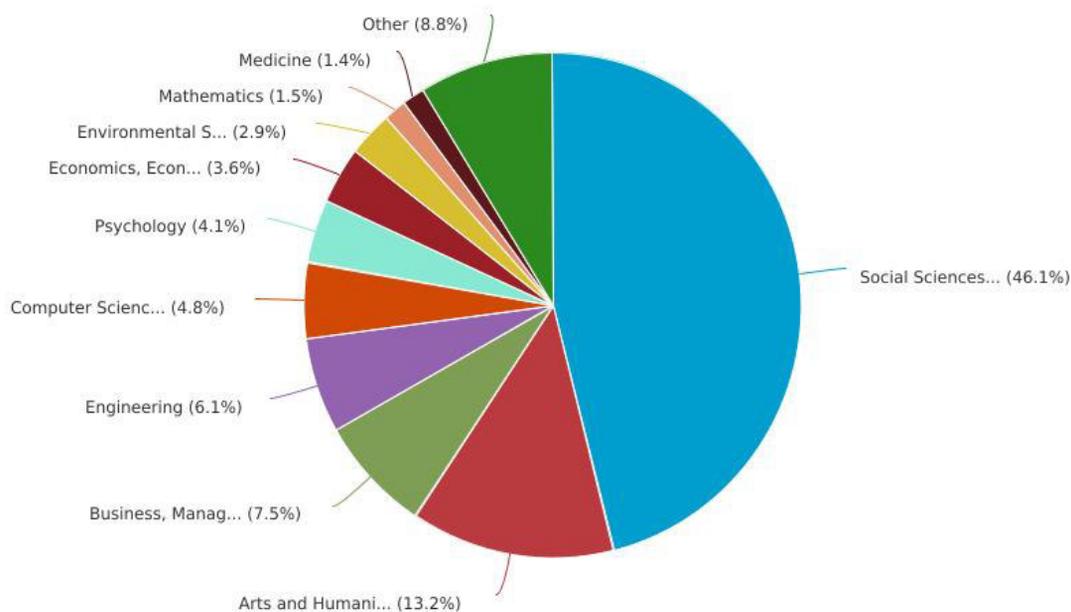


Figure 2. Main thematic areas (1969-2019) Source: Scopus

Figure 3 represents the 10 most productive countries in this research topic. The United States stands out, with 149 articles, which represents 16.32% of the total. They are followed by the United Kingdom (140; 15.33%), Russia (76; 8.32%), Spain (68; 7.44%) and Australia (66; 7.22%).

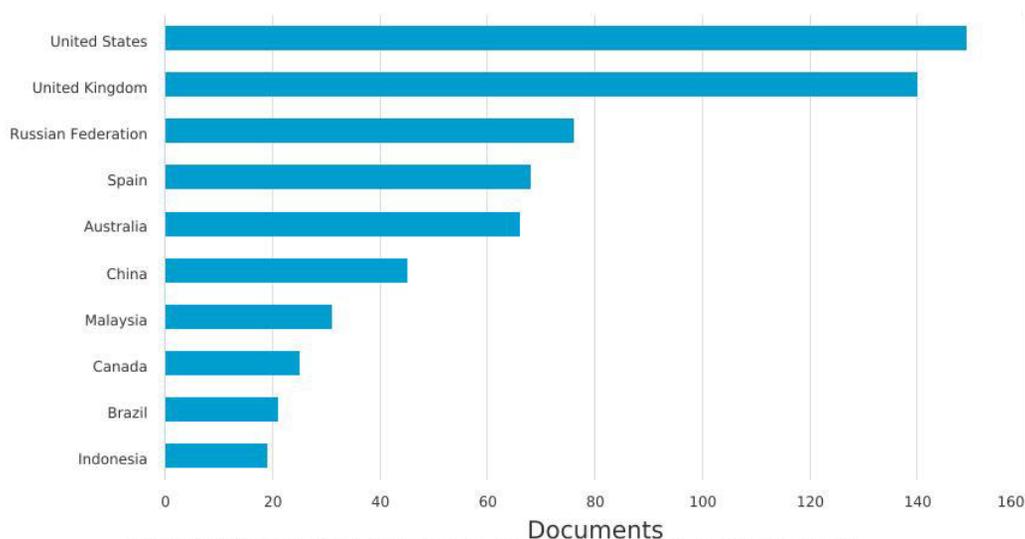


Figure 3. Main countries (1969-2019) Source: Scopus

Likewise, the authors who have published the most on artistic teaching and creative thinking in university contexts have been, with 4 articles Chernyaeva, I.V and with 3 articles each, Chen, I.S.; Chen, J.K.; Gu, J.; Kuimova, M.V.; Poce, A.; and Akhmetova, Z.

On the other hand, in relation to the most productive research organizations, these have been the Kazan Federal University, with 11 articles; the Universiti Kebangsaan Malaysia, with 9; the Queensland University of Technology QUT RMIT, University Universiti Teknologi Malaysia and University of Illinois at Urbana-Champaign, with 7 articles published each.

3.2. Analysis of Scientific Collaboration Networks

In this section, the main cooperation networks between the different agents driving this study topic (authors, research institutions and countries) are analysed. Figure 4 shows the scientific collaboration network based on the co-authorship of articles on artistic teaching and creative thinking in university contexts. The authors were associated, according to the VOSviewer tool, in 2 groups.

Group 1, pink colour, is led by Burgoyne L. and is associated, among others, with the authors Cantillon-Murphy P., O'Flynn S., O'tuathaigh C., Shorten G., Spoelstra H., Stoyanov S., Sweeney C., and Van Huffel S.

Group 2, green, is headed by Bennett D. and is associated with Blom D., Dunbar-Hall P., Hitchcock M., and Rowley J.

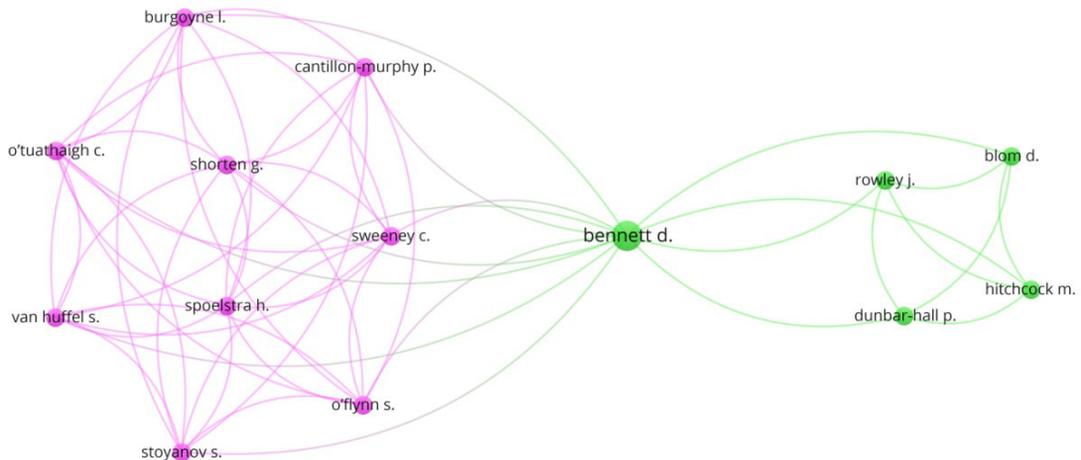


Figure 4. Network of authors based on co-authorship (1969–2019). Source: VOSviewer

Figure 5 shows the network of scientific collaboration between organizations according to the co-authorship of documents about study. Thus, the organizations were associated in 4 groups.

The first, pink, is the most numerous and is made up of the Queensland University of Technology (Australia); Universidade de Brasilia (Brazil); University of South Australia (Australia); Anglia Ruskin University (Cambridge, United Kingdom); Center For Teaching and Learning, University of Limerick (Ireland); Durham University (United Kingdom); Faculty of Arts and Social Sciences, University of Southampton (United Kingdom); and the Graduate Institute of Futures Studies, Tamkang University (Taiwan), among others.

While in group 2, green, are grouped the organizations University of Strathclyde (Glasgow, United Kingdom); Universiti Sains Malaysiapenang (Malaysia); Deakin University (Australia); and Umea University (Sweden), among others.

Group 3, red, is made up of the Arc Center of Excellence for Creative Industries and Innovation, Queensland University of Technology (Australia); Coventry University, (United Kingdom); Faculty of Arts, University of British Columbia (Canada); University of Wollongong (Australia); Faculty of Creative Industries, and the Queensland University of Technology (Brisbane, Australia).

Finally, group 4, yellow, is made up of universities by De Montfort University (United Kingdom); Harbin Normal University (China); King Alfred's College Winchester, United Kingdom; De Montfort University (United Kingdom).

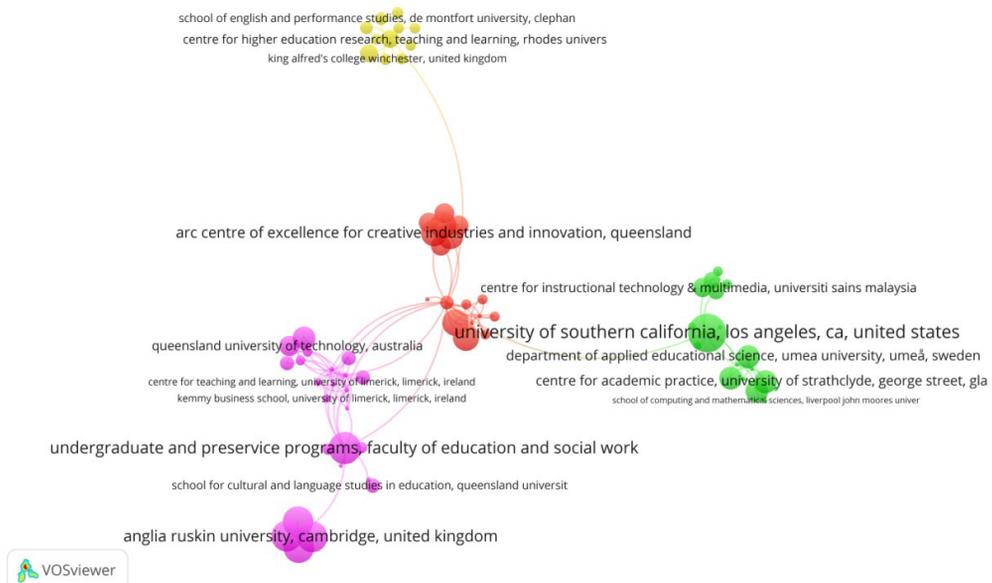


Figure 5. Network of organizations based on cooperation (1969–2019). Source: VOSviewer

Hence, 81 countries have contributed jobs to the development of this field of research. Figure 6 shows the collaboration between the main countries based on the co-authorship of their authors. The map defined by different colours represents the groups of countries, while the size of the circle varies depending on the number of contributions from each country. In this way, the larger the circle that represents each country, the greater the number of contributions whose authorship it symbolizes. The VOSviewer software has detected that they are associated according to five different groups.

Group 1 (pink), the most numerous, is headed by the United Kingdom, and is linked, among others, with Australia, Sweden, Finland, Malaysia, Indonesia, Germany, Brazil, South Africa, Portugal, Singapore, and Iran.

On the other hand, group 2 (green) is led by Austria and is associated, among others, with Spain, Canada, Holland, France, Belgium, Ireland, Israel, Switzerland, Pakistan, and Mexico, among others.

Meanwhile, group 3 (red) is headed by Russia and is associated with China, Germany, Taiwan, Greece, Hong Kong, United Kingdom, Raine, South Korea, and Bangladesh, among others.

Likewise, group 4 (yellow) is led by Indonesia and is linked, among others, with Brazil, Vietnam, Slovenia, Mexico, Thailand, Norway, Belgium, Croatia, Denmark, Guatemala, North Macedonia, and Serbia.

Finally, group 5 (purple), the least numerous, is led by the United States and is associated, among others, with South Africa, Turkey, Cyprus, Kenya, Venezuela, Peru, Nigeria, and Zimbabwe.

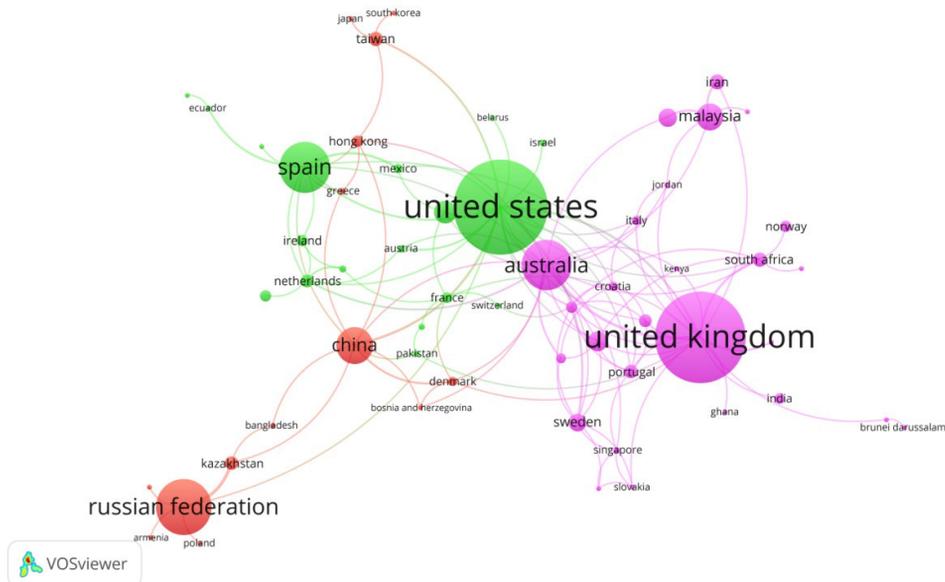


Figure 6. Network of countries/territories based on co-authorship (1969–2019). Source: VOSviewer

3.3. *Keyword Analysis*

In the selected sample of 913 articles, 3547 different keywords have been identified that make up the breadth of terms and concepts of the study topic. The analysis of the set of keywords of a specific research topic allows to know the main lines of research that are developed by the main agents that promote it (authors, organizations, and countries).

Figure 7 presents the network map for the keywords of the complete sample of the contributions analysed on artistic teaching and creative thinking in university contexts. The size of the circle represents the number of articles in which each keyword appears, and the colour indicates the group in which the keyword is included based on the number of joint occurrences.

VOSviewer has identified 6 main groups representing the different views on research in this field of study. The main keywords are creativity, university, culture, arts, perception, sustainability; around which the rest of the terms of the publications on this research topic are linked.

In this study, the first group (pink) is led by the term creativity. This is associated, among others, with the following terms: higher education, education, teaching, innovation, learning, art, entrepreneurship, critical thinking, knowledge, creative thinking, design, sustainable development, training, employability, pedagogy, collaborative learning, and -learning, experiential learning, design education, art education and creative works, among others.

This first line of research examines and develops the creative process as a social phenomenon, that is, creativity based on the interaction between individuals. Man is permeable to stimuli, a quality that allows us to enrich our ideas (Davies et al, 2011; Van de Kamp et al, 2015; Vigotsky, 2003).

The second group (green) is headed by the term university and is associated with terms such as motivation, diversity, leadership, psychology, communication, competence, imagination, methodology, professional competence, identity, adaptation, awareness, emotion, empowerment, and faculty, among the most prominent.

This second component has focused on the university, as the institution of higher education that links visual communication with the emotions of the individual, in relation to the transmission of ideas and information that can be perceived with sight (Davies et al, 2011; Larson & Miller, 2011; UNESCO, 2010).

In group 3 (red) the term culture stands out and is linked to economics, employment, organization, communication skill, interview, research work, attitude, cultural anthropology, personnel, human resources, social psychology, and economic factors, among others.

This line of research focuses on the study of visual literacy where it is intended to encompass a combination of cultural studies with visual elements.

In this way, the academic, economic, human, and psychological fields are included, among others, and includes the visualized human experience embodied in the history of art, architecture, photography, critical theory, philosophy and anthropology and other visual realities (González-Zamar & Abad-Segura, 2020; Hetland, 2013; Niu & Sternberg, 2003).

Meanwhile, group 4 (yellow) led by the term arts is associated with visual creative teaching method, design education, learning, skill, decision making, creative work, fine arts, industrial design, performance, product design, 3D printing, architecture, blended learning, creative problem solving, development, environmental education, industry, artificial intelligence, computer aided instruction, creativity development and education program.

This group has contributed to developing aspects related to the visual arts, regarding the set of artistic manifestations of a visual nature (traditional plastic disciplines, new forms of expression that appeared during the second half of the 20th century and artistic manifestations related to new technologies). Thus, this line has contributed to highlighting disciplines such as painting, drawing, engraving and sculpture, photography, video art, artistic action or performance, graffiti, augmented reality, or virtual reality (González-Zamar & Abad-Segura, 2020; Efland, 1990).

Group 5 (violet) is led by perception and is associated with terms such as: deep learning, learning environment, midwife, problem-based learning, program evaluation, lateral thinking, personal experience, problem-based learning, transformative learning, DNA transcription, memory, and flexible pedagogies.

In this sense, this fifth line of research contributes to the analysis of artistic perception, that is, to the forms with which the individual receives or perceives with the senses some sensation due to an art form. Hence, through artistic expressions (music, dance, poems, literature, sculpture, painting, etc.) we can express and indicate what we feel (González-Zamar et al, 2020; Larson & Miller, 2011).

Finally, the sixth group (blue) is headed by the term sustainability and is associated with urban economy, urban growth, global economy, economic growth, and smart city.

In this sixth group, the line of research on the concept of sustainable art has been developed, from different approaches, such as economic, urban, architectural, among others. This seeks the inclusion in the works that comprise it, of aspects related to ecology and the denunciation of actions that degrade the environment, as well as the support of social causes (Abad-Segura et al, 2020; Craft, 2001; Vigotsky, 2003).

complement to the knowledge of research on artistic teaching and creative thinking in university contexts, and allow establishing the relationship between education and art. The research helps generate new qualitative insights and serves as an entry point for future discussions. By having a broad view of the research landscapes, you can quickly identify emerging areas of interest.

This research has a set of limitations, which have conditioned the results obtained, and these could be considered as the basis for future research articles. Among these, we can highlight the Scopus database chosen to apply the methodology, as well as the keywords selected to extract the article sample, the study period, the bibliometric methodology used and even the variables examined. It is also necessary to recognize that using data mining, you can explore large databases and find repetitive patterns that explain the behaviour of this data.

Finally, it has been observed that international research on artistic teaching and creative thinking in university contexts shows an upward trend, derived mainly from the number of articles, such as the lines of research developed, which indicates the growing interest in the academic community and scientific. Future lines of research refer to the development of themes related to literacy and visual culture, perception, and sustainability in the plastic and visual arts.

In other words, it is noted that scientific activity on artistic teaching and creative thinking in university contexts takes place in a conducive environment, with a general interest in the dissemination of the results of publications, allowing technical progress.

References

- Abad-Segura, E., y González-Zamar, M. D. (2019). Effects of financial education and financial literacy on creative entrepreneurship: A worldwide research. *Education Sciences*, 9(3), 238. doi: 10.3390/educsci9030238
- Abad-Segura, E.; González-Zamar, M.-D.; Infante-Moro, J. C. y Ruipérez García, G. (2020). Sustainable management of digital transformation in higher education: Global research trends. *Sustainability*, 12(5), 2107. doi: 10.3390/su12052107
- Craft, A. (2001). An analysis of research and literature on creativity in education. *Qualifications and Curriculum Authority*, 51(2), 1-37.
- Davies, A., Fidler, D. y Gorbis, M. (2011). *Future Work Skills 2020*. Palo Alto, CA: Institute for the Future for University of Phoenix Research Institute.

- Efland, A.D. (1990). *A History of Art Education*. New York: Teachers College Press
- González-Zamar, M. D., Abad-Segura, E., Luque de la Rosa, A., y López-Meneses, E. (2020). Digital education and artistic-visual learning in flexible university environments: Research analysis. *Education Sciences*, 10(11), 294. doi: 10.3390/educsci10110294
- González-Zamar, M. D., y Abad-Segura, E. (2020). Implications of virtual reality in arts education: Research analysis in the context of higher education. *Education Sciences*, 10(9), 225. doi: 10.3390/educsci10090225
- Guerrero-Baena, M. D., Gómez-Limón, J. A., y Fruet Cardozo, J. V. (2014). Are multi-criteria decision-making techniques useful for solving corporate finance problems? A bibliometric analysis. *Revista de Métodos Cuantitativos para la Economía y la Empresa*, 17, 60-79. doi: 10.46661/revmetodoscuanteconempresa.3624
- Hailey, D. (2014). Visual thinking, art, and university teaching across disciplines. *About Campus*, 19(4), 9-16. doi: 10.1002/abc.21163
- Hetland, L. (2013). *Studio thinking 2: The real benefits of visual arts education*. Teachers College Press.
- Larson, L. C., y Miller, T. N. (2011). 21st century skills: Prepare students for the future. *Kappa Delta Pi Record*, 47(3), 121-123. doi: 10.1080/00228958.2011.10516575
- Leydesdorff, L. y Vaughan, L. (2006). Co - occurrence matrices and their applications in information science: Extending ACA to the Web environment. *Journal of the American Society for Information Science and technology*, 57(12), 1616-1628. doi: 10.1002/asi.20335
- Niu, W., y Sternberg, R. J. (2003). Societal and school influences on student creativity: The case of China. *Psychology in the Schools*, 40(1), 103-114. doi: 10.1002/pits.10072
- Osareh, F. (1996). Bibliometrics, citation analysis and co-citation analysis: A review of literature I. *Libri*, 46(3), 149-158.
- UNESCO (2010). Closing session of the Second World Conference on Arts Education, Final Report by Professor Larry O'Farrell, Rapporteur General of the Conference, Seoul, May 28, 2010.
- Van de Kamp, M. T., Admiraal, W., van Drie, J., y Rijlaarsdam, G. (2015). Enhancing divergent thinking in visual arts education: Effects of explicit instruction of meta - cognition. *British Journal of Educational Psychology*, 85(1), 47-58. doi: 10.1111/bjep.12061
- Van Eck, N.J. y Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84, 523-538. 10.1007/s11192-009-0146-3
- Vigotsky, L. S. (2003). *La imaginación y el arte en la infancia* (87). Ediciones Akal.

Vinkler, P. (2010). Indicators are the essence of scientometrics and bibliometrics. *Scientometrics*, 85(3), 861-866. doi: 10.1007/s11192-010-0159-y



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