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ABSTRACT: At the international and Hispanic American level, there are few academic and research exercises that allow for a synthesis of environmental education with a community approach, even though it is an increasingly valued and implemented framework. In this context, the objective of the present study is to describe the bibliographic data of research on community environmental education, written in Spanish and published in specialized journals in the last 20 years. A descriptive bibliographic review was carried out, using the same search strategy in the databases Web of Science, Scopus Elsevier, SciELO, Dialnet, Redalyc and JSTOR, including a final corpus of 151 studies.

A progressive but discontinuous increase in the number of studies was identified. Cuba, Mexico and Colombia were the countries with the most publications, the journal with the most papers was Avances and most of the research was supported by higher educational institutions. It was found that qualitative methodologies and techniques such as surveys, interviews, participant observation and Participatory Action Research (PAR) are mainly used, with community members, children and adolescents, teachers, and community leaders as the main participants. Finally, the relevance of research on communities and their environmental education processes is discussed, concluding on the importance of carrying out synthesis research exercises to have an overview of the challenges, strengths and lessons learned in the field of community environmental education.

KEY WORDS: Community environmental education; Bibliographic review; Community; Environmental education

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| PALAVRAS-CHAVE: | RESUMO: A nível internacional e hispano-americano, são poucos os exercícios académicos e de investigação que têm uma síntese da educação ambiental com enfoque comunitário, apesar de ser uma orientação cada vez mais valorizada e implementada em vários territórios. Nesse contexto, o objetivo deste estudo é descrever os dados bibliométricos de pesquisas sobre educação ambiental comunitária, escritas em espanhol e publicadas em periódicos especializados, nos últimos 20 anos. Foi realizada uma revisão bibliográfica descritiva, utilizando a mesma estratégia de busca nas bases de dados Web de Science, Scopus Elsevier, SciELO, Dialnet, Redalyc e JSTOR, incluindo um corpus final de 151 estudos.

Se identificou um aumento progressivo, mas descontínuo de estudos, que Cuba, México e Colômbia são os países com mais publicações, que a revista com mais trabalhos foi Avances y de que a maior parte da pesquisa é suportada por instituições de ensino superior. Constatou-se que são utilizadas principalmente metodologias qualitativas e técnicas como encesas, entrevistas, observação participante e IAPs, tendo como principais participantes membros da comunidade, crianças e adolescentes, professores e lideranças comunitárias. Por fim, discute-se a relevância de investigar sobre as comunidades e seus processos educativos ambientais, concluindo sobre a importância de realizar exercícios investigativos de síntese para ter uma visão geral dos desafios, potencialidades e aprendizados no campo da educação ambiental comunitária.

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<td>Educação ambiental comunitária; Revisão bibliométrica; Comunidade; Educação ambiental</td>
<td>A nível internacional e hispano-americano, são poucos os exercícios académicos e de investigação que têm uma síntese da educação ambiental com enfoque comunitário, apesar de ser uma orientação cada vez mais valorizada e implementada em vários territórios. Nesse contexto, o objetivo deste estudo é descrever os dados bibliométricos de pesquisas sobre educação ambiental comunitária, escritas em espanhol e publicadas em periódicos especializados, nos últimos 20 anos. Foi realizada uma revisão bibliográfica descritiva, utilizando a mesma estratégia de busca nas bases de dados Web de Science, Scopus Elsevier, SciELO, Dialnet, Redalyc e JSTOR, incluindo um corpus final de 151 estudos. Se identificou um aumento progressivo, mas descontínuo de estudos, que Cuba, México e Colômbia são os países com mais publicações, que a revista com mais trabalhos foi Avances y de que a maior parte da pesquisa é suportada por instituições de ensino superior. Constatou-se que são utilizadas principalmente metodologias qualitativas e técnicas como encesas, entrevistas, observação participante e IAPs, tendo como principais participantes membros da comunidade, crianças e adolescentes, professores e lideranças comunitárias. Por fim, discute-se a relevância de investigar sobre as comunidades e seus processos educativos ambientais, concluindo sobre a importância de realizar exercícios investigativos de síntese para se ter uma visão geral dos desafios, potencialidades e aprendizados no campo da educação ambiental comunitária.</td>
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1. Introduction

Nowadays, humanity faces an epochal change in which it is dangerously close to the sustainable limits of the planet and the biosphere (Bedford & Cook, 2013; Raworth, 2017). In this context, environmental educational processes have emerged as a civic need and a pedagogical reaction to the current civilization crisis (Caride & Meira-Cartea, 2020). Within this field, some have taken a neutral or at least offhand stance, being promoters of alphabetization about the climate or the environment, which gives little possibility of change and transformation in view of our subsistence (González-Gaudiano & Meira-Cartea, 2020).

In this global situation, the place that communities play in education is crucial, since they are in the front line for the generation of mitigation and adaptation measures (González-Gaudiano & Maldonado-González, 2017; Noguchi, Guevara, & Yorozu, 2016). In a context in which institutional and formal environmental education has not been able to provide communities with capacities, skills and knowledge to understand and deal with the underlying factors of the climate emergency (Caride & Meira-Cartea, 2020; González-Gaudiano & Arias-Ortega, 2009), which is partly reflected in the non-compliance of global institutional instruments such as the Sustainable Development Goals (SDGs) (Collado-Ruano, 2016).

As a disciplinary field, Environmental Education (EE) has a common past and fully recognizable milestones (Bautista-Cerro, Murga-Menoyo & Novo, 2019), within which it is possible to identify a diaspora of approaches, visions, and meanings that have had as a result the development of a range of studies and initiatives (Berryman & Sauvé, 2016). Within this diversity –and in concordance with the aforementioned–, a strong development of the community approach has been identified in recent years (Aguiar, 2016; 2018; Covas-Alvarez, 2004; Prosser & Romo-Medina, 2019), which has been promoted at various levels and sectors of public and citizen policy, as an effective measure for social transformation through the design and local management of educational initiatives of an environmental nature (Battaini & Sorrentino, 2020; Blair, 2008, Espejel-Rodríguez & Castillo-Ramos, 2019).
In particular, the Latin American version of Community Environmental Education (CEE) is based on a systemic and complex perspective that puts the questioning of the local reality as the nucleus that generates educational action (Calixto-Flores, 2012; González-Gaudiano & Maldonado-González, 2017; Tréllez-Solís, 2015). It is also based on critical theory, assuming that there is a series of relationships and power games both in educational and community spaces, which are constructed and at the same time construct the various factors that compose them (Robottom, 2005).

In this way, the CEE is directly opposed to the scientific and banking vision of some traditional currents of EE (Jensen, 2002), since it allows questioning the role that the diverse environmental knowledge plays in the discipline, being possible to value a range of counter-hegemonic knowledge and rationalities, which have historically been subjugated (Calixto-Flores, 2010). Remarking the same condition of oppression, Eloísa Tréllez Solís, since the beginning of the century, stated that “the future of the communities, their culture, and their nature has not always been explicitly present in the concerns of Environmental Education” (Tréllez -Solís, 2002, p. 8).

Almost 20 years after the words of Tréllez-Solís (2015), it is now possible to glimpse a CEE based on the autonomy of the communities and their own needs, in order to develop educational processes that “must have a conscious character, an adequate orientation of its objectives, as well as an environmental perspective that has as a task the motivation and commitment from the community itself ” (Paredes-Díaz, Acosta-Hernández & Pérez-García, 2015, p. 115).

In this way, the CEE aims to generate co-educational and self-educational processes from, for and by communities, thus being a company based on territoriality and active social participation. Thus, the CEE contributes to the constitution and strengthening of community groups that operate and decide at the local level, which generates greater self-organization and democratization in decision-making; reinforces the commitment and links between institutions and civil society; and it facilitates the generation of feelings and collective identities based on territorial roots and cooperativity (Moreno-Fernández, 2015; Paredes-Díaz et al., 2015).

Despite the aforementioned benefits, these experiences face a series of challenges as a result of their implementation in real contexts. This means that putting the community approach to EE into practice implies facing conditions, needs and barriers, as well as having backing and supports. In this sense, Moreno-Fernández and Navarro-Díaz (2015) state that the objectives and contributions of the CEE are hampered by factors and situations, such as:

1. Difficulties in the continuity of community projects, due to the lack of economic resources and support from local authorities.
2. Problems with networking, both between public administration institutions and citizen organizations.
3. Lack of evaluation of the impacts and participation achieved by the projects, which generates a feeling of insecurity about the effects of the program and regarding whether the time invested has been wasted.
4. On occasions, those who seek to promote CEE projects do not come from the same communities, making their insertion and relationship with them difficult. In some cases, it is even impossible to correct the mistrust and rejection that is generated in this regard.

Based on these obstacles, it is possible to think that the community approach clashes with the model of society and education that exists in various contexts, largely due to the low participation and involvement of certain key actors, in another, due to the lack of administrative support political and economic that receive this type of initiative (Calixto-Flores, 2010). Therefore, it is essential to have the human and material resources, as well as the political, academic, financial, and cultural conditions that promote solid participation of all members of the community (Moreno-Fernández & Navarro-Díaz, 2015; Polo-Espinal, 2013).

Along with the need for these resources, it is essential to build processes that allow managing knowledge within this field. Knowing the context of international scientific production (Aguilar, 2018; Briggs, Trautmann, & Forunier, 2018), this does not only mean to accommodate a diaspora of productions but also to tend to synthesis exercises that allow reflecting the progress achieved.

In this framework, despite the social acceptance of the CEE (Blair, 2008; Calixtos-Flores, 2012) and the existence of some bases and outlined frameworks (Noguchi, Guevara, & Yorozu, 2016), it is not clear its political, programmatic, and academic development. It has even been difficult to synthesize definitions or basic assumptions that are common to all the experiences that are defined under the CEE (Aguilar, 2016). For this reason, the present study aims to describe the bibliometric data of CEE investigations written in Spanish in the last 20 years, published in journals indexed by authors from Spain, Latin America,
and the Caribbean. In order to delve into this, a series of reviews in the field of EE are presented below, in order to visualize relevant background to the objective of the research.

2. Reviews on environmental education

In the last 10 years, consistent efforts have been made in order to synthesize and analyze EE research and policies (Alkens, McKenzie, & Vaughter, 2016; Chawla & Derr, 2012), with a pending task to carry out similar actions around the community focus of the field, or directly on the CEE (Aguilar, 2018; Briggs, Trautmann, & Forunier, 2018). A good part of these reviews focuses on higher education (Lorenzetti & Delizoicov, 2009; Molano-Niño & Herrera-Romero, 2014; Tovar-Gálvez, 2017), although they generally characterize scientific productions associated with a series of approaches within the EE.

In Spanish, it is worth mentioning the study that Sepúlveda Chaverra (2015) carried out on Education for Sustainable Development (ESD), pointing to Spain as the only Hispanic-American country or kingdom that is among the ten that publishes the most. The similar result among the most quoted articles, with the vast majority of these written in English. In similar research but carried out regarding Education for Climate Change (ECC), García-Vinuesa and Meira-Cartea (2019) point out that only Spain, Mexico and Brazil are among the countries that publish the most worldwide, in turn, the Autonomous University of Oaxaca and the National Pedagogical University (Mexico) are the Spanish-American institutions with the most participation in studies. Even so, as seen in the study by Sepúlveda Chaverra (2015), only 10% of the works were carried out in a language other than English (García-Vinuesa & Meira-Cartea, 2019).

Despite the aforementioned, a series of general reviews of EE have mentioned aspects related to its community angle. At an international level, Nicole Ardoin and her collaborators (2013) synthesized the main topics or central themes of EE, recognizing community action and learning as axes of the teaching-learning process, which must be adapted to the environment and ecosystem in which each community coexists. The same author, in an even more recent review, points out that these are also central aspects of Early Childhood Environmental Education (Ardoin & Bowers, 2020).

Along the same lines, Varela-Losada, Vega-Marcote, Pérez-Rodríguez and Álvarez-Lires (2016), identified the educational purpose of a series of EE articles written worldwide between 2008 and 2013. Within five possible purposes, they highlighted the interest of a series of studies to involve the community in educational processes. Even so, they were critical of this type of experience, as they pointed out that, in general, they did not measure the impacts of educational actions in the communities, and they showed that a good part of them originate and deploy actions from the schools to the community.

In Latin America, it is difficult to trace similar exercises with respect to the community sphere, although it is possible to distinguish some general reviews on EE. In the first place, it is worth mentioning the large syntheses carried out by the Mexican Council for Educational Research (COMIE in Spanish), which made it possible to verify an increase and diversification of publications in EE from 1982 to 2015 (González-Gaudiano & Arias-Ortega, 2015).

A year earlier, Medina and Páramo (2014) presented a bibliometric analysis of 77 articles, mostly from Venezuela (26), Colombia (16) and Mexico (14). According to the authors, the magazines Luna Azul (12), Educere (10), Revista Electrónica Actualidades en Investigación (6), Investigación y Postgrado (5) and the Revista Mexicana de Investigación Educativa (5) were the main media where it was published. They also highlighted descriptive studies and documentary analyzes as the main methodologies used.

Briggs and his collaborators (2018) reviewed 84 publications that emerged in Latin America, adding value to having tracked these in Spanish, English, Portuguese and French. The results indicate that Brazil is the country that concentrates about 60% of the studies in the area, followed by Mexico and Colombia. The authors also describe a strong tension on the continent between the visions of ESD and EE, and between the actions carried out in and out of school. Even towards the end of their text, they point out that it is essential and useful for the field to develop reviews focused on the community or the popularity of EE (p.18).

Finally, it is worth mentioning the review carried out by Prosser and Romo-Medina (2019) of 174 EE articles that work with children and teenagers, published between 1999 and 2019 in Latin America. It was found that Spain, Colombia and Mexico were the countries with the most publications and that within the empirical studies the majority were qualitative, followed by research with mixed methodologies, and finally, quantitative ones. At the same time, they point out some thematic trends, among which the EAC stands out, valuing its contributions to local environmental management and the promotion of a greater participation of children and adolescents in EE activities.

[104]
In summary, it can be evidenced, on one hand, a series of studies that describe within their central themes the community, and on the other, those that highlight the results and implications of hosting EE in the community. Even so, it is very difficult to point out that there is a systematic academic exercise that allows us to describe with certainty the trends and impacts of CEE as an academic field, much less link it to a series of bibliometric variables.

For this reason, the present investigation sought to carry out a descriptive bibliometric review (DBR) of CEE publications, written in Spanish in the last 20 years. In this way, the relevance of the article is linked to achieving a description of the characteristics of the studies in terms of i) chronological progression, ii) geographic distribution, iii) methodology, iv) impact, and, v) institutions and journals involved in its publication. Likewise, it will seek to identify the main keywords, in order to go in depth in the description of CEE as a field of study in Latin America.

3. Methodology

In order to identify trends and critical nodes within the CEE, this study used the DBR (Grant & Booth, 2009). Its use is based on the ability of this methodology to describe bibliometric parameters, to explore emerging areas and fields of knowledge, as well as to generate states of the art, and synthesize lines of research, authors and associated institutions (Booth, Sutton, & Papaioannou, 2016).

During the development of this research, the recommendations of various authors were followed (García-Vinuesa & Meira-Cartea, 2019; Sánchez-Meca & Botella, 2010), especially regarding: diversifying the search strategies by which the research; use both inclusion criteria and a series of exclusion filters; diagram the flow of the procedure; report the process in the identification, selection, election and inclusion phase; and using mechanisms to give greater systematicity to the treatment of the data.

3.1. Search strategy

A search was made of those articles published in the Web of Science, SCOPUS Elsevier, Scielo, Dialnet, Redalyc and JSTOR databases. In all these academic spaces we proceeded in the same way, entering the Boolean code: “Comunidad OR Comunitaria OR Comunitario AND Educación Ambiental OR Educación para el Desarrollo sostenible OR Educación para la Sustentabilidad OR Educación para el Cambio climático OR Eco ciudadanía”.

Additionally, and to add rigor in the search, other investigations were tracked by introducing a series of keywords, namely: community, communal, environmental education, education for sustainable development, education for sustainability, education climate change and eco citizenship. The entry of these terms to the search engines responds to the fact that the EA receives different names in Latin America according to the position of each author, while the scope referred to the community is generally expressed employing these two words.

3.2. Inclusion criteria

The application of the inclusion criteria on the studies was carried out jointly by both authors, having as a condition absolute consensus for each of the selected articles. Regarding the fulfillment of the criteria, it was carried out in a dichotomous and qualitative way, being the works classified as “accepted” or “rejected”, according to the presence of the following criteria:

1. Academic works or scientific articles that are framed in the field of study or other related ones.
2. Published in Spanish in the last twenty years (from 2000 to August 14, 2020). With this, an attempt was made to access the works that emerged in Latin America.
3. Published in scientific journals with an indexing system that ensures a minimum quality (Liberati et al., 2009).
4. Studies with direct or indirect reference to the community, the community sphere or an aspect of it.

A bibliographic record matrix was prepared using Microsoft Office Excel program where the articles that met the aforementioned criteria were deposited. In this it was recorded: authors, number of authors, gender of the first author, article title, year of publication, journal, citations by text, url and / or doi of publication, institution, country, keywords, summary, methodology, information gathering techniques and participants.

3.3. Exclusion criteria

The process of exclusion of the studies was carried out in two stages: in the first, the repeated articles were discarded, those that were constructed from lectures or congresses, as well as those that had a language other than Spanish and that escaped the inclusion filters. For this first stage, special attention was paid to the title and the abstract of the works. In the second, the texts were...
read in-depth and those that were experiences of School Environmental Education (SEE) or from areas other than the CEE were excluded.

In the first part of the procedure, the Boolean code was entered in the search engines, which allowed the identification of 2,401 studies. Inclusion criteria were applied to the identified studies, obtaining 215 articles. Subsequently, the first stage of the exclusion criteria was carried out, obtaining a total of 163 articles. Finally, with the application of the second stage of the exclusion criteria, it was possible to constitute a final corpus of 151 articles. This entire procedure is synthesized by means of Figure 1 shown below.

Figure 1. Review flow chart. Source: Own elaboration.

3.4. Information analysis

The final corpus of articles was distributed between both authors and then a set of variables was defined to identify in the texts (see Table 1). Taking these variables into consideration, each of the authors made a superficial reading to identify them. Later, the studies that raised doubts or those in which the authors disagreed with their classification were jointly discussed. For the definitive identification of the works, readings were crossed, having a 100% consensus as a reliability criterion.
Table 1. Operationalization of variables to be recorded for each study

<table>
<thead>
<tr>
<th>Variable</th>
<th>Operationalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author(s)</td>
<td>Full name of each of the persons listed as authors of the text</td>
</tr>
<tr>
<td>Number of authors</td>
<td>Total number of authors indicated in text, expressed in whole numbers.</td>
</tr>
<tr>
<td>Gender</td>
<td>Gender of the first author of the text</td>
</tr>
<tr>
<td>Year</td>
<td>Year in which the text was published inside the magazine</td>
</tr>
<tr>
<td>Magazine</td>
<td>Full name of the journal in which the text was published</td>
</tr>
<tr>
<td>Impact</td>
<td>Number of times the text has been cited in another research</td>
</tr>
<tr>
<td>Country</td>
<td>Place where the research was carried out, or, if not, the nation to which the first author’s institution belongs.</td>
</tr>
<tr>
<td>Institution</td>
<td>Institutional affiliation indicated by the first author of the text</td>
</tr>
<tr>
<td>Methodology</td>
<td>Green (2015) distinguishes three methodological approaches. The quantitative methodology oriented to the testing of hypotheses, through the extraction of numerical data for statistical analysis. The qualitative methodology oriented to the deep understanding of phenomena under investigation through interpretive, descriptive, narrative, ethnographic approaches, among others. Finally, the mixed methodology, in which data collection and analysis is carried out both quantitatively and qualitatively.</td>
</tr>
<tr>
<td>Techniques</td>
<td>Data collection techniques used in the research. Based on the work of Green (2015), particular techniques were associated with each type of methodology (e.g. PRA), and there may also be cross-cutting techniques (e.g. questionnaires).</td>
</tr>
<tr>
<td>Participants</td>
<td>People involved in the study as a sample. The social group to which the groups involved in the research belong is described.</td>
</tr>
</tbody>
</table>

Source: Own elaboration.

Given the nature of this review, descriptive statistical analyzes and heterogeneity were performed for each of the variables to examine the data, in order to characterize the included studies. Additionally, a thematic analysis (Vaismoradi, Jones, Turunen, & Snelgrove, 2016) was carried out on the keywords of the studies, aiming to delve into the range of issues raised concerning to CEE. These analyzes were incorporated to complement the descriptive presentation of the results, which generally marks this type of studies (Ardoin & Bowers, 2020).

4. Results

The results were structured in four subsections: a brief characterization of the final corpus of included articles and their authors; a description of the articles, authors, journals, countries and institutions with the most publications and citations in them; also an exposition of the main methodologies used, the techniques and the participants of the studies; to finally expose a more qualitative analysis that is reflected in the analysis of the keywords of the writings.

4.1. Characterization of studies

To carry out the characterization, four specific variables were taken into consideration: the year, the country, the gender of the first author and the number of authors recognized as such in the text (see Table 2). As can be seen, most of the people who participate in the research as the first author are women and, in general, the studies are carried out with one, two or three authors.
Figure 2. Number of community environmental education studies from 2000-2020.
Source: Own elaboration.

Table 2. Characterization of included studies

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women’s</td>
<td>78</td>
<td>51.7%</td>
<td>Men’s</td>
<td>73</td>
<td>48.3%</td>
</tr>
<tr>
<td>Year of publication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000-2005</td>
<td>8</td>
<td>5.2%</td>
<td>2006-2010</td>
<td>24</td>
<td>15.9%</td>
</tr>
<tr>
<td>2001-2015</td>
<td>53</td>
<td>35.1%</td>
<td>2016-2020</td>
<td>66</td>
<td>43.7%</td>
</tr>
<tr>
<td>Country</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cuba</td>
<td>48</td>
<td>31.7%</td>
<td>One</td>
<td>37</td>
<td>24.5%</td>
</tr>
<tr>
<td>Mexico</td>
<td>32</td>
<td>21.1%</td>
<td>Two</td>
<td>47</td>
<td>31.1%</td>
</tr>
<tr>
<td>Colombia</td>
<td>28</td>
<td>18.4%</td>
<td>Three</td>
<td>36</td>
<td>23.8%</td>
</tr>
<tr>
<td>Spain</td>
<td>12</td>
<td>7.8%</td>
<td>Four</td>
<td>18</td>
<td>11.9%</td>
</tr>
<tr>
<td>Venezuela</td>
<td>10</td>
<td>6.5%</td>
<td>Five or more</td>
<td>13</td>
<td>8.6%</td>
</tr>
<tr>
<td>Ecuador</td>
<td>8</td>
<td>5.2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>4</td>
<td>2.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costa Rica</td>
<td>4</td>
<td>2.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>2</td>
<td>1.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other countries</td>
<td>3</td>
<td>&lt;1%</td>
<td></td>
<td></td>
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</tbody>
</table>

Source: Own elaboration.

Regarding the countries, almost a third of the texts come from Cuba, followed by Mexico and Colombia. Further back appear Spain and Venezuela, adding among these five nations more than 80% of the total publications. From what can be measured in Table 2 and Figure 2, there is a growth in the number of publications from 2000 to date, although this progression is discontinuous over time.
4.2. Impact of the studies

In order to know the publication spaces and the degree of impact of the studies, a series of variables are described below: number of citations per country; number of citations between the years 2000-2020; main journals and institutional affiliations of the authors; as well as the authors with the highest number of publications.

From Figure 3 it is identified that Mexico is the country with the highest number of citations, followed by Spain, Colombia, and, to a lesser extent, Cuba. On the opposite, it is possible to identify Chile and Brazil as those countries that do not have studies that have been quoted by other investigations. Finally, it is found that countries such as Ecuador, Costa Rica, Venezuela, Peru, and Argentina have a medium number of citations of their studies, while Bolivia has a low number of mentions.

![Figure 3. Number of citations by country of study. Source: Own elaboration in MapChart.](image)

It was possible to verify that between the years 2001-2011 there is a discontinuous development of the total number of quotations of the identified studies (see Figure 4). This situation changes as of 2012, a year with an abnormal number of citations. Subsequently, a progressive discontinuous decrease in the number of citations of the studies is identified, which may be related to the recentness of these.

![Figure 4. Number of citations of the studies in the period 2000-2020. Source: Own elaboration.](image)
Regarding the journals of publication and number of citations (see Table 3), it is possible to verify that Avances is the one that has published a greater number of CEE texts in Latin America. Regarding the countries to which these main journals belong, Cuba has three among those that publish the most articles. On the other hand, concerning to the number of citations, the Mexican Journal of Educational Research stands out, which has a good number of articles on the subject. Finally, it is striking that the journals Avances, Horizontes Sanitarios and the DELOS Magazine have a low number of citations compared to the other journals, as they present the highest number of published articles.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Country</th>
<th>Citations</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Magazine</strong></td>
<td></td>
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<tr>
<td>Advances</td>
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<tr>
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</tr>
<tr>
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<td>7</td>
<td>4.6%</td>
</tr>
<tr>
<td>Mexican Journal of Educational Research</td>
<td>Mexico</td>
<td>223</td>
<td>5</td>
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</tr>
<tr>
<td>Mendive. Education Magazine</td>
<td>Cuba</td>
<td>3</td>
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<td><strong>Institution</strong></td>
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</tr>
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<tr>
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<tr>
<td>National Pedagogical University of Mexico</td>
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<tr>
<td>Universidad Pedagógica Experimental Libertador</td>
<td>Venezuela</td>
<td>5</td>
<td>4</td>
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</tr>
<tr>
<td>Central University of Las Villas</td>
<td>Cuba</td>
<td>3</td>
<td>4</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

Source: Own elaboration.

Regarding the institutional affiliation of the authors, the University of Pinar del Río is found to be the one with the largest number of assigned research, followed by the Universidad Juárez Autónoma de Tabasco and the Universidad Nacional de Costa Rica, which together represent close to 25% of the writings. Additionally, it should be noted that almost all of the first authors were attached to a university institution, and it rarely happened that they belonged to state, municipal institutions or civil society organizations (NGOs).

The authors with the most publications were also tracked, highlighting the Mexicans Eduardo López-Hernández (n = 12) and Ana Rodríguez-Luna (n = 9). Edgar González-Gaudiano from Mexico (n = 4) appears further back; Julio Cesar Tovar-Gálvez from Colombia (n = 4); and Evelyn Pérez-Rodríguez, Mayra Casas-Vilardell and Rosa Hernández-Acosta de Cuba (n = 4). It should be noted the strong presence of texts by classic authors of the field such as the Mexican Raúl Calixto-Flores (n = 3), the Mexican Adelina Espejel-Rodríguez (n = 3), the Spanish-Peruvian Eloísa Tréllez-Solís (n = 3) and the Spanish Olga Moreno-Fernández (n = 3). Therefore, we can observe a high presence of authors from the same countries that publish the most and have the most impact: Cuba, Mexico, Colombia and Spain.
4.3. Study methodology

When characterizing the various methodologies of the studies (see Table 4), an intentional categorization was carried out that recognized the systematizations of experiences from the rest of the theoretical studies (essays, reflections). Likewise, as already mentioned, the rest were categorized according to the taxonomy of Green (2015), prevailing the qualitative methodology (51.8% of the empirical studies), followed by the mixed methodology (39.75% of those mentioned studies) and quantitative (8.43%).

<table>
<thead>
<tr>
<th>Methodology</th>
<th>n</th>
<th>%</th>
<th>Techniques</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative</td>
<td>7</td>
<td>4.6%</td>
<td>Survey/questionnaire</td>
<td>49</td>
<td>32.5%</td>
</tr>
<tr>
<td>Qualitative</td>
<td>43</td>
<td>28.5%</td>
<td>Interviews</td>
<td>36</td>
<td>23.8%</td>
</tr>
<tr>
<td>Mixed</td>
<td>33</td>
<td>21.8%</td>
<td>Participant observation</td>
<td>30</td>
<td>19.0%</td>
</tr>
<tr>
<td>Theoretical</td>
<td>27</td>
<td>17.9%</td>
<td>PAR</td>
<td>29</td>
<td>19.2%</td>
</tr>
<tr>
<td>Systematization of experiences</td>
<td>41</td>
<td>27.1%</td>
<td>Documentary analysis</td>
<td>16</td>
<td>10.6%</td>
</tr>
<tr>
<td>Group devices</td>
<td>13</td>
<td>8.6%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Participants

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community members</td>
<td>35</td>
<td>23.2%</td>
</tr>
<tr>
<td>NNA</td>
<td>25</td>
<td>16.6%</td>
</tr>
<tr>
<td>Teachers</td>
<td>13</td>
<td>8.6%</td>
</tr>
<tr>
<td>Community leaders</td>
<td>12</td>
<td>7.8%</td>
</tr>
<tr>
<td>Cooperatives</td>
<td>5</td>
<td>3.3%</td>
</tr>
<tr>
<td>Indigenous communities</td>
<td>5</td>
<td>3.3%</td>
</tr>
<tr>
<td>Managers</td>
<td>5</td>
<td>3.3%</td>
</tr>
<tr>
<td>Women</td>
<td>5</td>
<td>3.3%</td>
</tr>
<tr>
<td>Youth</td>
<td>5</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

Source: Own elaboration. Fishermen, farmers, artisans, among others.

4.4. Keywords from the studies

The keywords were entered into a word cloud processor, resulting in Figure 5. As in general EE, CEE is related to the concepts of development, especially sustainable development, linking education and progress. It can also be verified that the CEE is linked to formal education, through the school, as well as with informal or non-formal educational factors that are in the territory, neighborhood, sector or the family.
Regarding the contexts of initiatives implementation and research related to the CEE, most of them take place in rural areas such as the mountains, the countryside, the basins or in various localities of Latin American countries. It can also be assumed that within the field there is a high interest in generating participatory educational experiences, having an active role in the various communities involved (e.g. participatory, dynamic, awareness, actions, diagnosis, local, citizen, interactive).

Finally, classic concepts of environmental educational fields appear, such as: knowledge, attitudes, behaviors, awareness, among others. In turn, it is identified that the CEE is linked, both with society and with science, as social interfaces for the development of sustainable and resilient communities.

5. Discussion and conclusions

A DBR of CEE publications, written in Spanish in the last 20 years, was carried out, showing a progressive but discontinuous increase in publications. This is consistent with most bibliometric reviews in the field of study (González-Gaudiano & Arias-Ortega, 2015; Prosser & Romo-Medina, 2019), a differentiating result being the peak (2011) of the CEE, which begins after the one identified in the EE (2007-2008). This can be attributed to the fact that the CEE is a focus and/or a specialty in which a larger field is developed, which is EE, ESD or ECC so that its academic production will always be subsequent to the global field.

In relation to the predominant countries, similar results are found to previous research, identifying Spain, Mexico and Colombia (Briggs et al., 2018; García-Vinuesa & Meira-Cartea, 2019; Sepúlveda Chaverra, 2015). Additionally, as a result of this research, Cuba is positioned as an important country in the scope of the CEE, which demonstrates a good national approach, since the Caribbean country had not exhibited similar results in previous global reviews. Despite it, it is not reflected in a greater impact on the part of Cuban writings and their corresponding universities, unlike Spanish, Mexican and Colombian productions, authors and institutions. Here is possible to hypothesize regarding a certain invisibility -not necessarily active- of these colleagues’ work.

Regarding the publication journals in the field of study, Luna Azul continues to be one of the most widely used means of communication to publish, as in previous reviews (Medina & Páramo, 2014; Prosser & Romo-Medina, 2019; Sepúlveda Chaverra, 2015). Particularly in this study, a new corpus of journals from Cuba is incorporated, which concentrate a large number of publications, but with a low impact, not necessarily being oriented to environmental studies or education.

As in the aforementioned reviews, CEE shares with the global field of ESD and EE, the predominance of qualitative methodologies, followed by mixed and to a lesser extent quantitative. Following Green’s (2015) line, this would indicate that, at least methodologically, the CEE promotes the active participation of the factors it involves. However, there is a large number of documentary analyzes, which could be an indicator of little participation or involvement, given the strong theoretical nature of this type of study.

When analyzing the main institutions that support CEE research, these correspond to higher education educational institutions (Briggs et al., 2018). As in previous research, some of the entities with the greatest impact are the Universidad Pedagógica Nacional de México and the Universidad Autónoma de Tlaxcala (García-Vinuesa & Meira-Cartea, 2019). Also, the present review made it possible to identify as highly relevant institutions the Universidad de Pinar del Río de Cuba, the...
Universidad Juárez Autónoma de Tabasco of Mexico and the Universidad Nacional de Costa Rica.

The predominance of universities, as the main agents that support the selected studies, allows us to see that the financing of CEE initiatives is limited and focused mainly on the design and evaluation of actions or particular studies (Calixto-Flores, 2010; Polo-Espinal, 2013). These results contradict, in a certain grade, the primary objective of the CEE in relation to developing educational processes for and from the community, which can make it difficult to insert these interventions into the communities or the relationship of external mediators with them (Moreno-Fernández & Navarro-Díaz, 2015). Even so, it is necessary to continue investigating the role that university extension can have, or its link with the environment in the evaluation of the CEE.

Additionally, and taking into account the results of the review by Varela-Losada and his collaborators (2016), the scarcity of impact studies on CEE could be due to the lack of financing by other entities and institutions, which do not prioritize reporting the advancement of the field, nor manage the knowledge produced through their actions. This situation makes ruling the development of a CEE based on a public institutional infrastructure that makes it possible to provide sustainability and replicability to this type of initiative (Calixto-Flores, 2010; Florez, 2012).

As with the universities, it is possible to identify the school as another institution strongly linked to the CEE, which shows: 1) on one hand, an interest in transferring environmental educational actions from the school to the neighborhood, from the educational spaces formalities towards community settings, from educational factors to territorial factors (Espejel-Rodríguez & Castillo-Ramos, 2019; Espejel-Rodríguez & Flores-Hernández, 2012); 2) on the other hand, a difficulty to leave a space where EE was historically developed (González-Gaudiano & Arias-Ortega, 2009); and where this type of initiatives is frequently implemented, which from the school, seek to raise environmental awareness in the communities (Prosser et al., 2020).

Here we can see a vision of the CEE where the school is one more element of the community gear, which contributes to managing environmental action locally. This can be linked to the results of this study, regarding the presence of both community and school actors in the development of CEE initiatives, since there is a strong relevance of actors such as teachers and managers, but also community members and leaders. This could well be a reflection of the essential of participation and territorial action for this field (Moreno-Fernández, 2015; Paredes-Díaz et al., 2015; Tréllez-Solis, 2015), so that future research could investigate, using other methodologies, in the degree and quality of participation that is encouraged in these educational actions.

Continuing with the involvement of the participating actors, a link is identified between the children and teenagers and the CEE, which indicates them as a relevant subject within community spaces. In this sense, previous research has highlighted the importance of considering children and adolescents and their particularities in the community teaching-learning process, as well as their active contribution to local environmental management (Ardoín & Bowers, 2020; Prosser and Romo-Medina, 2019). Similarly, greater attention could be paid to the place of women, going on depth on the importance of educating in community spaces from the perspective of ecofeminism (Aguilar & Limón-Domínguez, 2017).

Considering the keywords identified in the studies, the permanence of the tension between ESD and EE can be verified (Briggs et al., 2018). This situation could rather speak of certain lines of ESD that point out the importance of questioning the root causes of the crisis, taking into account the environment and the communities in which the educational exercises are carried out (Anderson, 2012).

In general, bibliometric reviews show a series of biases and limitations inherent to the decisions of their authors, the methodological procedures used and the finally selected corpus (Sandy & Tripney, 2017). In the present study, it was decided to consider only the Latin American region and research in the Spanish language, leaving aside countries strongly linked to CEE, such as Brazil (Briggs et al., 2018; Lorenzetti & Delizioicov, 2009). This limitation represents an opportunity for future research to include other regions that carry out CEE initiatives, as well as possible collaborations between authors/institutions that allow covering other languages and conducting comparative studies.

Another limitation of this type of studies refers to its merely descriptive claim, which means an opportunity to develop new research that is capable of analyzing analytically going in depth on the themes of CEE studies and initiatives, in order to know in depth how the community is unfolds and braids in these educational processes. In this same sense, it is necessary to continue promoting more theoretical research, which allows more precisely to recognize the principles, strategies, approaches and central components of the CEE (Aguilar, 2016; 2018).
On the other hand, it should be pointed that the development of this type of research in the field of CEE, allows a synthesis of environmental educational processes that respond to the civic and pedagogical need that emerges from the climate crisis (Caride & Meira-Cartea, 2020). For this, it is essential that research is not only developed from university institutions or academic speakers, but also from territorial and community organizations, where the diversity of perspectives and methodologies of the interested actors converge.

In this sense, there is a baseline limitation to the study presented here, in that the exercises of a community and popular nature are not expressed or communicated through institutional and/or academic-written channels. The claim behind this study responds rather to the need to gradually build clear and dynamic limits to a field about which much is said, but little is known, due to the scarcity of synthesis exercises. Similarly, in the future, it could be considered to systematize rather good practices or community-based interventions with a proven effect on EE.

In this way, progress must be made in the construction of an education for change (González-Gaudiano & Meira-Cartea, 2020), as a field that puts as a priority the generation of mitigation measures and adaptations from and for the communities, by means of processes based on their senses, knowledge and possibilities. All this, due to a horizon that allows giving life and hope to the educational processes raised by EE, as well as the communities that share and recreate it, in order to configure a social pedagogy that is the basis of a good living collectively and sustainably.

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RADIOGRAPHY OF COMMUNITY ENVIRONMENTAL EDUCATION: A BIBLIOMETRIC REVIEW OF SPAIN…

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