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Entrepreneurial learning research: a positivist tradition?

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Abstract

This article aims to systematically review the literature on Entrepreneurial Learning, analyzing the elements of studies published on the subject over time, with special emphasis on methodological approaches employed in empirical research. The motivation of the study is that this literature field is still fragmented. Moreover, previous reviews on the theme have not shed sufficient light on the methodological aspects of the research. Data were obtained through the Scopus database, and 356 articles were mapped with the support of VOSviewer software, revealing the evolution in the number of publications, cross-country relationships, and co-citation networks, among other metrics. An in-depth analysis of 38 articles published in the top five journals revealed the predominance of studies carried out in the European context, with entrepreneurs of technological companies, and at the individual level of analysis. Furthermore, a tradition of positivist studies was identified.

Keywords: Entrepreneurial Learning. Systematic Review. Methodological Approach.

Pesquisa em aprendizagem empreendedora: uma tradição positivista?

Resumo

O objetivo deste artigo foi revisar sistematicamente a literatura sobre Aprendizagem Empreendedora, analisando os elementos dos estudos publicados sobre o tema ao longo do tempo, com ênfase especial nas abordagens metodológicas empregadas na pesquisa empírica. O estudo foi motivado devido ser um campo da literatura ainda fragmentado. Além disso, as revisões anteriores sobre o tema não lançaram luz suficiente sobre os aspectos metodológicos das pesquisas. Os dados foram obtidos por meio da base de dados Scopus e 356 artigos foram mapeados com o apoio do software VOSviewer, revelando a evolução no número de publicações, redes de relação entre países e de cocitação, entre outras métricas. A análise aprofundada de 38 artigos publicados nos cinco principais periódicos revelou a predominância de estudos realizados no contexto europeu, com empreendedores de empresas tecnológicas e no nível individual de análise. Além disso, identificou-se uma tradição de estudos positivistas.

Palavras-chave: Aprendizagem Empreendedora. Revisão Sistemática. Abordagem Metodológica.

Investigación sobre aprendizaje empresarial: ¿una tradición positivista?

Resumen

El objetivo de este artículo fue revisar sistemáticamente la literatura sobre aprendizaje empresarial, analizando los elementos de los estudios publicados sobre el tema, con especial énfasis en los enfoques metodológicos empleados en la investigación empírica. La motivación del estudio es que ese campo de la literatura aún está fragmentado. Además, las revisiones anteriores sobre el tema no han arrojado suficiente luz sobre los aspectos metodológicos de las investigaciones. Los datos se obtuvieron a través de la base Scopus y se mapearon 356 artículos con el apoyo del software VOSviewer, lo que reveló la evolución en el número de publicaciones, redes de relación entre países y cocitación, entre otras métricas. El análisis en profundidad de 38 artículos publicados en las cinco principales revistas reveló el predominio de estudios realizados en el contexto europeo, con emprendedores de empresas tecnológicas y a nivel individual de análisis. Asimismo, se identificó una tradición de estudios positivistas.

Palabras clave: Aprendizaje empresarial. Revisión sistemática. Enfoque metodológico.

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INTRODUCTION

Entrepreneurial learning (EL) is developed in the stages of design and growth of new business, as the entrepreneur gains experience through practice (Cope, 2005; Politis, 2005), or through the analysis of past experiences (Deakins & Freel, 1998; Rae, 2005). Some authors, in turn, place emphasis on learning from past failures, critical incidents, and signals from the environment (Cope & Watts, 2000; Gibb, 1997). Regardless of the approach, what seems to be a consensus in literature on the subject is that EL is a continuous and evolving experiential process that imbues different moments of the entrepreneur's life (Cope, 2005; Politis, 2005; Rae, 2005).

Despite the many explanatory models on EL (Man, 2012; Politis, 2005; Rae, 2005; Zampier & Takahashi, 2011) and ongoing research on the topic, including systematic literature reviews (SLR) (Lattacher & Wdowiak, 2020; Nogueira, 2019; Wang & Chugh, 2014), there is a lack of a clear articulation of EL as a concept (Nogueira, 2019).

Moreover, no studies were identified that indicate cross-country relationship networks or co-authorship and co-citation networks, techniques for science mapping considered important to presenting the bibliometric structure and the intellectual structure of the research field (Donthu, Kumar, Mukherjee, Pandey, & Lim, 2021). Furthermore, no research was found addressing the main methodological approaches employed in empirical investigations on EL, indicating more details about the research philosophies, beyond the quali/quantitative classification.

Thus, aiming to provide subsidies for the advancement of EL theory and its articulation as a concept, based on the principles of bibliometrics and SLR (Donthu et al., 2021; Williams, L. A. Clark, W. R. Clark, & Raffo, 2021), two research questions were raised on this study.

> ***RQ1:*** *What is the historical overview of research published on entrepreneurial learning (number of articles published over time, cross-country relationship networks, main authors, co-authorship networks, main journals, most cited articles, main terms used, co-citation network and bibliographic coupling)?*
>
> ***RQ2:*** *What are the methodological approaches in empirical studies on entrepreneurial learning?*

The general objective of this article was to systematically review the literature on EL, analyzing the elements of studies published on the subject over time, with special emphasis on methodological approaches employed in empirical research. The next section provides a brief theoretical discussion, indicating the conceptual boundaries adopted on this paper.

ENTREPRENEURIAL LEARNING

Some of the early studies on EL (Deakins & Freel, 1998; McKelvey, 1998) already considered the process as consequence of entrepreneurs' past experiences and knowledge sharing. Although being inherent to the entrepreneur's path, this learning is likely to be more intensive in the early stage of the venture and, thus, would be mainly associated to the context of micro and small enterprises (Jones & Giordano, 2020; Lans, Biemans, Verstegen, & Mulder, 2008).

Accordingly, theories of organizational learning tend to be considered as inappropriate to explain this process, as they usually depart from the perspective of large organizations and propose models that are not applicable to micro and small businesses (Deakins & Freel, 1998). However, cognitivism-based studies on learning in the context of organizations bring proposals that are considered more suitable to the research on EL (Deakins & Freel, 1998). Worthy of notice are the types of learning proposed by Argyris and Schön (Malloch, Cairns, Evans, & O'Connor, 2011), namely: Single-Loop Learning, Double-Loop Learning, and Deuteron Learning. For the third type, aspects related to adaptation, context, and relationships are highlighted.

In the sociological approach to the entrepreneurial process, individual entrepreneur's interactions with different social groups in a given environment, as well as their past experiences, are considered to have potential to influence the business development (Jones & Giordano, 2020). Something similar is found regarding theories on EL, as the latter is drawn not only from the entrepreneur's past experience, but also from collective interactions (El-Awad, Gabrielsson, & Politis, 2017; Jones & Giordano, 2020).

Some authors consider that EL takes place as entrepreneurs gain experience through practice in the phases of design and growth of the new business (Cope, 2005; Jones & Giordano, 2020; Politis, 2005; Rae, 2017). Other authors, in turn, pay special attention to the influence of past experiences on learning (Deakins & Freel, 1998; Rae, 2005), while others investigate EL from past failures (Cope & Watts, 2000; Lattacher & Wdowiak, 2020).

Amidst different positions, there is a consensus in literature that EL is experiential, i.e., it results from formal and informal learning, problem solving, previous entrepreneurial processes, regardless if successful or unsuccessful. Moreover, it is a continuous and evolving process that reflects different moments of the entrepreneur's life (Cope, 2005; El-Awad et al., 2017; Man, 2012; Politis, 2005; Rae, 2005, 2017; Thompson & Illes, 2021).

It can be inferred that EL is both an enabler and an outcome of human and social capitals. These capitals tend to be influenced by the context in which the venture is established and developed (Lans et al., 2008). This statement is related to the constructivism-based sociocultural perspective, according to which knowledge sharing is conditioned to social interaction, participation, identity constitution, and context influence (Ribas & Moura, 2006).

Therefore, when considering the social aspect of EL, it is assumed that research in the area departs from an interpretivist philosophy (Kempster & Cope, 2010), adopting an ontology of reality as socially constructed. In addition to the social aspect, EL research field can also involve cognitive (Politis, 2005) and emotional aspects (Cope, 2005; Huxtable-Thomas, Hannon, & Thomas, 2016), which can also be related to constructivism and the epistemology that considers social phenomena and their subjective meanings. However, other aspects inherent to positivist research philosophy can also be considered, such as behavioral ones (Man, 2012; Tipu & Arain, 2011).

As literature on the subject is still evolving, and lacks consolidated theory (El-Awad et al., 2017; Jones & Giordano, 2020; Lattacher & Wdowiak, 2020; Nogueira, 2019; Thompson & Illes, 2021), it is questioned what the main methodological approaches would be employed in studies published on the subject so far. This SLR intends to respond that question.

METHODOLOGY

Considering the principles of SLR and bibliometric research in Management (Donthu et al., 2021; Williams et al., 2021), a SLR on EL was performed. We chose to carry out a bibliometric analysis (BA) jointly to the SLR, considering that BA based on quantitative techniques can mitigate the bias of qualitative analysis inherent to SLR, by supporting the careful selection of texts (Donthu et al., 2021). In its turn, the qualitative analysis helps to avoid the selection of research unrelated to the topic of interest (Williams et al., 2021).

The first stage consisted of a search in the Elsevier© Scopus database. Scopus is one of the most comprehensive repositories of scientific articles, with special emphasis on the areas of Business and Management, when compared to Clarivate©'s Web of Science database (Aksnes & Sivertsen, 2019). The search strategy to obtain the initial sample was based on the keywords *entrepreneurial* and *learning*, considered to be sufficiently inclusive. It is worth to emphasize that the theme in question does not refer to research focused on educational process, that is, the formal teaching of entrepreneurship. The interest here lies in the practical process, the *métier*, of entrepreneurship.

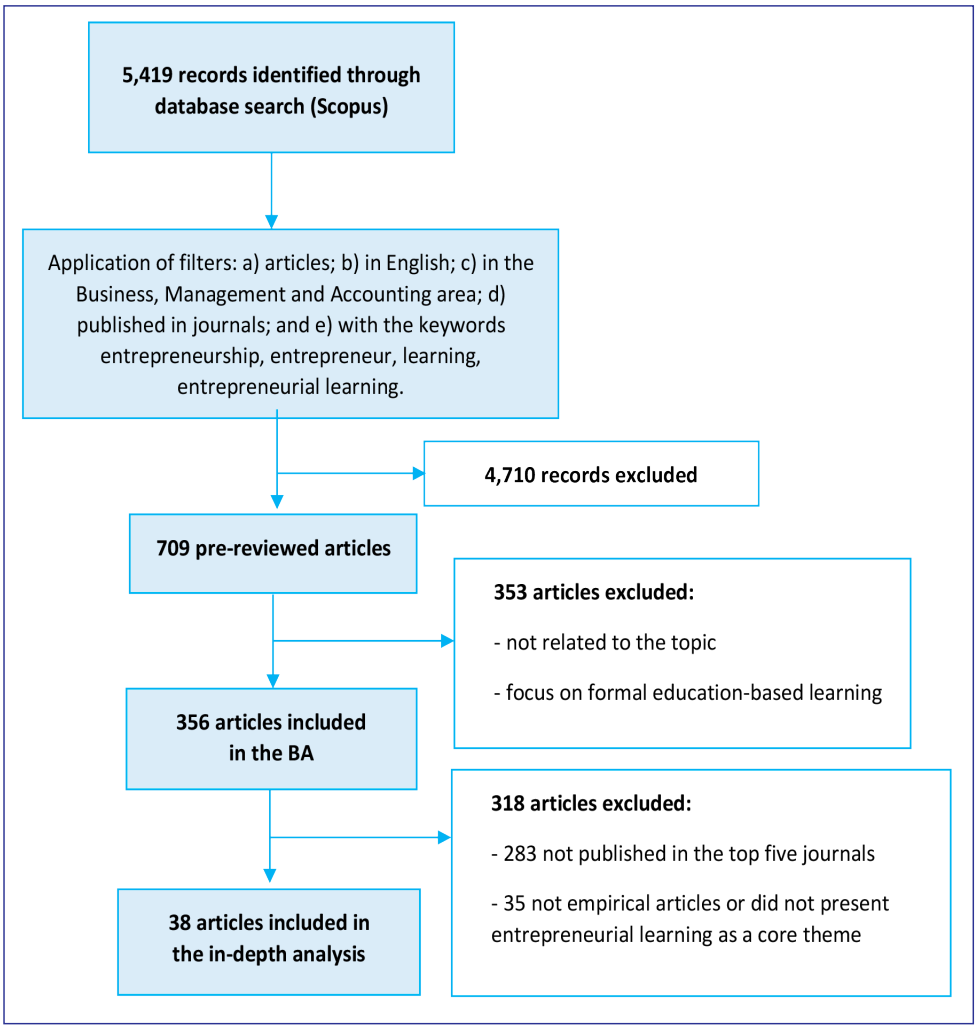
Thus, the following descriptors were used: entrepreneur*, learn* and education, which were combined through the use of Boolean operators: entrepreneur* AND learn* NOT education. The use of radicals (entrepreneur* and learn*) made it possible to obtain more comprehensive results, since they include variations in addition to the original radical. Descriptors were entered for search, considering the field "title, abstract and keywords" of the Scopus database. No time period was defined for the search. The initial search returned 5,419 items. Next, some filters were applied, selecting only: a) articles; b) in English; c) in the Business, Management and Accounting area; d) published in journals; and e) with the keywords entrepreneurship, entrepreneur, learning, entrepreneurial learning. This left 709 articles, which had their titles and abstracts read, in order to identify whether EL was the subject of research.

After this stage, 356 articles remained, and made up the sample for the BA. The Scopus platform enabled to pre-analyze some results by identifying the evolution of publications over the years, main authors, and main scientific journals. Then, a ".csv" file (database) was created, containing detailed information about the published studies, which was analyzed with the support of VOSviewer version 1.6.16.

For the in-depth analysis, the first five main journals were selected to review the methodologies employed in published studies, totalling 73 articles. The studies were analyzed in full, leading to the exclusion of 35 for not being empirical research or for not presenting EL as the main theme. Thus, 38 articles were included in the final sample (Figure 1).

The final step, the in-depth analysis, followed the SLR assumption, by "synthesizing previous work and fusing a foundation of evidence-based knowledge from earlier research in an objective and unbiased manner" (Williams et al., 2021, p. 524). The articles were read in full and had their objectives and research questions (whenever stated) considered for the analysis of methodological aspects. The methodological sections were analysed in terms of (Saunders, Lewis, & Thornhill, 2009): a) research philosophy; b) research strategy; c) type of research; d) time horizon; e) length of research in years; f) type and number of data collection techniques employed; g) type of interview, when interviews were performed; h) data triangulation (yes or no); i) data analysis technique; j) journal country of origin; k) research context; l) level of analysis; and m) researched group. It is worth mentioning that analysis was restricted to the articles' authors statement regarding the research methods used, and the evidence presented in the results.

Figure 1
Methodology phases



Source: Elaborated by the authors.

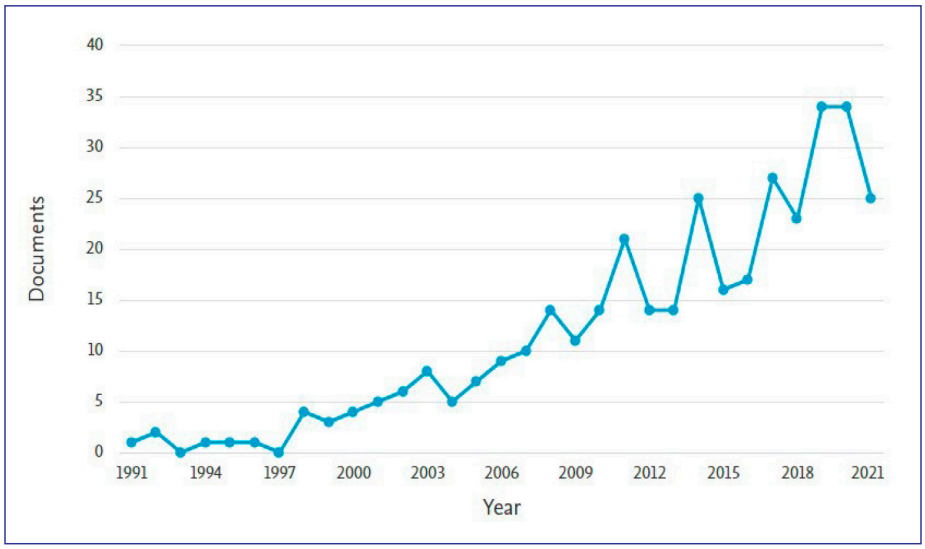
RESULTS OF THE BIBLIOMETRIC ANALYSIS

This section presents the main results obtained through BA supported by the Scopus database and VOSviewer software, considering the 356 articles selected.

Evolution of the number of publications

Accordingly to the search results, the first article published on the subject dates back to 1991. Since then, although oscillations can be observed, the evolution of the number of publications over the years is remarkable, with 64% of the studies (227) published in the last 10 years. As shown in Graph 1, there were 34 articles published in 2020, and by 2021 a total of 25 articles had been published in the first six months.

Graph 1
Publication evolution on Entrepreneurial Learning over time



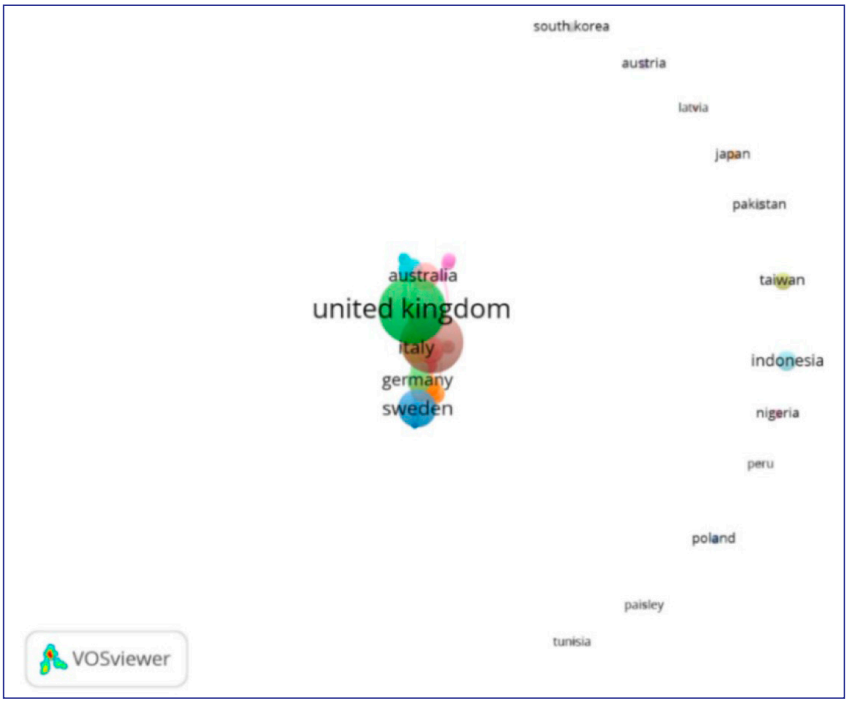
Source: Elaborated by the authors via Scopus database.

It is believed that the spikes in publications in some years are due to special issues of some journals, such as the "*Entrepreneurial learning dynamics in knowledge-intensive enterprises*" by the International Journal of Entrepreneurial Behavior & Research, in 2017, and the "*Entrepreneurial learning: new insights*" from Organization Learning, in 2019. However, for the other peaks, no special editions or direct relationship of articles with previous scientific events were identified, which may indicate an increase in interest in EL research area, resulting in a natural growth of publications.

Cross-country relationship networks

The study found 62 countries of authors origin. Results disclose the prevalence of a network of relationships in co-authorship of articles by some countries, while others appear as "satellites" with no direct relationship with the countries (Figure 2).

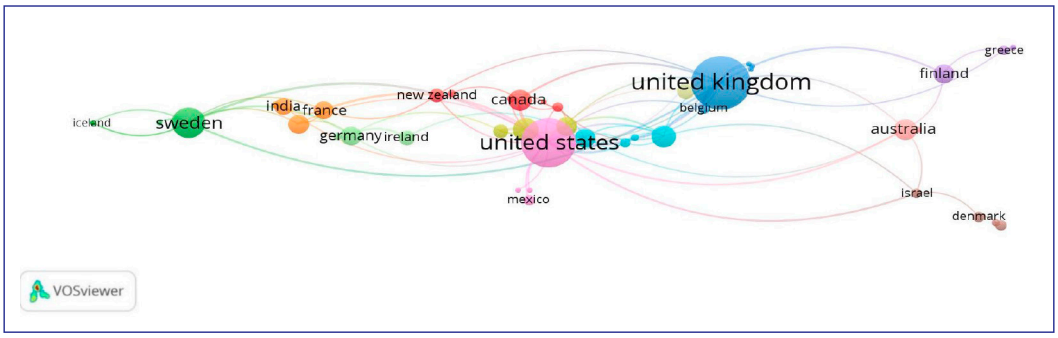
Figure 2
Cross-country relationship networks



Source: Elaborated by the authors via VOSviewer.

Zooming in on the image, one can see that as regards authorship of articles (Figure 3) the United Kingdom (89 documents) and the United States (77 documents) stand out, followed by Sweden (29 documents). This result is in accordance with the SLR conducted by Wang and Chugh (2014, p. 29), revealing a "North American and European research in two camps in terms of publication outlets".

Figure 3
Countries with co-authorship network

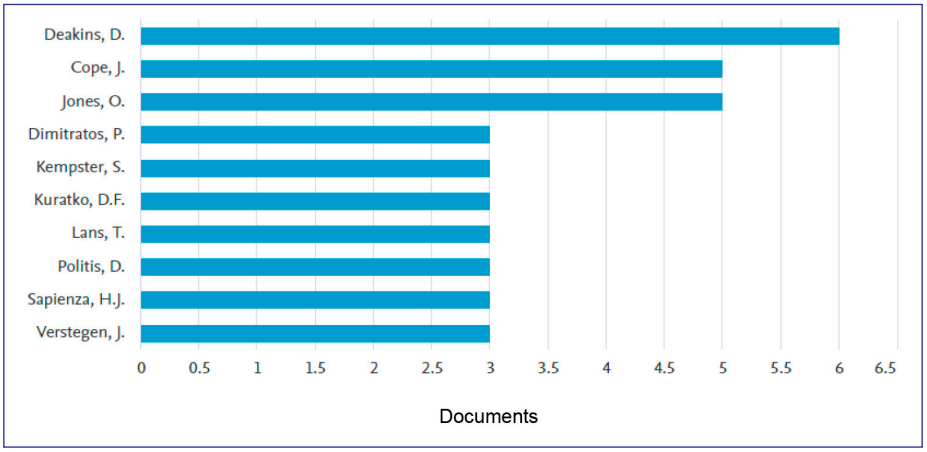


Source: Elaborated by the authors via VOSviewer.

Main authors

A total of 756 authors were identified. David Deakins was the main author on the topic of EL with six articles, followed by Jason Cope and Oswald Jones, with five articles each. The remaining authors in the top ten list published three articles each, as shown in Graph 2.

Graph 2
Main authors

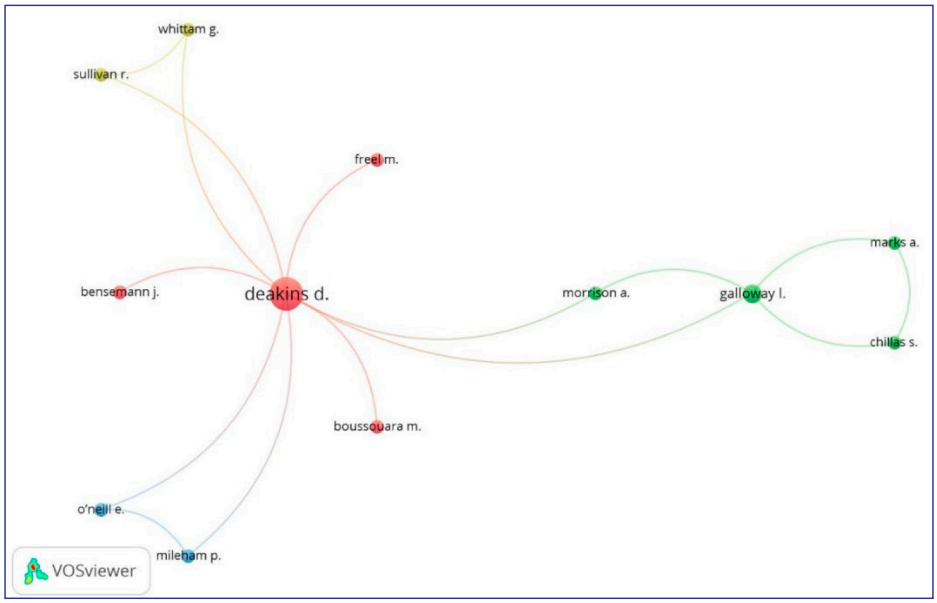


Source: Elaborated by the authors via Scopus database.

Although one of Deakins' texts co-written with Mark Freel (Deakins & Freel, 1998) was not the first to be published on the subject, as the survey results point out, it is one of the first papers to deepen the discussion about factors that influence EL in small and medium-sized companies.

The lack of a strong co-authorship network among researchers, with the main network consisting of only 12 authors (Figure 4), is also noteworthy.

Figure 4
Main co-authoring network

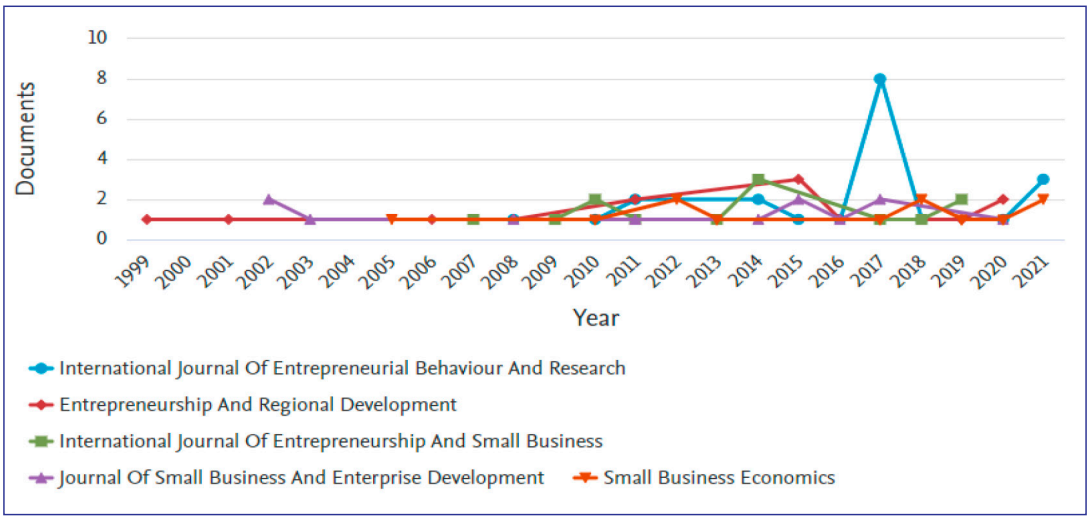


Source: Elaborated by the authors via VOSviewer.

Main journals

Graph 3 indicates that the journal with the highest number of articles published on EL was the International Journal of Entrepreneurial Behaviour and Research (IJEBR), with 21 publications over the years. The following journals follow in the sequence: Entrepreneurship and Regional Development, with 15 publications; International Journal of Entrepreneurship and Small Business (IJESB), with 13 published articles; followed by the Journal of Small Business and Enterprise Development and Small Business Economics (SBEJ) with 12 publications each.

Graph 3
Main journals



Source: Elaborated by the authors via Scopus database.

The first four journals are produced by research organizations located in the UK and the last one in the Netherlands. This reveals not only the predominance of authors from UK (Figure 2 and Figure 3), but also of scientific journals that publish on EL. The year 2017 is outstanding with 11 articles published, which is explained by IJEBR's special issue "Entrepreneurial learning dynamics in knowledge-intensive enterprises".

Most cited articles

The most cited author regarding EL is Jason Cope (Box 1), totalling 758 citations about two of his individual works: *Entrepreneurial learning from failure: An interpretative phenomenological analysis* (Cope, 2011) and *Entrepreneurial Learning and Critical Reflection: Discontinuous Events as Triggers for 'Higher-level' Learning* (Cope, 2003). David Deakins appears as the author who has published the most on the subject (Graph 2). His work - *Entrepreneurial learning and the growth process in SMEs*, in co-authorship with Mark Freel (Deakins & Freel, 1998), is the fourth most cited (279).

Box 1
Most cited articles

Order	Articles	**Citations**
1º	Cope J. (2011)	386
2º	Cope J. (2003)	372
3º	Corbett A.C. (2007)	314
4º	Deakins D. (1998)	279
5º	Littunen H. (2000)	265
6º	Almeida P. (2003)	220
7º	Kropp F. (2006)	209
8º	Nasution H.N. (2011)	199
9º	De Clercq D. (2012)	189
10º	De Backer K. (2003)	171

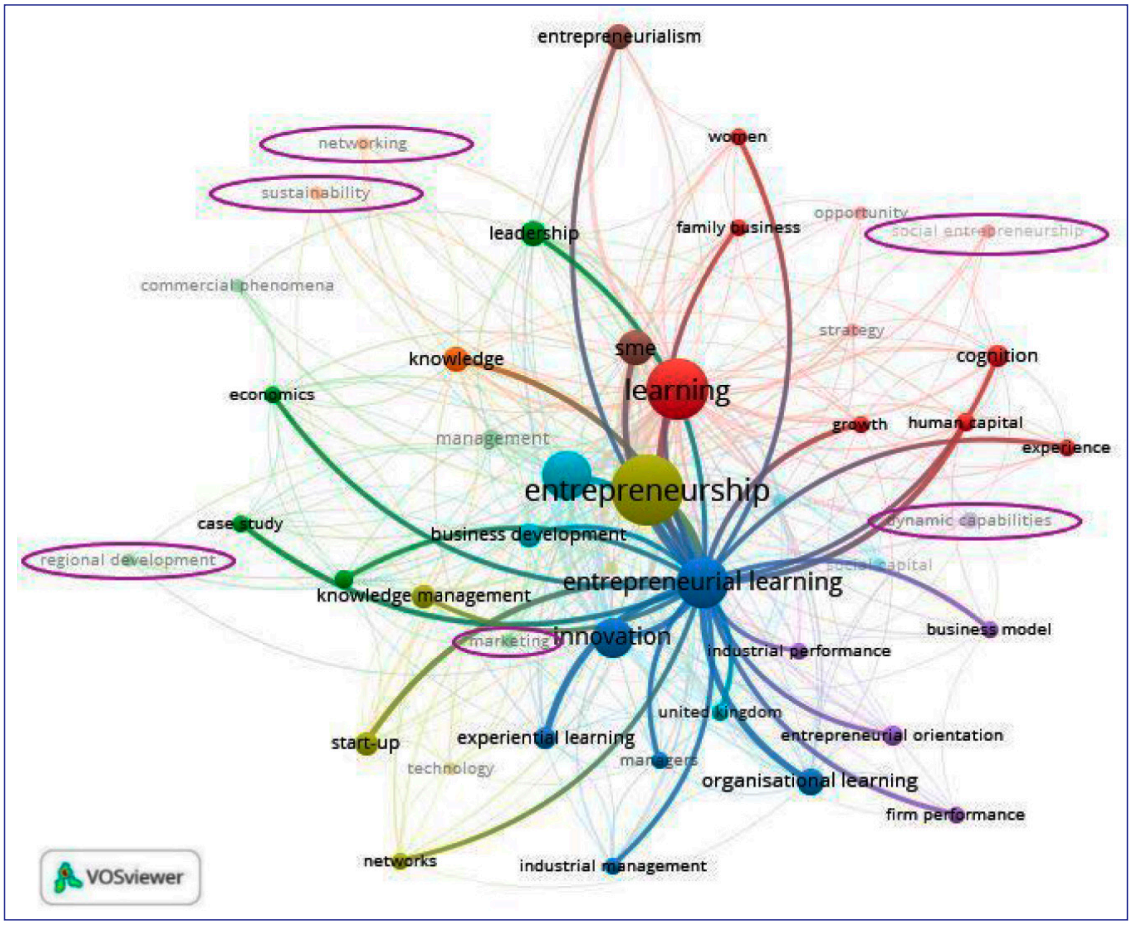
Source: Elaborated by the authors.

Network of relationship between the main words

Through binary counting, that is, considering only the presence or absence of the word in each article, the most relevant terms used in titles and abstracts – which have appeared at least 5 times – were identified. As Figure 5 shows, the top five terms were: entrepreneurship, learning, entrepreneurial learning, entrepreneur, innovation, and SME (small and medium enterprise).

When analyzing the network that connects to the term "entrepreneurial learning", some words such as "social entrepreneurship", "dynamic capabilities", "marketing", "regional development", "networking" and "sustainability" do not connect directly to it, which may indicate potential for future research.

Figure 5
Relationship network with the term "entrepreneurial learning" – emphasis on words that do not directly connect with it



Source: Elaborated by the authors via VOSviewer.

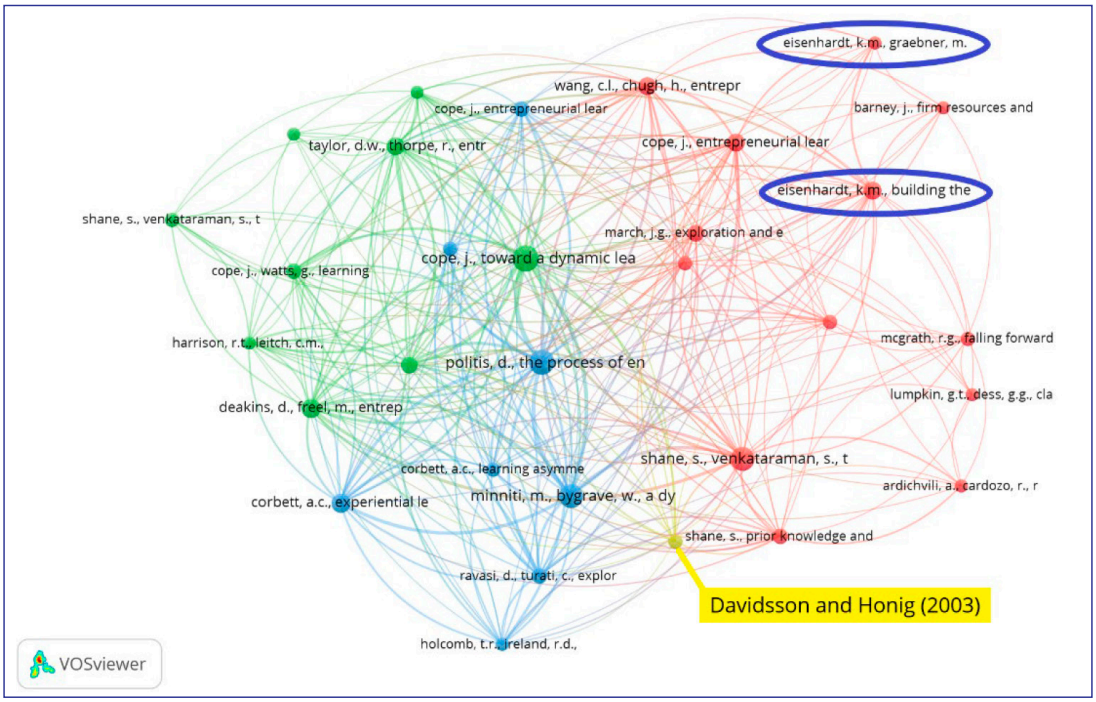
Co-citation network

The co-citation network measures the citation of two articles together by a third article. Only articles cited at least nine times by the other articles in the sample were selected. The Figure 6 shows four main clusters: red (13 articles), green (9 articles), blue (8 articles), and yellow (1 article). Each cluster indicates the papers are usually cited together in the studies on the theme, probably because of the potential link between their contents or lines of thought/research.

It is worth mentioning the fact that red cluster comprises two papers by Eisenhardt, a renowned author whose articles are used to support the methodological grounds of research that conducts case studies, and develops theories based on them. The presence of these papers may indicate the prevalence of articles in the sample that have conducted case studies, departing from a positivist approach.

The yellow cluster, in turn, discloses the unique presence of the work by Davidsson and Honig (2003), who investigated the role of social and human capital among nascent entrepreneurs. This may be an indication of potential for studies relating social capital, human capital, and EL.

Figure 6
Cocitation network

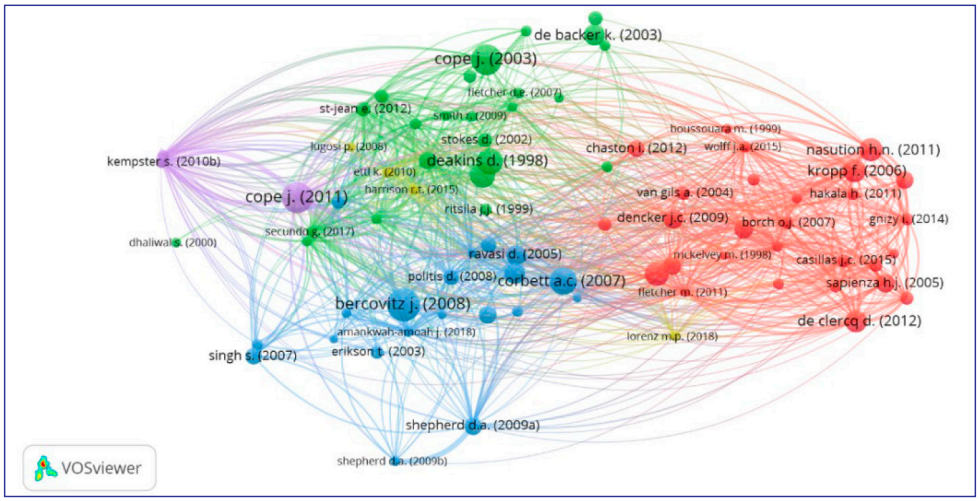


Source: Elaborated by the authors via VOSviewer.

Bibliographic coupling network

The bibliographic coupling network, a method developed by Michael Kessler, measures the relationship between two articles based on the number of common references cited by both (Kessler, 1963). Selecting only those articles in the sample that were cited at least 30 times, we obtained the figure shown on Figure 7.

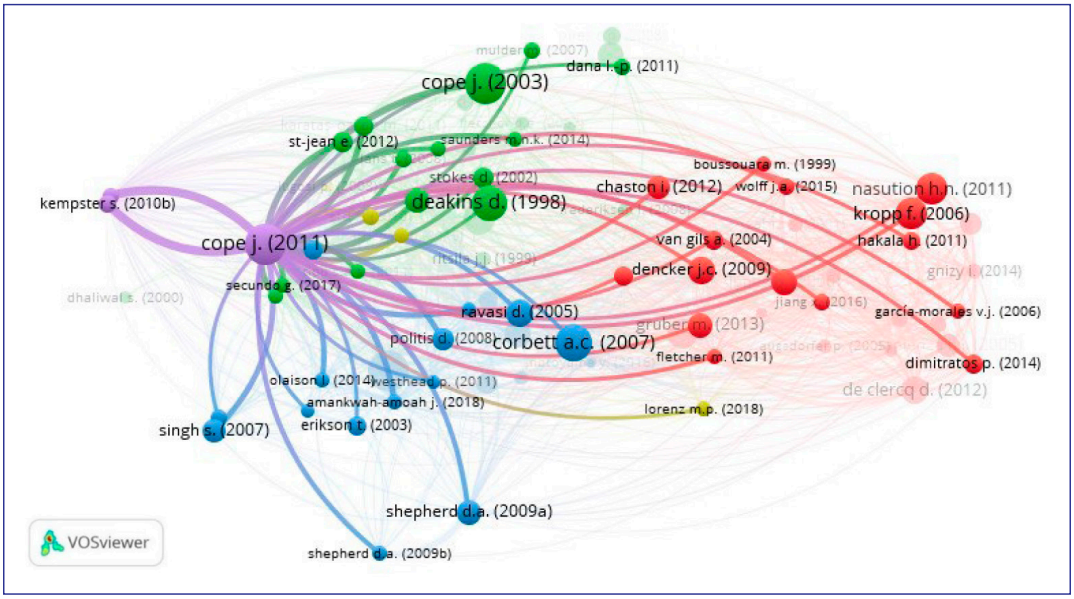
Figure 7
Bibliographic coupling network



Source: Elaborated by the authors via VOSviewer.

There are five different clusters, with the red cluster having the largest number of studies (28). These clusters suggest different lines of studies, and possible different perspectives adopted. Analysing the network that connects directly with the most cited article on the subject (Cope, 2011), research with a phenomenological bias, there are strong relationships between the assays, i.e., a high number of articles commonly cited by the studies. This may indicate relevant sources for studies based on phenomenology, as that by Jason Cope (Figure 8).

Figure 8
Bibliographic coupling network with Jason Cope's study, most cited article

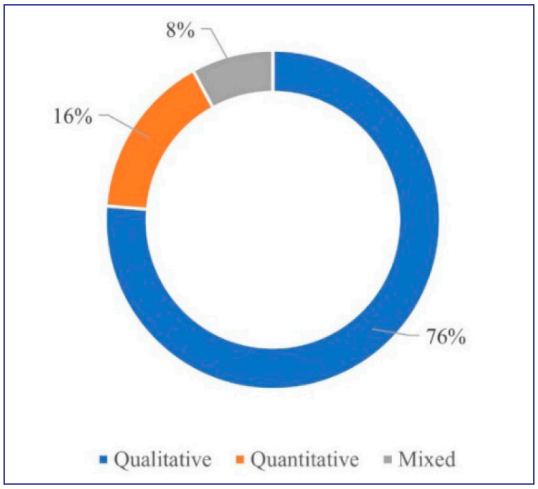


Source: Elaborated by the authors via VOSviewer.

RESULTS OF THE ANALYSIS OF METHODOLOGICAL APPROACHES

In order to answer the second question of this research (RQ2), the methodologies of the 38 articles included in the final stage of the study were analysed (Figure 1). The review disclosed the presence of only six research (16%) using quantitative methods, and only three of them were published in the last five years (Cannavacciuolo, Iandoli, Ponsiglione, & Zollo, 2017; Politis, 2008; Robert, El-Shoubaki, Lasch, & Dana, 2017; Scarmozzino, Corvello, & Grimaldi, 2017; Van Gelderen, Van de Sluis, & Jansen, 2005; Yusuf, 2012). Other three research works (8%) applied mixed methods in their empirical investigations (Ceci & Prencipe, 2019; V. Lefebvre, M. R. Lefebvre, & Simon, 2015; Stokes & Blackburn, 2002). Of these, only one was published in the last five-year period. One can therefore perceive the predominance of qualitative studies (29 studies, 76%) in the research on EL (Graph 4).

Graph 4
Type of method adopted by the sample studies



Source: Elaborated by the authors.

Compared to the SLR conducted by Wang and Chugh (2014), there is an increase in relation to qualitative research in the sample. On the other hand, studies that applied mixed methods maintained a similar percentage.

To better understand research methodologies, an overview of research contexts is presented (Box 2). Most studies (65%) were conducted in Western or Nordic European countries. Nine percent chose the North American (the United States or Mexico) and 5% the Asian context (Pakistan or China). Another 5% carried out the research in an international context – physical or virtual. The other sixteen percent did not inform the context chosen for the analysis.

Box 2
Research Context

Context	Articles
Western or Nordic European	Atherton and Price (2008); Cannavacciuolo et al. (2017); Ceci and Prencipe (2019); Clinton, McAdam, Gamble, and Brophy (2020); Ettl and Welter (2010); Harrison, Mason, and Smith (2015); Huovinen and Tihula (2008); Huxtable-Thomas et al. (2016); Hydle and Billington (2021); Jones and Li (2017); V. Lefebvre et al. (2015); Mahmoud-Jouini, Paris, and Bureau (2017); Mansoori (2017); Markowska and Wiklund (2020); O'Shea and Buckley (2010); Politis (2008); Pugh, Soetanto, Jack, and Hamilton (2021); Robert et al. (2017); Secundo, Del Vecchio, Schiuma, and Passiante (2017); Soetanto (2017); Stokes and Blackburn (2002); Thompson and Illes (2021); Van Gelderen et al. (2005); Walsh and Cunningham (2017); Watson, McGowan, and Cunningham (2017).
North American	Motoyama and Knowlton (2016); Perez-Nuñez and Musteen (2020); Yusuf (2012).
Asian	Tipu and Arain (2011); Wang, Rafiq, Li, and Zheng (2014).
International	Scarmozzino et al. (2017); Schou, Bucher, and Waldkirch (2022).

Source: Elaborated by the authors.

Therefore, it is noteworthy the potential that other contexts present for research in EL. There is also potential in relation to the groups studied, as research with entrepreneurs, nascent or not, in the high-tech context stand out (39%). Only three studies addressed the context of family business (Clinton et al., 2020; Jones & Li, 2017; Markowska & Wiklund, 2020) and only one investigated EL by women (Ettl & Welter, 2010) and by refugees (Thompson & Illes, 2021). Moreover, there is a predominance of the individual level of analysis (74% of studies), as will be presented in the following sections.

Research strategies and time horizon

Among the quantitative studies, survey (5 articles) was the main research strategy employed, followed by application of statistical tests (2 articles), and simulation-type experiment (1 article). With regard to mixed studies, no predominant research strategy was found, with survey and multiple-case study strategies being employed (Ceci & Prencipe, 2019; V. Lefebvre et al., 2015; Stokes & Blackburn, 2002).

Most of the qualitative research (17 articles, 65%), applied case study strategy (single or multiple). The following strategies were also employed: grounded theory; Zaltman's metaphor elicitation technique (ZMET); ethnography; aesthetic analysis of poems; case analysis; and verbal protocol analysis (a technique that involves respondents "thinking aloud" while performing a specific task).

Cross-sectional studies were conducted by 50% of the articles in the sample (19). Additional 17 research works conducted investigations considering longer time horizon. In other words, they conducted longitudinal studies, with 10 years being the longest period considered (Walsh & Cunningham, 2017), and the one year the shortest one (Schou et al., 2022). Time horizon could not be identified in two of the published articles (Stokes & Blackburn, 2002; Scarmozzino et al., 2017).

Data collection and analysis

About 60% of the studies (22 articles) applied more than one technique in data collection, with the use of interviews, especially semi-structured ones, observation (participant and non-participant), and documentary collection prevailing. This occurred particularly in qualitative investigations. In quantitative and mixed studies, mainly questionnaires and secondary databases were used. However, only 11 studies explicitly reported the application of triangulation in data analysis.

Unusual data collection techniques in studies on EL were found in some articles: focus groups (V. Lefebvre et al., 2015); maps of relationship networks designed by respondents (Soetanto, 2017), and video recordings (Thompson & Illes, 2021), this being the only ethnographic study in the sample.

Concerning data analysis, most studies that employed qualitative techniques elected thematic analysis, that is, analysis supported by the definition of categories based on theory or empirical data. Next, content analysis and reflexive discussion were the most used techniques. Ethnographic analysis was restricted to only one study (Thompson & Illes, 2021).

Quantitative studies, in turn, use Chi-Square, Kolmogorov-Smirnov, T and Mann-Whitney U tests (Politis, 2008); the Hierarchical Polytomous method, K-means and logistic regression (Robert et al., 2017); hierarchical regression (Scarmozzino et al., 2017; Van Gelderen et al., 2005); cluster analysis (Yusuf, 2012); and agent-based modelling (Cannavacciuolo et al., 2017).

Mixed studies, on the other hand, adopt the partial least squares regression method, descriptive statistics, and thematic analysis (Ceci & Prencipe, 2019; V. Lefebvre et al., 2015; Stokes & Blackburn, 2002).

Research philosophies

With regard to research philosophies, six studies were based on constructivism (Karataş-Özkan, 2011; O'Shea & Buckley, 2010; Schou et al., 2022; Smith, 2015; Soetanto, 2017; Watson et al., 2017), five research works drew from phenomenological premises (Deakins et al, 2002; Kempster & Cope, 2010; Mahmoud-Jouini et al., 2017; Mansoori, 2017; Walsh & Cunningham, 2017); four others were based on interpretivism (Hydle & Billington, 2021; Jones & Li, 2017; Perez-Nuñez & Musteen, 2020; Thompson & Illes, 2021); and one study was based on ethnomethodology (Atherton & Price, 2008).

On the other hand, there was a significant presence of positivist studies in the sample (18 articles, 47%), whether qualitative, quantitative, or mixed positivism. Regardless of the type, the goal of positivist research is the scientific explanation based on observable events (Saunders et al., 2009). It relies on empirical observations to confirm causal relationships and predict patterns of human behaviour (Antwi & Hamza, 2015). This type of research is concerned with the reliability, validity, and generalizability of results (Saunders et al., 2009).

The emphasis of quantitative positivism falls into quantifiable observations, useful for statistical analysis, sometimes grounded in hypotheses. Research taking this philosophy seeks to explain in quantitative terms how variables interact, form events, and produce outcomes. Therefore, they tend to use large databases or significant samples (Saunders et al., 2009; Antwi & Hamza, 2015). The next sections detail the positivist articles in the sample.

It is worth noting that the research philosophy of two of the studies (Brett, O'Neill, & O'Gorman, 2014; Ettl & Welter, 2010) could not be identified. Although Ettl and Welter's (2010) research applied the case study method, no mention is made to authors who grounded the election of method or other evidence on the research philosophy adopted. The same occurs with the study by Brett et al. (2014), where no evidence was provided about the research philosophy.

Two other articles applied grounded theory as research strategy. However, the methodological description in both did not allow identify the philosophy adopted (Haneberg & Aaboen, 2022; Huxtable-Thomas et al., 2016). Haneberg and Aaboen's (2022) research applies the Zaltman metaphor elicitation technique. This method developed by Harvard professor Gerald Zaltman was originally used in Marketing research.

This technique seeks to understand human behaviour by identifying a broad set of meanings, at various levels of experience, through images and metaphors. The results, although based on a small number of interviews, are considered representative of a large population (Harvard University, 2022). The study by Huxtable-Thomas et al. (2016) bases its methodology on perspectives from different fields (pedagogy, education, cognitive psychology, management, and social sciences), and does not emphasize an epistemological positioning.

Quantitative positivism

Articles in the sample that adopted quantitative positivist approach (6 articles) present structured methodological sections in order to facilitate research replication, applied statistical techniques in data collection and analysis, and results are generalizable to the respective populations represented (Box 3).

Box 3
Quantitative Positivist Surveys in the Sample

Article	Learning-Related Research Objective	Research Strategy	Data Collection Techniques	Data Analysis Techniques	Analysis Level
Cannavacciuolo et al. (2017)	Explore an alternative view of EL by adopting concepts and methodological tools from situated learning theory and complexity science that overturns the traditional perspective.	Experiment - Simulation	Simulation	Agent-Based Modelling	Organizational (system)
Politis (2008)	Present a study of the role of prior start-up experience as a source of learning in the entrepreneurial process.	Survey	Questionnaire	Chi-Squared Test; Kolmogorov-Smirnov; T-Test; Mann-Whitney U Test	Individual
Robert et al. (2017)	Verify links between founder profiles (e.g., human capital, entrepreneurial learning) and firms survival rate.	Statistical Tests	Secondary Database	Hierarchical Polythetic Method; K-Means; Logistic Regression	Individual
Scarmozzino et al. (2017)	Analyse the contribution of professional social networking websites (PSNWs) to entrepreneurial learning in high-tech start-ups.	Survey	Questionnaire	Hierarchical Regression	Individual
Van Gelderen et al. (2005)	Investigate when and how small business starters learn.	Survey	Questionnaire	Hierarchical Regression	Individual
Yusuf (2012)	Explore entrepreneurial exit defined as disengagement (based on the degree of learning bynascent entrepreneurs) from the start-up process.	Statistical Tests	Secondary Database	Cluster Analysis	Individual

Source: Elaborated by the authors.

Qualitative positivism

Qualitative positivism is also epistemologically characterized by the search for causal relationships and generalizability of findings, even though it does not approach a large number of cases or rely on the use of quantitative methods (Bonache, 2021). Eisenhardt and Yin are two of the most influential positivist methodologists in the universe of qualitative inquiry (Bonache, 2021; Piekkari & Welch, 2018). Researchers hardly fail to reference these authors to justify their methodological choices, referring to case studies, even if they claim to draw from non-positivist research philosophies (Bonache, 2021; Piekkari & Welch, 2018).

The analysis results suggest the presence of qualitative positivism in nine documents (Box 4). Among these articles, eight adopted the case study strategy, of which seven were primarily based on assumptions proposed by Eisenhardt and Yin (Clinton et al., 2020; Huovinen & Tihula, 2008; Markowska & Wiklund, 2020; Pugh et al., 2021; Secundo et al., 2017; Tipu & Arain, 2011; Wang et al., 2014). This supports the analysis results shown in Figure 6, i.e., the potential predominance of case studies based on Eisenhardt's assumptions. Although the article by Motoyama and Knowlton (2016) does not mention Eisenhardt or Yin in the rationale of case study, it presents analyses of cause-and-effect type. Harrison et al. (2015) applied verbal protocol analysis, showing concerns with reliability, validity, and generalizability of the results.

Box 4
Qualitative Positivist Research in the Sample

Article	Learning-Related Research Objective	Research Strategy	Data Collection Techniques	Data Analysis Techniques	Analysis Level
Clinton et al. (2020)	Explore how entrepreneurial behaviours are transmitted and embedded (learned) across generations within a Transgenerational Entrepreneurial Family (TEF).	Case Study	Interview; Document Collection; Observation	Iterative Analysis; Thematic Analysis	Group
Harrison et al. (2015)	Explore whether angels learn from experience, how they learn and what they learn.	Verbal Protocol Analysis	Interview	Verbal Protocol Analysis	Individual
Huovinen and Tihula (2008)	Examine entrepreneurial learning in the context of portfolio entrepreneurship and clarify how it is possible to manage several firms at the same time.	Case Study	Interview; Document Collection	[The techniques are not indicated, but the authors mention that they followed the premises of Eisenhardt and Yin]	Individual
Markowska and Wiklund (2020)	Argue that learning to act on entrepreneurial tasks involves opening-up and focusing processes.	Case Study	Interview; Document Collection	Thematic Analysis	Individual
Motoyama and Knowlton (2016)	Analyse the complex and broad impact of public–private sponsorship in the entrepreneurship and regional context (entrepreneurs support and learning).	Case Study	Interview	Thematic Analysis	Group
Pugh et al. (2021)	Analyse how to theoretically incorporate learning into entrepreneurship ecosystem development efforts.	Case Study	Interview; Document Collection; Participant Observation; Non-Participating Observation; Questionnaire	Thematic Analysis	Contextual

Continuation

Article	Learning-Related Research Objective	Research Strategy	Data Collection Techniques	Data Analysis Techniques	Analysis Level
Secundo et al. (2017)	Explore how collaborative entrepreneurial learning processes between entrepreneurs and university students can enhance the entrepreneurial practices in the context of knowledge-intensive enterprises.	Case Study	Interview; Document Collection; Questionnaire	Iterative Analysis	Group
Tipu and Arain (2011)	Explore the links between entrepreneurial behaviour and success factors (start-up planning, managing risk,learning, networking, managing human resource, and managing finances) in a developing country context.	Case Study	Interview	Thematic Analysis	Individual
Wang et al. (2014)	Advance the conceptualisation of entrepreneurial preparedness (EP - cumulative, social and purposeful learning process), and study how EP occurs in new venture creation and management.	Case Study	Interview; Document Collection	Thematic Analysis	Individual

Source: Elaborated by the authors.

Mixed positivism and overview

Three papers matched the premises of qualitative and quantitative positivism, as illustrated in Box 5.

Box 5
Mixed Positivist Surveys in the Sample

Article	Learning-Related Research Objective	Research Strategy	Data Collection Techniques	Data Analysis Techniques	Analysis Level
Ceci and Prencipe (2019)	Analyse the effect that the entrepreneur's personal beliefs have on the possibility to learn from the network and, therefore, improve his or her firm's performance.	Survey	Interview; Questionnaire	Partial Least Squares	Individual
Stokes and Blackburn (2002)	Contribute to our understanding of business closure from de perspective of the owners (what they did next, and they learned from the experience).	Survey	Interview; Questionnaire	Descriptive Statistical Analysis; Thematic Analysis	Individual
V. Lefebvre et al. (2015)	Study the combined development of network dynamics and learning.		Participant Observation; Reflection Groups; Document Collection; Questionnaire	Thematic Analysis	Group

Source: Elaborated by the authors.

Box 6 presents an overview of research philosophies application amidst studies on EL in the research sample. In particular, it is observed diversification regarding philosophies in the year 2017, and steady trend of qualitative positivist studies starting in year 2008.

Box 6
Research Philosophies on Articles in the Sample by Year

Research Philosophy	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
Quantitative Positivism				1			1				1					3					6
Qualitative Positivism							1			1			1	1	1	1			2	1	9
Mixed Positivism	1													1				1			3
Phenomenology	1								1							3					5
Constructivism									1	1				1		2				1	6
Interpretivism																1			1	2	4
Ethnomethodology							1														1
Total	2	0	0	1	0	0	3	0	2	2	1	0	1	3	1	10	0	1	3	4	34

Source: Elaborated by the authors.

CONCLUSION

The general objective of this article was to systematically review the literature on EL, taking into account its advances, and to analyse the elements of studies published on the subject over time, with special emphasis on methodological approaches. For that, it was assumed some guidance on EL found in literature. About RQ1, research results revealed the evolution of the number of publications over the years and a prevalence of a network of relationships in co-authorship of articles by authors from United Kingdom and United States. Although 756 authors wrote the articles on our sample, a lack of a strong co-authorship network among researchers were unveiled. Moreover, co-citation network revealed a potential for studies relating social capital, human capital, and EL, due the presence in the clusters of only one article that investigated the impact of these capitals on EL.

The review of the methodological approaches (RQ2) evidenced the predominance of qualitative studies, research that adopted a positivist philosophy, and a balance between cross-sectional and longitudinal investigations. The results also revealed a predominance of the individual level of analysis and that EL research is still evolving with great opportunities, such as the conducting studies in other contexts such as the South American, African, and Oceanian. As well as research of female entrepreneurs and immigrants/refugees.

Despite the limitations - consultation of a single repository of articles, analysis restricted to five main journals, and lack of details of some methodologies consulted - the analysis of the methodological approaches employed revealed not a hegemony, but a strong positivist tradition in EL research field. Considering that positivism relies on empirical observations to confirm causal relationships and predict patterns of human behaviour, it is recommended that studies focusing on cognitive aspects of EL, coupled with social interactions and influenced by context, adopt approaches that move away from positivism and seek methodological lenses with greater potential to unveil the underlying phenomena in this type of learning.

This distancing is necessary to understand the phenomenon in other philosophical perspectives. Approaches such as phenomenology and interpretivism, for example, go beyond description, and enable interpretative accounts that do not rule out the use of theoretical guidance or conceptual framework. This is shown by Jason Cope in his work that became the most cited in the area (Cope, 2011). It is, therefore, a choice best suited to the study of social reality (Bonache, 2021). Just as the premises of the case study strategy are being revisited and rediscovered, challenging the existing dichotomies (e.g., positivism versus phenomenology) (Piekkari & Welch, 2018), the reward for going beyond the positivist legacy of EL studies may be the development of innovative theories.

This paper also unveils the potential for applying mixed and other unusual methods in the Management research, such as aesthetic analysis, verbal protocol analysis, and Zaltman's metaphor elicitation technique. It is strongly recommended that researchers who wish to investigate EL seek complementary methodological resources in interdisciplinarity. The application of triangulation also shows good potential. Additionally, it is recommended that future studies investigate whether national research written in other languages also presents positivist tradition in EL area.

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