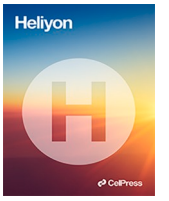
Heliyon 9 (2023) e13046

Contents lists available at ScienceDirect

Heliyon

journal homepage: www.cell.com/heliyon



Review article

A scientometric analysis on entrepreneurial intention literature: Delving deeper into local citation

Rosa M. Batista-Canino [a,b,*], Lidia Santana-Hernández [a,b,1], Pino Medina-Brito [a,b]

[a] University of Las Palmas de Gran Canaria, Spain
[b] Faculty of Economics, Business and Tourism, University Institute of Tourism and Sustainable Economic Development (TIDES), Módulo C216. Campus de Tafira, 35017 Las Palmas, Spain

ARTICLE INFO

Keywords:
Entrepreneurial intention
Scientometrics
Local citation rate
Entrepreneurial intention h-index
Bibliometrix R package
Bibexcel

ABSTRACT

The present study provides a summarised view of entrepreneurial intention (EI) research to date. Before the application of scientometric techniques over the 1920 papers retrieved from Scopus, this paper collects the main systematic reviews and pioneering bibliometric analyses, and summarises their major findings. The use of direct citation, differentiating between Local and Global Citation, has not been used in the area of EI research. However, it provides the current *status quo* of this field of research, as well as interesting results on the progress of the study of this research topic, revealing previously overlooked findings. The application of scientometric tools allows us to identify the four thematic poles that concentrate the greatest effort of researchers in this area: modelling EI and discussing its antecedents and relationships; self-efficacy as an antecedent of EI; social entrepreneurial intention; and the effect of education on EI -distinguishing the effect of educational context from the effect of personal factors on EI-. It also uncovers the inspirational role of this area of research on others, while revealing the most highly specialised journals in EI, the papers that play a foundational role in the field, and the authors with the most extensive careers in this topic. This research also assesses progress on the most important challenges facing the field and raises some unanswered questions.

1. Introduction

Unemployment continues to be one of the issues of greatest concern to governments. The world must face the fact that the job seekers exceed the demand provided by current employers. Therefore, the solution may lie in the creation of new businesses due to the fact that governments will not be able to provide employment for everybody [1]. Entrepreneurship has emerged as 'the great solution' to the issue of unemployment and the growing problems generated by global crises [2], and this fact explains the great interest in entrepreneurial intention (EI) research over the last two decades. Thus, the study of entrepreneurship has focused its efforts, among other aspects, on better understanding what drives a person to start and develop a new business. This impetus plays a crucial role in national growth [3], and fully grasping it has become an important issue for governments.

Since the first paper published about this topic, research on EI has been broad and particularly focussed on testing the effectiveness

* Corresponding author. University of Las Palmas de Gran Canaria, Spain. ,
E-mail address: rosa.batistacanino@ulpgc.es (R.M. Batista-Canino).

[1] Funding: Awarded a PhD scholarship co-financed by the European Social Fund Canarias Avanza con Europa and Consejería Economía, Conocimiento y Empleo del Gobierno de Canarias.

https://doi.org/10.1016/j.heliyon.2023.e13046
Received 12 May 2022; Received in revised form 29 December 2022; Accepted 13 January 2023
Available online 20 January 2023

of EI models in predicting this intention. The research in this area has been intense [4] and unstoppable. Thus, the growing importance of EI has led to an exponential increase in publications since 2006. Undoubtedly, research can tend to become dispersed and fragmented [5] due to redundancy and information overload. This would also explain the boom in literature reviews and bibliometric studies that this area of study has experienced in the last decade.

In this paper we are particularly interested in that body of research that, within the EI issue, has attempted to demonstrate the progress in the field, to reveal the main lines of work that have been developed within the subject, and the gaps that are still unsolved.

Most systematic literature reviews, which attempt to synthesise the progress of a research topic [6], and bibliometric reviews have taken the volume of direct citations received as a key reference for the impact of a paper or author. But they do not pay attention to the origin of these citations, nor do they consider the degree of specialisation of the cited works. Thanks to the increased accuracy made possible by advances in bibliometric software, direct citation (the citation documents receive from other citing documents) can be disaggregated to count specialised citation separately (that is, Local Citation). Thus, and following Cobo et al. [7] and Beliaeva et al. [8], Global Citation represents the total number of citations received by a document from all publications indexed in a source (Scopus, WOS, Google Scholar …), while Local Citation refers to the number of citations a document received from other documents in the specific search performed (that is, in the sample of highly specialised papers under review). This differentiation when applied to the review of the literature on a topic makes it possible to distinguish the real impact of a work or author in the specific area of research under study, *i.e.*, it makes it possible to know which documents represent an important intellectual base in the research field and which documents attract multidisciplinary attention [8]. For this reason, the present paper offers some additional key elements that have been overlooked in previous literature reviews and bibliometric research.

This paper deals with a standalone review of the literature for a specific topic [9], adopting a scientometric approach, which extends the ambition of bibliometric analyses [10] by adding qualitative analysis of the literature [11]. It provides scholars on this topic with some reflections based on the main findings that scientometric techniques offer using direct citation –*i.e.*, Global and/or Local Citation-, to bring to light this exciting topic of study. Our purpose is precisely to offer an up-to-date overview of this subject, providing researchers with a map showing the different paths, and a new perspective and insight into the area of study.

To this end, following Zupic and Cater [12], to make visible the invisible threads that build the *research front* within EI, scientometric analyses will be conducted. This work aims to carry out a literature review of the last 50 years using the Scopus database to retrieve the research knowledge on this topic. Therefore, the present paper responds to the following objectives: (i) to summarise the main systematic literature reviews and bibliometric analyses on EI carried out to date, and (ii) to provide new information on the scientific foundations of this area, identifying the papers, journals, and authors that have made the greatest contribution to this topic, as well as major themes and the emerging interests in this research topic, while revealing some gaps in the literature on this topic.

As we have already mentioned, the reviews analysed do not discriminate between Local Citation (LC) and Global Citation (GC), whereby the second objective is achieved by exploiting indicators such as LCR –Local Citation Rate- and the h-index calculated for the highly specialised selection of papers on EI. These indicators have not been used to date by researchers in this area, perhaps because not all bibliographic software help to calculate them. To delve deeper into the highly specialised literature on EI, this paper complements the main conclusions formulated by other literature reviews, some of them only focused on the use of Global Citation. This approach allows us the opportunity to highlight the genuine intellectual base in this research field, and the role this body of knowledge plays in other areas of research [8,13].

With these objectives in mind, this paper is structured as follows: in section 2 we compile some of the most relevant literature reviews and bibliometric analyses related to the topic of EI and summarise their research findings, while assessing their scientometric nature; section 3 then describes the methodology for conducting our research. Section 4 explains the results and finally, we present the discussion, conclusions and limitations in section 5.

2. Bibliometric analyses and systematic literature reviews on EI

A research field can become complex and confusing [14,15] when it constantly generates a large amount of information, particularly when it happens in a short period of time, leading inexorably to information overload [16]. In this sense, systematic literature reviews are important for classifying and analysing the academic results of an area of knowledge to summarise the literature, examine the state of a field, make original contributions to theory testing and development, identify research gaps, and establish a future research agenda [6,17,18]. In addition, bibliometric analyses reveal the characteristics and dynamics of a subject by applying statistical methods [2]. It is a tool that identifies 'invisible colleges', patterns, and trends [12,19,20] with an objective approach depending on the unit of analysis –*e.g.,* document, journal, authors … - [15,21]. Thus, systematic literature reviews summarise the existing literature on a topic, while bibliometric analyses help to understand how the information generated by a research area or topic is interrelated in a descriptive manner. Both are an essential part of the scientometrics analysis, and determine the research output, qualitatively and quantitatively, of an academic field or topic [19,22] helping to track knowledge and uncover *hot spots* for future lines of research.

Therefore, scientometrics focus mostly on the analysis of citations to understand the scientific structure of an area [10,23], acting as a "magnifying glass" at the service of scientific and technological surveillance. As Callon et al. [11] point out, this discipline involves not only quantitative but also qualitative analysis. In this sense, it is important not only to quantify science but also to understand scientific production in the context of its "theoretical significance of methods or findings" (p. 104). Thus, as these same authors point out, qualitative and quantitative analysis must support each other in order to gain an in-depth understanding of the dynamics of science.

It is perhaps because of the usefulness of bibliometric analyses and systematic literature reviews, that their application to the study

Table 1
Systematic literature reviews and bibliometrics on EI.

Articles	Period	Data source	Analysis	Unit of analysis	Docs	Software tool	Review output (Number of documents)
Determinants of Entrepreneurial Intent: A Meta-Analytic Test and Integration of Competing Models (Schaegel, and Koenig 2014) [30]	1990–2014 (25 years)	ABI-Inform global/ ProQuest, EBSCO, Science Direct, Business source premier	M	Document	98	–	**The TPB and EEM models were examined:** the TPB determinants [42], and EEM determinants [17], subjective norms and main EEM determinants [10], ESE plus EEM determinants [6], parallel predictors (TPB and EEM) [7], structural models [10], and mediation of EEM determinants [10]. An integrated model is proposed.
A systematic literature review on Entrepreneurial Intentions: Citation, Thematic Analyses, and Research Agenda (Liñán and Fayolle 2015) [5]	2004–2013 (9 years)	Scopus, ABI-Inform/ ProQuest, WOS and Science Direct	DC T	Document	409	–	**EI topics:** basic model, methodology and theory issues [65]; the influence of EI and personal level variables (148); EI and entrepreneurship education [68]; the role of context and institutions [72]; intention-behaviour relationship and entrepreneurial process [39]; and new areas of research [17].
The theory of planned behaviour in entrepreneurship research: what we know and future directions (Lortie and Castogiovanni 2015) [29]	1993–2011 (18 years)	WOS, ABI-Inform/ ProQuest	M	Document	42	–	**TPB issues:** attitudes [16]; subjective norms [14]; perceived behavioural control (27 papers); intention [67]; behaviour [13]; complete model [1].
Weight- and meta-analysis of empirical literature on entrepreneurship: Towards a conceptualisation of entrepreneurial intention and behaviour (Alferaih 2017) [37]	–	Scopus, WOS, EBSCO and Google Scholar	M W	Document	123	–	The author identified the **EI predictors** (independent and dependent variables), their relationship and significance, the correlation between variables, sample size, type of analysis, data collection, constructs variance, path-coefficient, and effect size were examined. An integrated proposed model of EI was developed.
Entrepreneurial Intention: Categorisation, Classification of Constructs and Proposition of a Model (Silva Martins, Almeida Santos, and Silveira 2018) [36]	1999–2017 (18 years)	WOS	CO T	Keyword	164	Iramuteq	**Essential elements of the discourse of EI texts:** theoretical component (17.4% of the content of the selected studies); accessories and contextualisation (26.4% of the content of the selected studies); profile and characteristics (27.5% of the content of the selected studies); data structure (28.6% of the content of the selected studies).
Entrepreneurial self-efficacy: A systematic review of the literature on its theoretical foundations, measurement, antecedents, and outcomes, and an agenda for future research (Newman, Obschonka, Schwarz, Cohen, and Nielsen 2019) [31]	1998–2017 (18 years)	WOS, Google Scholar	DC T	Document	128	–	To analyse the construct of ESE by identifying the theoretical perspectives; measurement scales; antecedents: individual-level antecedents, firm and macro-level antecedents; outcomes of ESE; and ESE as a moderator.
A bibliometric analysis of research on entrepreneurial intentions from 2000 to 2018 (Dolhey 2019) [4]	2000–2018 (18 years)	Scopus	DC NP CoA	Document Author Journals Countries Institutions Author Countries	1393	VOSviewer	This work conducted a **conceptual and social analysis**. The IJESB accounts for the highest number of publications; 2007 is the year with the most publications overall, and *Competing Models of Entrepreneurial Intentions* by Krueger et al. (2000) is

(*continued on next page*)

Table 1 (*continued*)

Articles	Period	Data source	Analysis	Unit of analysis	Docs	Software tool	Review output (Number of documents)
			CO	Keyword			the most cited document. Francisco Liñán is the most prolific author. The USA accounts for the highest number of publications, and University of Seville (Spain) is the institution that has contributed the most papers. EI, entrepreneurship, entrepreneurship education, and gender are the keywords that appear more frequently.
Intentions resurrected: a systematic review of entrepreneurial intention research from 2014 to 2018 and future research agenda (Donaldson 2019) [17]	2014–2018 (4 years)	SJR	T	Document	163	Nvivo	**EI priority themes:** career choice [13]; context [16]; corporate intent [9]; education [31]; process [32]; intention models [27]; individual [25]; others [10]. All priority themes were classified by secondary themes considering their theoretical perspectives.
Academic entrepreneurship intentions: a systematic literature review (Neves and Brito 2020) [32]	2007–2018 (11 years)	Scopus and WOS	DC T NP	Document Variables Journal	66	–	**Descriptive analyses** were made to identify the number of documents and the articles' distribution by sources (37 different journals) and country (Germany −12; the UK and Spain −11, Italy −10, USA -9, Sweden −5, Other Europe −10, Other countries −9). **Systematic Literature Review** identified independent variables (drivers): Economic (individual, organisational and institutional), and psychological (TPB); and dependent variable (intentions): Spin-off creation, Patent and licensing and collaboration with industry. The drivers behind the intentions are multiple: context-dependent, hierarchy-dependent, heterogeneous, and, at the same time, dependent on each other and against each other. The individual factors, directly and indirectly via TPB, strongly impact the academics' intentions.
A Systematic Literature Review on Social Entrepreneurial Intention (Tan, Le, and Xuan 2020) [33]	2010–2018 (10 years)	Scopus, WOS and Google Scholar	NP T	Document Countries Document	36	–	**Descriptive analysis** to identify the number of documents and their distribution by country (Asia −16, Europe -7-, America −4, Multi-region −4, Unspecified −3, Africa −2). **Thematic analyses** resulted in four categories: core model, methodological and theoretical issues [12]; personal-level variables [19]; context and institutions [4]; and the social entrepreneurial intention-to-behaviour process [1].
From personal values to entrepreneurial intention: a systematic literature review (Hueso, Jaén, and Liñán 2021) [34]	1992–2020 (28 years)	Scopus, ABI-Inform and WOS	T	Document	22	–	Personal values, conceptualised from the Theory of Basic Human Values, are antecedents of the EI studied from the TPB. This effect is differentiated by considering social EI or general EI, as well as basic human values, work values, Rokeach values, and other personal values. An integrative conceptual framework and future lines of research are proposed.

(*continued on next page*)

Table 1 (*continued*)

Articles	Period	Data source	Analysis	Unit of analysis	Docs	Software tool	Review output (Number of documents)
Analysing the past to prepare for the future: a review of literature on factors with influence on entrepreneurial intentions (Pérez-Macías, Fernández-Fernández, and Vieites 2021) [1]	1994–2017 (23 years)	Scopus	NP T	Journal Variables	177	–	**Narrative analysis** of the topic of EI regarding the factors that influence individuals' EI. **Antecedents** (personal-level variables, entrepreneurship education (EE), and contextual factors and institutional variables), and **topics of analysis (**cognitive factors such as self-efficacy; personality and psychological variables such as propensity/ adversity to risk; and socio-demographic variables such as age, gender, and human capital) were identified to summarise the literature. Recommendations and new lines of research, linking antecedents and topics, are the final contribution of this paper.
Entrepreneurial intentions: a bibliometric analysis (Ruiz-Alba, Guzmán-Parra, Vila Oblitas and Morales Mediano 2021) [38]	1993–2016 (23 years)	Scopus	DC NP CoA CO	Document Journal Institution Countries Author Keyword	377	VOSviewer	**Bibliometric techniques** (co-authorships, co-word analysis, research topics, and cluster of themes) are applied to highlight: the most influential authors (Liñán, Fayolle, Urbano, Guerrero, Santos and Nabi), and the most productive ones (Liñán −12; Kautonen −8; and Fayolle −7). The most productive journals in terms of the number of publications (IJESB -34, IEMJ -20, E&T −19, MJSS -12) and terms of the number of citations (JBV). The main subject areas (BMA -286, EEF -139, SS -105, Psychology −33), the most productive universities (University of Seville −13, University Putra Malaysia −8) and countries (certain polarisation between the USA and Europe). The analysis of keywords identified six clusters of themes: EI, age, role models, entrepreneurship education, Malaysia, and higher education; business development, culture, perception, innovation, university sector, South Africa, and university; students, entrepreneurialism, universities, and Ukraine; TPB, social capital, China, Spain, barriers, entrepreneurs, and family business; University students, gender, TPB, attitude, GEM, and creativity; and education, intention, entrepreneurial attitude, engineering, and entrepreneurial education. Prevailed keywords: gender-related, TPB, age, culture and entrepreneurship education.
An AHP analysis of scientometrically derived factors of entrepreneurial intentions of women and constructing a conceptual research framework (Patra and Lenka 2021) [35]	1987–2019 (32 years)	Scopus, Proquest, EBSCO	DC NP NGT AHP CO	Document Variables Ranking of variables Keyword	129	Biblioshiny for Rstudio	**Scientometric analysis** to identify the number of articles, authors, journals, citations, and keyword network. The co-occurrence network resulted in 2 main clusters of keywords: the first with decision-making, career choice, motivation, self-concept, risk-taking ability, locus of control, entrepreneurial

(*continued on next page*)

Table 1 (*continued*)

Articles	Period	Data source	Analysis	Unit of analysis	Docs	Software tool	Review output (Number of documents)
							education, desire for achievement, personality, and psychological aspect; and the second related to social stigma and family support. An analytic hierarchy process using NGT and AHP ranked the factor by weighting: level 1 with primary variables of EI of women, and level 2 with secondary variables on social, personal and circumstantial factors. The final result was an integrative conceptual framework.

AHP: Analytic Hierarchy Process; **CO**: Co-Ocurrences; **CoA**: Co-Authorship; **DC**: Direct Citation; **M**: Meta-analysis; **ND**: Number of Documents; **NGT**: Nominal Group Technique; **NP:** Number of Publications; **T**: Thematic; **W**: Weight-analysis. *IJESB: International Journal of Entrepreneurship and Small Business; IEMJ: International Entrepreneurship and Management Journal; E&T: Education and Training; JBV: Journal of Business Venturing; MJSS: Mediterranean Journal of Social Sciences. BMA: Business, Management, and Accountant; EEF: Economics, Econometrics, and Finance; SC: Social Science.*

of scientific journal content [24–26] and research topics [17,27,28] have become increasingly popular, occupying an important part of research time on academics' agendas.

In Table 1 we summarise some of the most important systematic literature reviews and bibliometric analyses of EI addressed so far, and their main findings. Here, we have also considered the literature reviews that have been carried out on the Theory of Planned Behaviour as applied to EI [29,30], and Entrepreneurial Self-Efficacy –ESE- [31] given their undeniable relationship with the study of EI. We also include those reviews that relate EI with other topics –see among others: self-efficacy [31]; academic entrepreneurship [32]; social EI [33]; personal values [34]; women's EI [35]. The articles included in this table are the result of the database search carried out for the development of this work. This search was renewed in March 2022 to incorporate new reviews on this topic. In this case, in addition to Scopus, Google Scholar, and WOS were also consulted.

We notice that, to date, these reviews have covered unequal periods between 1987 and 2020. Thus, the shortest review in number of years is that by Donaldson [17], which in turn builds on the one by Liñán and Fayolle [5], accounting for a total of 13 years between the two works. The longest review is by Patra and Lenka [35] with 32 years of analysis, from 1987 to 2019. In terms of the number of articles included in the review, the average volume of articles reviewed is 238, with a minimum of 22 articles in the work of Hueso et al. [34], and a maximum of 1393 in the work of Dohley [4]. Studies have been multi-sourced, with Scopus being the most used data source for studies (9 out of 15 studies considered it a main data source), followed in importance by WOS (6 studies) and Google Scholar (3 studies).

The main objective of all these systematic literature reviews and bibliometric analyses was to carry out an updated review that would make it possible to assess the knowledge accumulated so far and provide a clearer picture of the research field. This has allowed them to establish the state of the art of this research topic, highlighting opportunities for further research. In methodological terms, different units of analysis have been used. Documents and keywords have been the elements that have attracted the most attention from researchers in trying to find the future path of this research field. We find different types of reviews: Thematic analysis [5,31,32,36], Meta-analysis [29,30,37] or Co-occurrence of keywords [4,35,36,38], among the most prominent. Only Patra and Lenka [35] state that their study is scientometric in nature, the other papers listed in Table 1 either do not state this or make an unsubstantiated statement of its nature. What is true is that some papers are essentially scientometric, but they do not declare it. In order to reveal this fact, we delve into disciplines of fuzzy boundaries that are not without controversy as to what they offer and what they are used for.

An in-depth analysis of the specialised works in this area allows us to understand that scientometric is a tool of scientology, considered the science of science, which focuses on the study of the quantitative and qualitative [11] aspects of science as a discipline or economic activity and whose purpose is to support the definition of scientific policies [39]. However, and following McGrath [40], in order for scientometrics to be operationalised, it relies on bibliometrics, which applies statistics and mathematics to document management in any of its forms, and informetrics, which focuses on the words and content communicated by documents.

Thus, to catalogue the studies incorporated in Table 1, three criteria were adopted: (i) check whether the review used statistical, mathematical and/or artificial intelligence methods that allow mapping of research area in EI; (ii) check whether an in-depth analysis of the research papers contained in the databases compiled for the analysis of the scientific production for the period chosen by the authors was carried out, and (iii) analyse the purpose of the review, distinguishing the purely descriptive from the explanatory one. Only the works of Silva Martins et al. [36], Neves and Brito [32], Tan et al. [33], and Ruiz-Alba et al. [38] could join Patra and Lenka [35] in this definition, as they meet the three criteria set out above. In other words, 5 papers out of the 14 analysed can be classified as scientometric. The criteria applied to determine the nature of each literature review listed in Table 1 can be found in Appendix 1 of this paper.

However, direct citation analysis, on which scientometrics is based, is one of the most basic of all the possible analyses that serve different purposes in the review work. Thus, for example, Liñán and Fayole [5] initially use it to locate the set of most cited papers that would allow them to categorise the main areas of specialisation and then reclassify the rest of the papers among the groups they initially found. In addition, the analysis of direct citations [12,14,15] allows us to know the quality and impact of research by

identifying the most influential documents, the journals with the greatest impact or the authors who have most contributed with their scientific production to the development of the field [15,16,22]. Direct citation allows analysis of the *research front* of a topic, providing relevant information for researchers, being the cornerstone on which a field of knowledge stands [12].

In these reviews, we note that those that have used direct citation in their analyses have not made any distinction between LC and GC. Our paper attempts to delve deeper into the direct citation in this research topic to complement the analyses performed by other authors, offering a more accurate view of the field of study, by distinguishing LC and GC, especially useful for those who need a quick and precise update on this research topic. This greater precision is achieved by looking at the set of documents studied and highly specialised in EI. The aim is to consider the intra-citation or direct citation that occurs within the selection of highly specialised papers (*i.e.*, Local Citation), as complementary information to the citations that each document receives from bibliometric sources (*i.e.*, Global Citation) [8,13,41].

3. Scientometric analysis

The present work is an independent literature review for a specific topic [9] and, as Paul and Criado [10] point out, it should be classified as a domain-based review, specifically as a bibliometric review. This means that it involves analysing a large amount of published research using statistical tools to identify trends and citations on a particular topic, among other issues. However, as we have previously noted, its scientometric nature also requires us to delve deeper into the papers selected for this research.

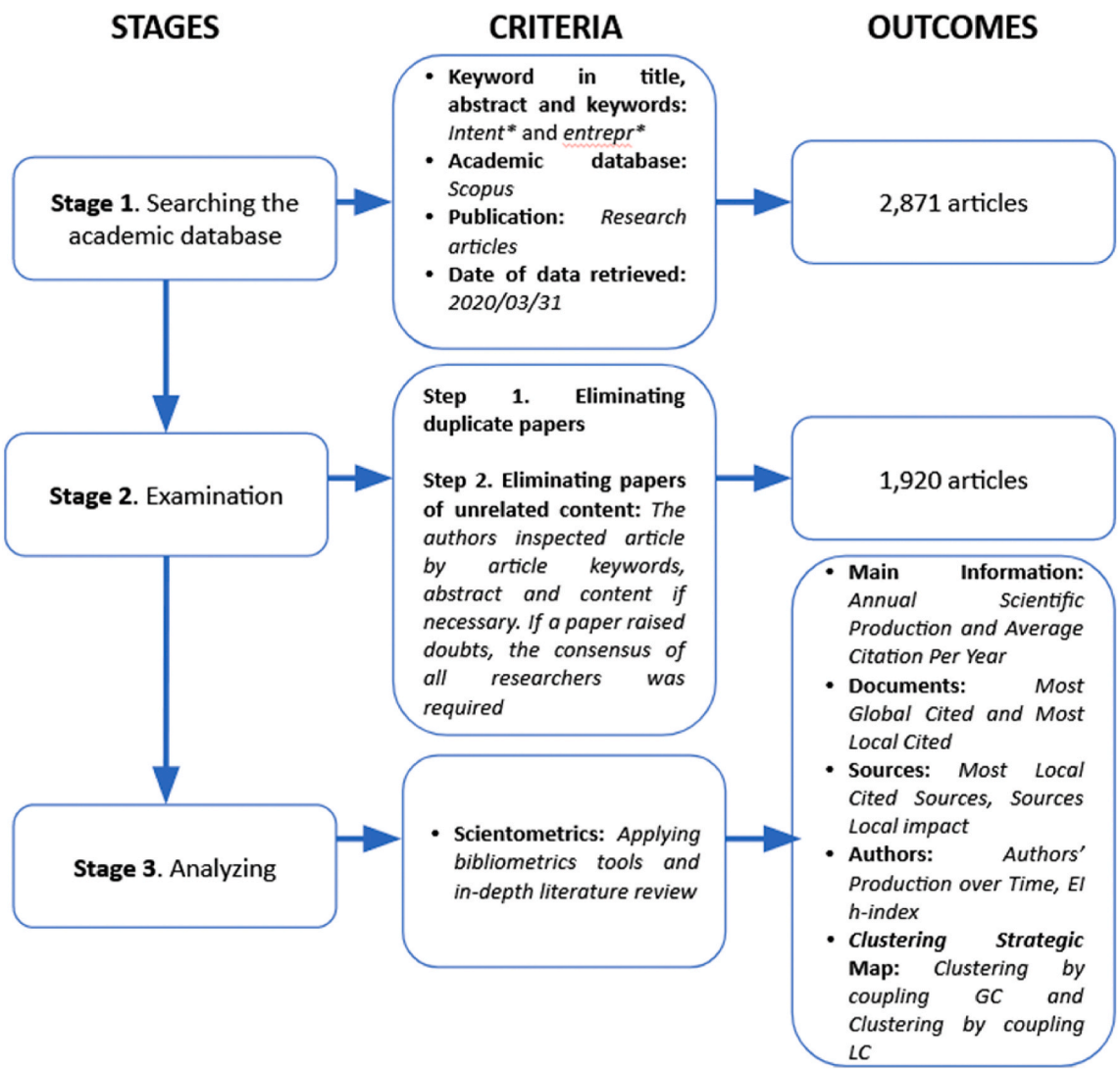


Fig. 1. Steps and processes involved in this literature review.

3.1. Data collection

This analysis focuses on EI articles published between 1977 –the year we found the first article on EI- and the first quarter of 2021. Scopus was chosen as a suitable database and source of research articles due to our interest in quantitative analysis [12,24], having access to over 26,000 indexed journals and more than 77.8 million records dating back to 1788 [42]. In addition, Scopus covers specific knowledge areas [12,26], which provides us with rich information to find out the provenance in the citation of the articles, allowing for more accurate scientometric research. In this sense, the use of a broad and rich database is particularly important for the analysis based on the LC vs GC indicators. This is due to the need to have more detailed information on each article, as well as to have access to the largest volume of specialised works in this area. On a purely technical consideration, *Scopus* is the most suitable database for analysis with *Bibliometrix* (*RStudio*) and *Bibexcel* scientometric programs [12].

In our search, we initially obtained 2871 articles that were inspected by the authors, one by one, to check whether they addressed EI, discarding those that did not explicitly refer to the topic under review, that is, the paper did not have as a central focus the purpose of explaining what an individual's EI is and how it is formed and developed. The final number of papers was 1,920, which is what we call here 'the collection'. The search criteria filters were as follows: the research articles must be written in English, containing the terms *intent* × and *entrepr**, in all areas of research, and without year restriction. As Ruiz-Alba et al. [38] stated, and like other reviews prior to the present one, the exclusion of other formats of academic work is motivated by the fact that articles better reflect original scientific production, and are generally subject to peer review process [34], something that grey literature and other academic documents do not ensure. Fig. 1 summarises the steps followed in this systematic literature review.

4. Methodology

We use scientometric analyses to structure EI research objectively by analysing documents, journals, and authors through statistical indicators and in-depth literature review. To carry out some of these analyses we have followed the work of Cobo et al. [7] and Aria and Cuccurullo [43].

This paper is focused on the direct citation, in some analyses it will apply Local Citations (LC) and in others Global Citations (GC) because it is not always possible to get LC. In a broad sense, a direct citation could be defined as the relationships that are established between documents. These relationships are established in different ways depending on the method applied [41,44]: (i) bibliographic coupling which helps to reveal the 'invisible colleges' and current research lines; (ii) co-citation analysis that allows to extract the literature basis of the field, and (iii) pure direct citation (Global or Local) to uncover the citations coming from inside a research field or from global sources. Related to the last one, it is used in an aggregated manner to count the references cited in documents by establishing connections between them, and it enables a more detailed examination of the research front [12,45]. But direct citation also identifies interdisciplinarity between areas, among other aspects [8,46]. However, a bias attributed to pure direct citation is that it drops recent work that has not had enough time to be cited [12], an unresolvable issue because the time frame counts in this analysis.

Hence, to measure the productivity of the research field we refer to the Number of Publications (NP) and the author's production over time, and to know the impact index we use the Direct Citation (DC), considering Local vs Global Citation (LC vs GC), Average Citation (AC), Local Citation Rate (LCR), and h-index (Scopus vs EI h-index). In this research, the former index is calculated for the collection of EI papers (*EI h-index*), to be compared with the Scopus h-index for the authors or journals -see the h-index guide in Hirsch and Buela-Casals [47]-. Table 2 summarises the main indicators and the way we have calculated them using different units of analysis and managing software.

There is an invisible network knitted around journals, universities, countries, authors and keywords that shape the conceptual, intellectual and social structure of a research field [24,26]. By the use of science mapping tools, it is possible to analyse these structures quantitatively and/or qualitatively depending on the unit of analysis [48] to extract the past, present, and future conversations held within the topic under review. By analysing large volumes of data, scientific mapping provides a macro view that helps to identify what trends researchers are following, thus, contextualising scientific progress is possible [9,12]. To this end, we found a variety of scientometric tools that enable us to analyse large amounts of data and do not require programming skills [2]. For our purposes, the

Table 2
Key indicators, unit of analysis, software used in each analysis and key procedures.

Indicator		Definition	Unit of analysis (Software and procedure/Source)
DC: Direct Citation	GC: Global Citation	Counts the number of citations that an article in the collection has received from all the publications indexed in the source (In this paper: Retrieved from *Scopus*)	Documents (*Bibliometrix* - Most Global cited documents); Clustering by coupling by GC
	LC: Local Citation	Counts the number of citations a document received from other articles in the collection (Calculated by *Bibliometrix* based on the references cited by the papers within the collection)	Documents and Journals (*Bibliometrix* - Most Local cited documents/sources); Clustering by coupling by LC
LCR: Local Citation Rate		Local Citations over Global Citations (%) – Calculated by authors	Documents and Journals (*Bibliometrix*)
EI *h-index*		Author and journal h-index calculation from the EI articles collection	Journals (*Bibliometrix* - Sources Local Impact) and authors (*Bibexcel*- Analysis h-Index)
Scopus h-index		Author and journal h-index retrieved from *Scopus*	Journal (*SJR)* and authors (*Scopus*)
Author's Production overtime		Global Citation over the number of years since its publication	Authors (*Bibliometrix* - Authors' production over time)

authors have chosen *Bibexcel* (v.2016.02.20) [49] designed to analyse textual bibliographic data, and the *Bibliometrix R-package,* integrated into *Rstudio* (v.Rx64.4.1). The latter includes a series of quantitative analysis tools to conduct bibliometrics and scientometrics -see, Aria and Cuccurullo [43]-. Both are open-source statistical programmes that can process large amounts of information and are widely used in Social Sciences. Moreover, by combining them, we got more accurate and reliable results than if we had used only one bibliometric software. In this sense, we were able to check the stability of the results using *Bibexcel* and other alternative software such as *Scimat* for the strategic map with Global Citation, or *VOSviewer* for bibliographic coupling.

The documents, as a unit of analysis, were analysed considering Number of Publications, Average Citation, Local Citation (LC) and Global Citation (GC) indicators provided by *Bibliometrix*. Most of these indicators are widely known in scientometric and bibliometric works [2]. However, since the added value of this research is based on the use of LC in some analyses, we consider the need for further explanation of the LCR, as limited software give us the opportunity to calculate it, and therefore it has been hardly used. For the calculation of the LCR, we use the *Bibliometrix* output of LC and GC. This software distinguishes between Local and Global Citations. The former measures how many times a document included in a collection that results from a searching process on a specific topic or research area have been cited by other authors also in the collection. While the latter considers citations of the same document in the search source (Fig. 2). If we consider the collection as the highly specialised literature on a topic, using LC and GC -see, Aria and Cuccurullo [43]; Kraus et al. [13]- we can learn not only how a document contributes to this research literature, but also its contribution to other connected fields of research [8]. LCR, which shows the percentage that LC represents over GC, lets us discover the contribution of every document to the research topic according to its real relevance in this research area.

All these indicators lead us to the most cited documents at present, both "locally" (*i.e.*, inside de collection) and "globally" (*i.e.*, in Scopus). To do so, we have compiled the information provided by Scopus on the number of citations an article has received annually from 2006, the first year in which Scopus reports the annual citations of each paper, till October 2021, the month in which this analysis was carried out. To analyse them properly we have ranked papers, journals, and authors. We also include thematic strategic maps using bibliographic coupling and author's keywords.

Regarding the journals, we have used the LC to rank the 20 most cited journals. We have also calculated the distance between their *EI h-index* and h-index to determine the journals' level of specialisation within the topic. Using *Bibliometrix*, we obtained the calculated *EI h-index* from our collection of articles, while *Scimago Journal Rank* (SJR) provided us with the journal h-index. Finally, to rank the journals according to their area of knowledge, general information was obtained from the SJR. The information obtained allowed us to visualise the journals and research areas that show the most specialisation in EI.

The authors were analysed by their productivity (NP) and impact (AC, LC, GC, *EI h-index* and Scopus h-index). We compiled the top-ten most-cited authors' h-index to compare with the *EI h-index* calculated by using *Bibexcel*. Comparing the authors by h-index provides a picture of their contribution to the subject by balancing the weight of the most cited, the oldest and the least frequent publications [16]. Finally, the author's production over time has been calculated with the *Bibliometrix*. The resulting picture will give us information about the research career on this topic, of the most prolific authors in the last decades considering their GC.

Finally, strategic thematic maps were constructed. To this end, using the *Bibliometrix* "Clustering by Coupling" by LC procedure in Fig. 10, and by GC in Fig. 11, the following was carried out: (i) firstly a bibliographic coupling was conducted, which groups the papers that converge in the same conversation according to the references cited in those papers, making it possible to trace the path of the central themes that make the scientific dialogue up to a given date, also indicating the trends of future research [44], and (ii) secondly, to help characterise each cluster, the programme was asked to take the 5 most representative keywords of each group.

The final clusters are placed by the software on a strategic map generating four quadrants defined according to the criteria of Cobo et al. [7] based on research by Callon et al. [50], which *Bibliometrix* places on a Cartesian axis of Centrality-Impact [43]. Thus, quadrant

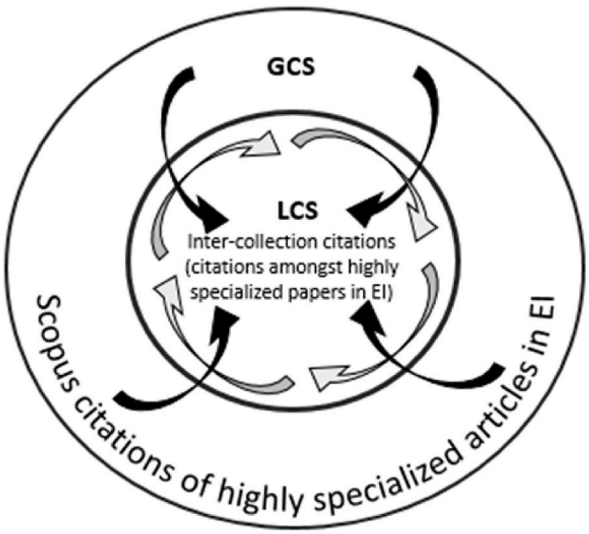


Fig. 2. Local Citation Score *vs* Global Citation Scores.

1 (top right) shows clusters dealing with issues of high centrality and high impact in the field. The clusters located in this quadrant are motor themes of the speciality, which are usually related to concepts that may come from other conceptually closely related fields of well-established knowledge, and with high implications for the research area analysed. These are very important scientific conversations to structure the field of research. Top left, Quadrant 2, would show clusters with high centrality but low impact in the research area, known as basic and general themes. Quadrant 3 (bottom right) would show clusters that are peripheral to the field of study but have a major impact on it. These are highly specialised topics, but not core themes. The lower left, Quadrant 4, brings together those groups that so far remain marginal and peripheral. These are well-connected scientific communities but with little impact on the field at the time of our analysis, so they may represent both emerging and disappearing themes that the analyst must interpret in the context of the research area being analysed.

5. Results

5.1. Number of publications

Fig. 3 highlights the year-on-year trend in publications on the topic of EI. EI research experienced an exponential increase since 2006, showing a pattern of sustained growth. Extrapolating from the 102 articles published in the first quarter of 2021, it appears that the upward trend continues, suggesting that the field maintains its research potential by resisting entering the plateau phase.

5.2. The most relevant documents

Fig. 4 shows the average number of citations generated by the documents analysed. The results highlight the year 2000, with 55.4, as the year with the most GC on average of the papers published in that year, followed by 2005, with 37.8 citations on average. A preliminary analysis of the years with the highest average number of citations reveals the most relevant documents whose contribution to the field of research has generated the greatest impact.

Hence, Fig. 5 shows the top twenty most 'locally' cited documents. They have been key documents for the advance of the EI topic largely. Among them, the three key papers in the EI literature to date are, in descending order.

(1) *Competing models of entrepreneurial intentions* were published in 2000 by Krueger et al. [51] (LC 951; GC 2291). The paper uses a competing models approach to compare two models of intention. They apply Chamberlin's approach of multiple working hypotheses via regression analysis to assess Ajzen's model (TPB) and Shapero's model (EEM). Their conclusions revealed that both intention models offer researchers a useful tool for understanding EI, although Shapero's model appears, as specified at the time of the research, slightly superior when assessing EI. In addition, they propose as lines of future research, to build a test of competing models of intention versus alternative models of attitudes, and to explore how intention precipitates behaviour.

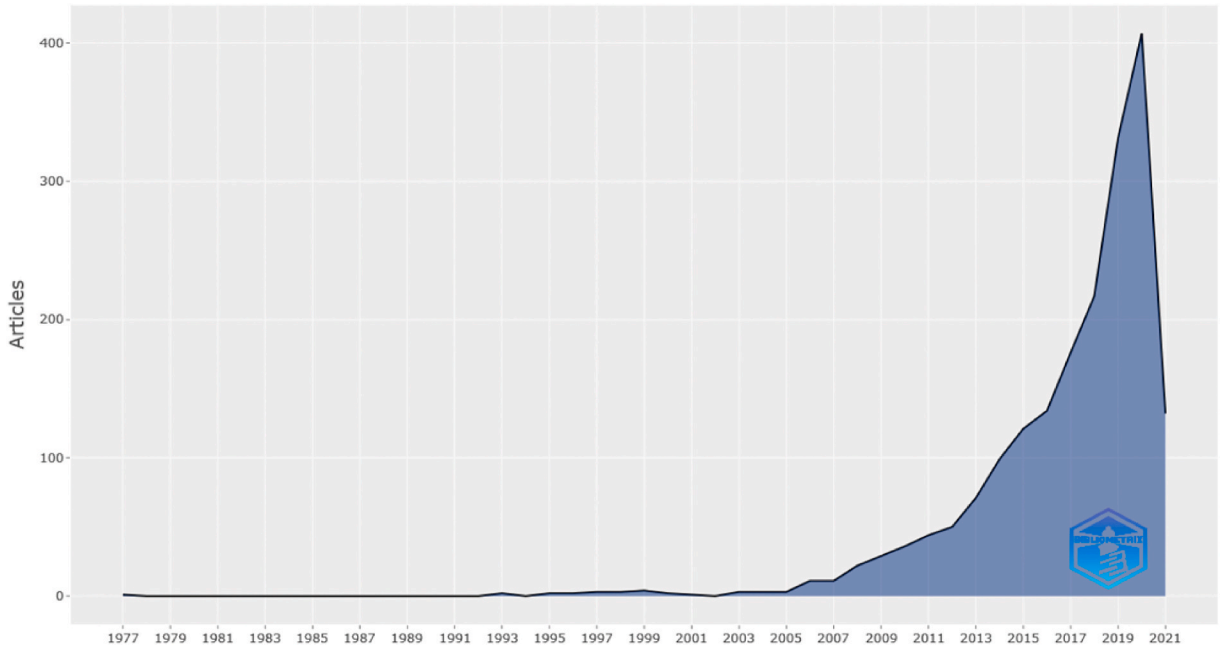


Fig. 3. Total number of documents published up to March 2021.

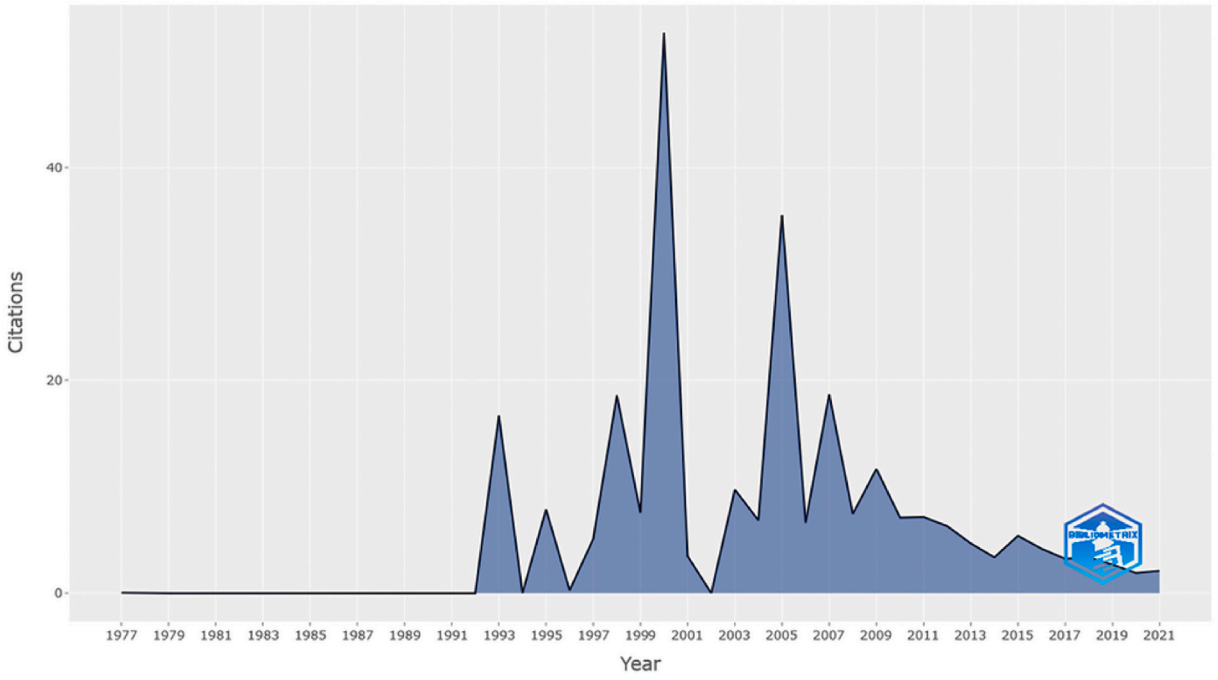


Fig. 4. Average article citation per year.

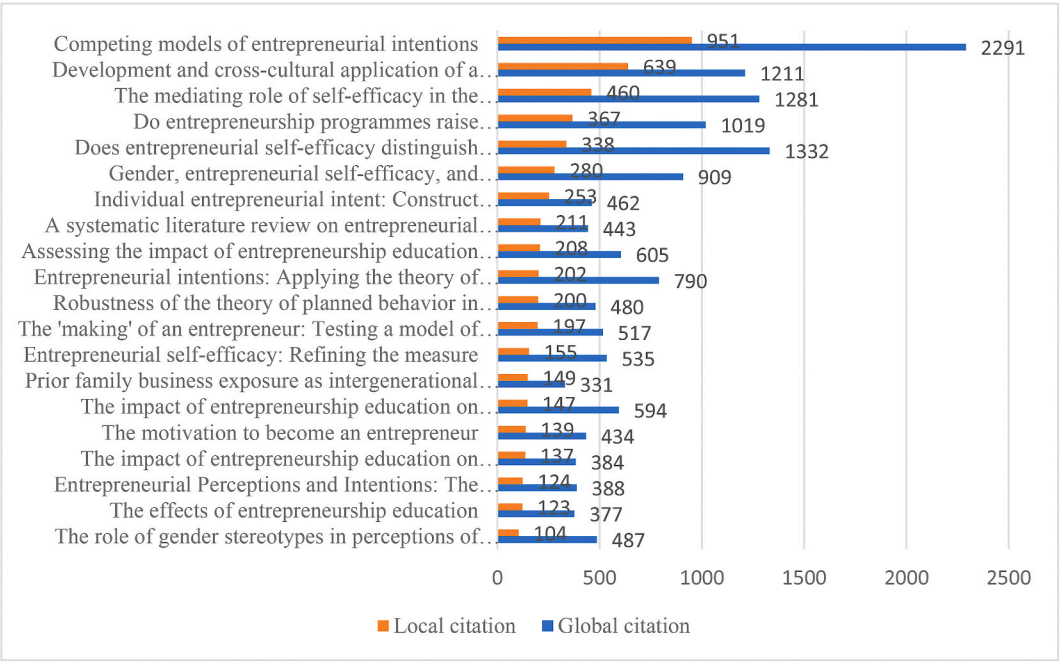


Fig. 5. Top twenty most cited documents on EI.

(2) *Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions* by Liñán and Chen in 2009 [52] (LC 639; GC 1211). The authors use a sample of university students in business administration from two countries that differ in history and culture (Spain and Taiwan) to develop, based on Ajzen's Theory of Planned Behaviour, an Entrepreneurial Intention Questionnaire (EIQ). Their research responded to the need for a tool that allowed comparing the work carried out on EI and, in addition, incorporated the consideration of the differences in the perception of the samples obtained from different cultural environments.

(3) *The mediating role of self-efficacy in the development of entrepreneurial intentions* by Zhao et al. in 2005 [53] (LC 460; GC 1281). The authors apply structural equation modelling to a sample of MBA students to study the mediating role of self-efficacy in the intention of university students to become entrepreneurs. The results indicate that the ESE construct is related to EI directly and, in addition, provides a theoretical explanation for the relationship between three of the most frequently identified individual-level antecedents of entrepreneurship -Perception of formal learning, Entrepreneurial experience and Risk appetite- and the intention to become an entrepreneur. It highlights the evidence that there is no difference in terms of ESE between genders, the disparity lies in the lesser intention of women to become entrepreneurs. Finally, the authors suggest the need to study the role of stress tolerance in the relationship between ESE, EI, and entrepreneurial behaviour (EB).

However, if we consider the most cited paper in the Global context –that is, counting the number of citations in Scopus-, we must highlight also: *Does entrepreneurial self-efficacy distinguish entrepreneurs from managers?* By Chen et al. in 1998 [54] (LC 338; GC 1332) that rank in second place by GC and in the fifth position of LC. This position highlights the interest of researchers outside EI research in this work. In this paper, the authors demonstrate that ESE is a distinctive characteristic of the entrepreneur. They developed two studies, one with students and the other with small business executives, in both of which they distinguished factors characteristic of entrepreneurial self-efficacy, although these factors were different in each study. Thus, entrepreneur students emphasised the factors of marketing, management and financial control, while business founders showed higher self-efficacy in innovation and risk-taking. Furthermore, they were able to demonstrate that ESE was positively related to the intention to set up one's own business as well as convergent and discriminant validity between the ESE construct and the more general construct of locus of control. The paper provides two approaches to reinforce ESE, one at the micro-level, through training, and the other through intervention in the environment, to create available and visible resources. The authors conclude by confirming the need to use the ESE construct in research, education and public policy models to foster entrepreneurial potential.

The first three works are seminal in the study of EI. With a special interest in adapting the generic model that explains how intention is formed to the specific case of EI while developing the measurement instruments and refining the constructs, they are the cornerstone on which this area of research has been built. On the other hand, the work of Chen et al. [54], which highlights the interest of ESE in distinguishing the entrepreneurial person, attracts the attention of EI researchers because of the precursor character of this construct in the formation of EI. However, many of the top 20 ranked papers in this area of the study conclude that there is still a need to demonstrate the relationship between EI and EB (IE-EB). Thus, when searching in the collection analysed for how many of the papers have followed this research path, it is surprising to note that it remains an underexplored area with 24 papers focusing on the EI-EB relationship of the 1920 papers focusing on EI. In addition, these works receive only 19 citations in the collection (LC 19), while externally 528 (GC 547) –see Fig. 6-, which makes one wonder whether, as such, the seed of a new research topic has been created that is well-differentiated from the literature only focused on EI.

The Theory of Planned Behaviour (TPB), developed by Ajzen [55], is one of the most widely used models in social sciences for predicting human behaviour when it is intentional and planned. This model proposes that intentions, in general, depend on attitudes towards behaviour, social norms, and perceived behavioural control. On the other hand, Shapero and Sokol's [56] Entrepreneurial Event Model (EEM) was developed specifically for the field of entrepreneurship. The authors argue that EI depends on perceptions of personal desirability, feasibility, and action propensity. As the latter model states, human behaviour is guided by inertia until a disruptive event, positive or negative, interrupts or "shifts" that inertia, triggering a change in the individual's behaviour. If we consider the recommendation of Krueger et al. [51], in which the EEM presented evidence of better assessment of EI over the TPB, the

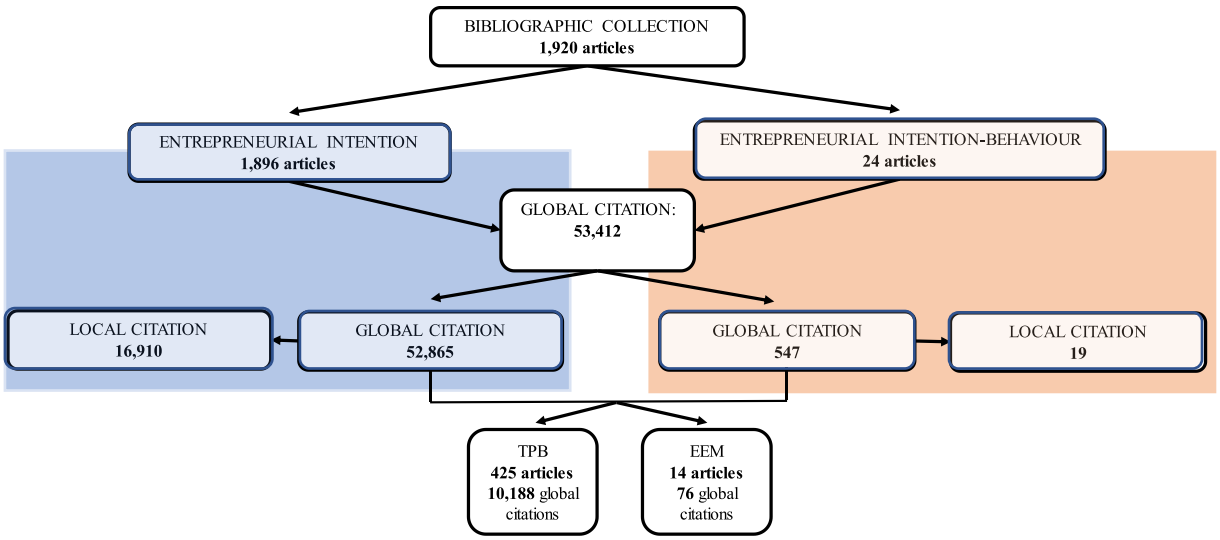


Fig. 6. The main challenges raised in the literature on EI, through direct citation, at a glance.

specific search on the set of papers analysed reveals that only 14 articles, with an overall citation of 76, meet the challenge of that evidence. This contrasts with the 425 articles, with 10,188 GC, that the TPB accounts for –see Fig. 6-, following the recommendations made by Armitage and Conner [57], and Schaegel and Koenig [30].

Fig. 7 shows the trend of the three most influential documents to date, in terms of GC. Data on the year-on-year evolution of citations were retrieved from Scopus in early October 2021. These data help to contextualise the evolution of the first three papers in the LC and GC ranking. It can see how the paper by Krueger et al. [51] has progressively gained interest since 2008 -*i.e.*, some 8 years after its publication-, followed in importance by the paper by Liñan and Chen [52], written 9 years after the foundational paper of Krueger et al. [51].

Table 3 lists the articles that have a higher specialisation in EI, in light of the LCR results. The article by Thompson [58] entitled *Individual entrepreneurial intent: Construct clarification and development of an internationally reliable metric* ranks first with 54.76%, indicating its very high level of specialisation in the area of study. Second place goes to the article entitled *Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions* by Liñán and Chen [52] with 52.77%. These papers were published in *Entrepreneurial: Theory & Practice* and developed a metric to measure EI. Thompson [58] developed and validated an internationally applicable individual EI scale, while Liñán and Chen's contemporaneous paper, as we have already seen, constructed an EI questionnaire (EIQ) based on the TPB, and analysed its psychometric properties. Thirdly, *A systematic literature review on entrepreneurial intentions: citation, thematic analyses, and research* agenda by Liñán and Fayolle [5], with 47.63%, conducted an in-depth literature review to structure the fragmented research on EI.

6. Most cited journals, their impact and specialisation in EI

The 1920 articles included in this study have been published in 530 journals. Table 4 presents the top twenty journals ordered by the number of Local Citations. In addition, the Number of Publications, GC, and the area of knowledge in these journals are shown. In this research area, the prominence of Business, Management, and Accountant is undeniable, followed by Economics, Econometrics, and Finance, as research areas interested in this topic. We see that the two journals leading the ranking by both LC and GC, are the *Journal of Business Venturing* (JBV) and *Entrepreneurship Theory & Practice* (ET&P), accumulating the highest LC percentage of this selection (20.1% and 19.9%, respectively) –Table 4-. According to the number of articles published, *Education and Training* (E&T), with 73 papers, and the *International Journal of Entrepreneurial Behaviour and Research* (IJEBR), with 67, are in the top positions followed by *International Entrepreneurship and Management Journal* (IEMJ). JBV and ET&P have an interdisciplinary vocation and cover the entrepreneurial phenomenon broadly, both theoretically and empirically. The core research focus of E&T and IJEBR is employability, education and human, and social dynamics, among others. Some of the most cited papers from the research front have been published in these journals.

Journals- JBV: Journal of Business Venturing; ET&P: Entrepreneurship Theory & Practice; IEJM: International Entrepreneurship and Management Journal; E&T: Education and Training; JSBM: Journal of Small Business Management; IJEBR: International Journal of Entrepreneurial Behaviour and Research; E&RD: Entrepreneurship and Regional Development; JSBED: Journal of Small Business and Enterprise Development; JBR: Journal of Business Research; SBE: Small Business Economics; IJESB: International Journal of Entrepreneurship and Small Business; ISBJ:International Small Business Journal; JDE: Journal of Developmental Entrepreneurship; IJGE: International Journal of Gender and Entrepreneurship; JEE: Journal of Entrepreneurship Education; SS: Sustainability (Switzerland); SHE: Studies in Higher Education; IJME: International Journal of Management Education; JEEE: Journal of

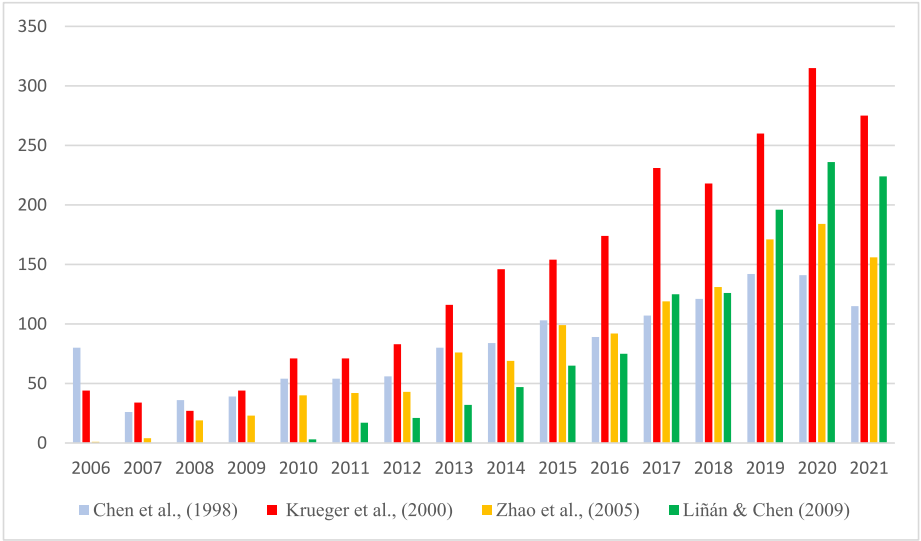


Fig. 7. Evolution of the top three EI papers in terms of Global citations according to Scopus.

Table 3
Top ten most contributed articles on EI (papers sorted by LCR).

Article	Journal	Local Citations (Rank)	Global Citations (Rank)	LCR % (LC/GC)
Individual entrepreneurial intent: Construct clarification and development of an internationally reliable metric (Thompson 2009) [58]	ET&P	253 [7]	462 [10]	**54.76**
Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions (Liñán and Chen 2009) [52]	ET&P	639 [2]	1211 [4]	**52.77**
A systematic literature review on entrepreneurial intentions: citation, thematic analyses, and research agenda (Liñán and Fayolle 2015) [5]	IEMJ	211 [8]	443 [11]	**47.63**
Robustness of the theory of planned behaviour in predicting entrepreneurial intentions and actions (Kautonen et al., 2015) [59]	ET&P	200 [11]	480 [9]	41.67
Competing models of entrepreneurial intentions (Krueger et al., 2000) [51]	JBV	951 [1]	2291 [1]	41.51
Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources (Souitaris et al., 2007) [60]	JBV	367 [4]	1019 [5]	36.02
The mediating role of self-efficacy in the development of entrepreneurial intentions (Zhao et al., 2005) [53]	JAP	460 [3]	1281 [3]	35.91
Assessing the impact of entrepreneurship education programmes: A new methodology (Fayolle et al., 2006) [61]	JEIT	208 [9]	605 [8]	34.38
Gender, entrepreneurial self-efficacy, and entrepreneurial career intentions: Implications for entrepreneurship education (Wilson et al., 2007) [62]	ET&P	280 [6]	909 [6]	30.80
Entrepreneurial intentions: Applying the theory of planned behaviour (Krueger and Carsrud 1993) [63]	ERD	202 [10]	790 [7]	25.57
Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? (Chen et al., 1998) [54]	JBV	338 [5]	1332 [2]	25.38

ET&P: Entrepreneurship Theory & Practice; IEMJ: International Entrepreneurship and Management Journal; JBV: Journal of Business Venturing; JAP: Journal of Applied Psychology; JEIT: Journal of European Industrial Training; ERD: Entrepreneurship and Regional Development.

Table 4
Top twenty journals publishing on EI ranked by Local Citations.

Journals publishing on EI	Number of Papers	LC	LC (%)[a]	GC (RANK)	GC (%)[b]	Area		
JBV	20	2297	20.1	6707 (1)	21.1	BMA	–	–
ET&P	22	2122	19.9	6052 (2)	19.0	BMA	EEF	–
IEMJ	64	1537	14.4	3795 (3)	11.9	BMA	–	–
E&T	73	826	7.7	2314 (5)	7.3	BMA	–	SC
JSBM	36	760	7.1	2380 (4)	7.5	BMA	–	–
IJEBR	67	729	6.4	2260 (7)	6.6	BMA	–	–
E&RD	12	707	6.6	2310 (6)	7.3	BMA	EEF	–
JSBED	34	523	4.9	1288 (8)	4.0	BMA	–	–
JBR	21	376	3.5	1186 (10)	3.7	BMA	–	–
SBE	23	235	2.2	1192 (9)	3.7	BMA	EEF	–
IJESB	48	222	2.1	687 (12)	2.2	BMA	EEF	–
ISBJ	20	207	1.9	803 (11)	2.5	BMA	–	–
JDE	20	188	1.8	492 (13)	1.5	BMA	EEF	–
IJGE	16	128	1.2	431 (15)	1.4	BMA	EEF	SC
JEE	52	110	1.0	425 (16)	1.3	BMA	EEF	SC
SS	47	105	1.0	450 (14)	1.4	–	–	SC
SHE	19	99	0.9	404 (17)	1.3	–	–	SC
IJME	17	84	0.8	354 (18)	1.1	BMA	–	SC
JEEE	29	78	0.7	343 (19)	1.1	BMA	EEF	–
JSBE	22	67	0.6	236 (20)	0.7	BMA	–	–
TOTAL OF THIS LIST	662	11400	100.0	34,109	100.0	90%	40%	30%

[a] % of total Local Citations of this list.
[b] % of total Global Citations of this list.

Entrepreneurship in Emerging Economies; JSBE: Journal of Small Business and Entrepreneurship; BMA: Business, Management, and Accountant; EEF: Economics, Econometrics, and Finance; SC: Social Science.

The journals' level of specialisation within the topic is shown in Fig. 8. This figure indicates the calculated *gap* between h-indexes –*i.e.*, *Scopus* h-index for the journals publishing about EI, and *EI h-index*-. The shortest distances fall on seven journals: JEEE, with a gap of 3, reporting its high level of specialisation in EI, followed by JEE (gap: 5), JDE (gap: 16), IJME and IJESB (gap: 18), JSBE and IJGE (gap: 19). The former journal, which was released in 2014, has published 186 articles, 137 of which focus directly or indirectly on IE, accounting for 70% of its publications on this topic. Regarding the others, after examining the article titles published in the journal, we found that almost 3% of them explicitly referred directly or indirectly to EI. Conversely, two top-ranked journals (Table 4), JBR (gap: 179) and JBV (gap: 166), have the greatest calculated *gap*, indicating a low specificity in IE. However, the most cited document to date, *Competing models of entrepreneurial intention* by Krueger et al. [51] was published on JBV. These results show that research on EI is not limited to specific journals and is widely dispersed.

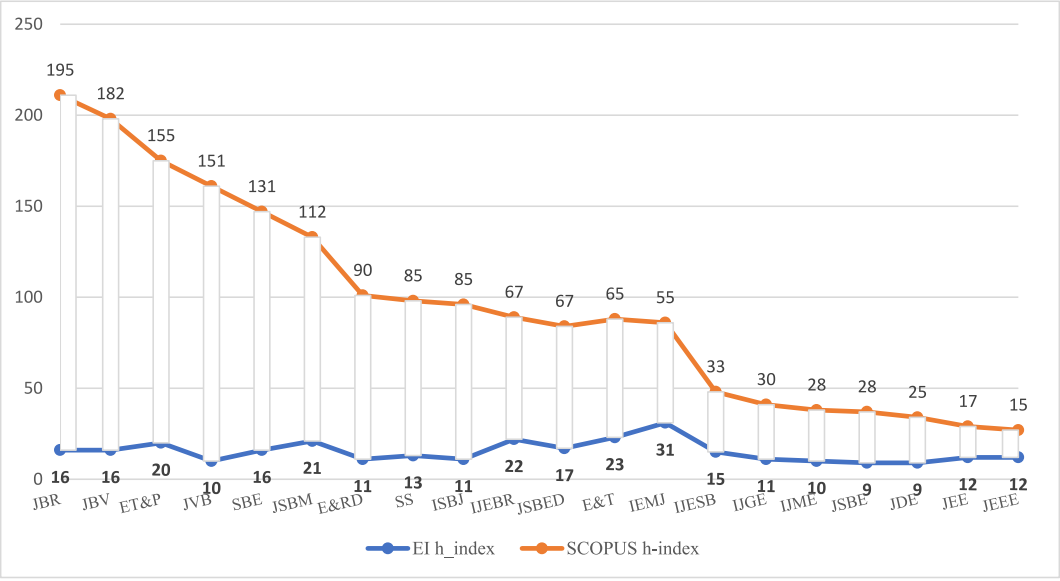


Fig. 8. Sources EI h-index and Scopus h-index.

The calculated gap positioned IEMJ in the middle of the interval (gap: 24). This journal has a broad focus on entrepreneurship, and it has published two of the most highly cited EI literature reviews to date: *A systematic literature review on entrepreneurial intentions: citation, thematic analyses, and research* agenda, by Liñán and Fayolle [5], and *Intentions resurrected: a systematic review of entrepreneurial intention research from 2014 to 2018 and future research* agenda, by Donaldson [17].

6.1. Authors' productivity and their scientific production overtime

Tables 5–7 outline the top ten most-cited authors who have contributed to this topic with their works. In total, this group of authors has published 118 publications from the seventies to date, with Liñán making the main contribution with 22 papers, followed by Wibowo (16 papers) -see Table 5-. Liñán tops the list by GC with 3593 citations followed by Carsrud [63] with 2922 citations -see, Table 6-. Two reference articles for the EI topic that accumulate a high number of citations place Carsrud in the first position with the highest Cites Ratio -see Table 7-. It is noteworthy that European authors are leaders in the number of publications while those from the USA lead in the number of citations. Moreover, the calculated gap resulting from subtracting the h-indexes –*i.e.,* Scopus h-index and *EI h-index*-, shows in Fig. 9 that Francisco Liñán is the author with the highest *EI h-index*, whereas Ricardo G. Rodrigues has a smaller gap, denoting the high level of specialisation of his production on this topic.

Graphic 1 summarised the EI top authors' production. This graph shows the authors who have contributed to a greater or lesser extent to the scientific production of the research topic. Lines link the production on EI where the author is the first to sign. The graph shows, for example, that Liñán has published 22 articles with 3593 GC for his entire research output. However, if we go into detail thanks to the software, in any given year, see for instance 2007, we can see that this same author published an article that has received 191 citations since its publication. This information is represented in the graph by circles that vary in size and colour by counting the number of articles published in a year, and the number of citations they have received. Thus, the total number of citations per year is the annual average number of citations calculated by dividing all citations received by articles published in a year by the number of years these articles have been published. This graph also shows that, although scientific production has not stopped since the nineties,

Table 5
Top ten authors ranked by number of publications.

Rank	Author	Country	Number of Publications (NP)	Global Citations (GC)	EI h-index	Cites ratio (GC/NP)
1	Liñán, F.	Spain	22	3593	17	163.3
2	Wibowo, A.	Indonesia	16	43	3	2.3
3	Liang, C.	Taiwan	14	141	6	10
4	Fayolle, A.	France	12	1980	11	165
5	Kautonen, T.	Finland	10	1278	10	127.8
6	Obschonka, M.	Germany	10	655	9	65.5
7	Wang, J.	Taiwan	10	76	4	7.6
8	Kolvereid, L.	Norway	8	915	8	114.4
9	Rodrigues, R.G.	Portugal	8	477	8	59.6
10	Moriano, J.A.	Spain	8	270	7	33.8

Table 6
Top ten authors ranked by cites.

Rank	Author	Country	Global Citations (GC)	Number of Publications (NP)	EI h-index	Cites ratio (GC/NP)
1	Liñán, F.	Spain	3593	22	17	163.3
2	Carsrud, A.	United States	2922	4	4	730.5
3	Fayolle, A.	France	1980	12	11	23.8
4	Kickul, J.	United States	1291	7	7	184.4
5	Kautonen, T.	Finland	1278	10	10	127.8
6	van Gelderen, M.	Holland	1182	6	5	197
7	Marlino, D.	United States	1011	3	3	337
8	Wilson, F.	United States	1011	3	3	337
9	Kolvereid, L.	Norway	915	8	8	114.4
10	Gailly, B.	Belgium	896	2	2	448

Table 7
Top ten Authors ranked by cites ratio.

Rank	Author	Country	Cites ratio (GC/NP)	Number of Publications (NP)	Global Citations (GC)	EI h-index
1	Carsrud, A.	United States	730.5	4	2922	4
2	Gailly, B.	Belgium	448.0	2	896	2
3	Sequeira, J.	United States	415.0	2	830	2
4	Marlino, D.	United States	337.0	3	1011	3
5	Wilson, F.	Unites States	337.0	3	1011	3
6	Franke, N	Austria	325.0	2	650	2
7	Gupta, V.	United States	303.0	2	606	2
8	Turban, D.	United States	303.0	2	606	2
9	Mueller, S.	United States	302.0	2	604	2
10	Miao, C.	United States	255.5	2	511	2

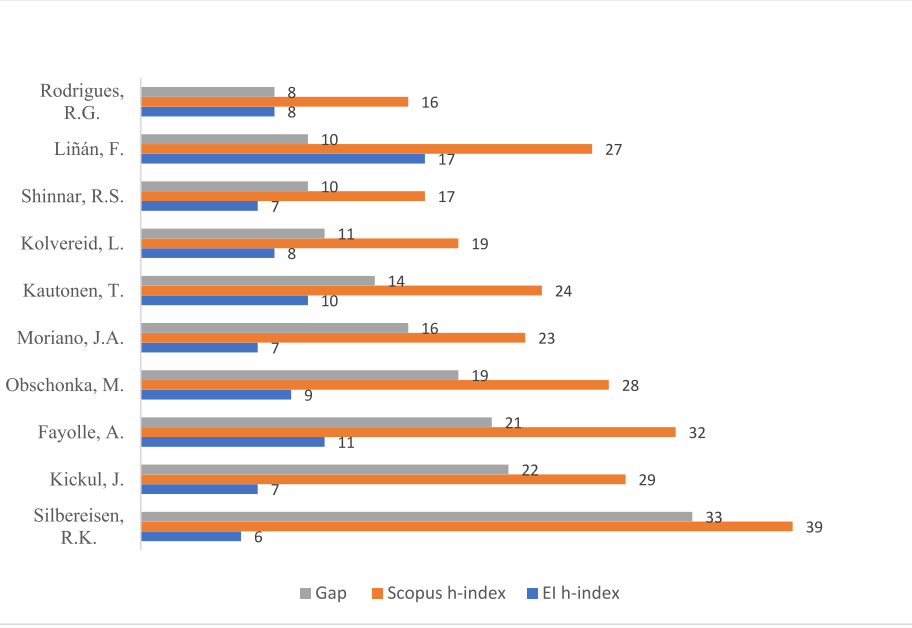


Fig. 9. Authors h-index*: EI h-index and Scopus h-index gap (ranked by gap).

2007 seems to have been the trigger for many authors. Liñán stands out as the most productive author in the area, with Lars Kolvereid and Jill Kickul being highlighted as the authors with the longest research career on EI (17 years), and Wibowo with the shortest but most intense career. Finally, the 20 most productive authors on EI come from all continents, with Europe [4] and Asia [7] standing out.

6.2. Strategic thematic analysis

In contrast to previous bibliometric analyses, in this paper we present thematic strategic maps on EI research using bibliographic

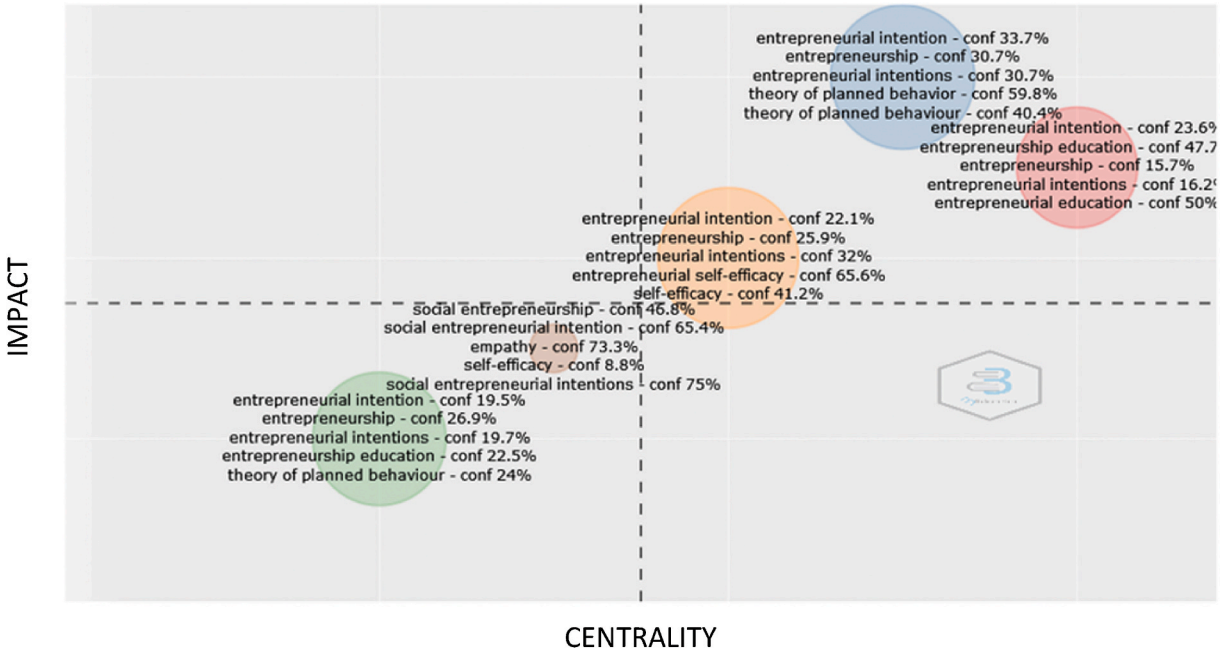


Fig. 10. Strategic map using Local Citation: Bibliographic coupling and authors' keywords.

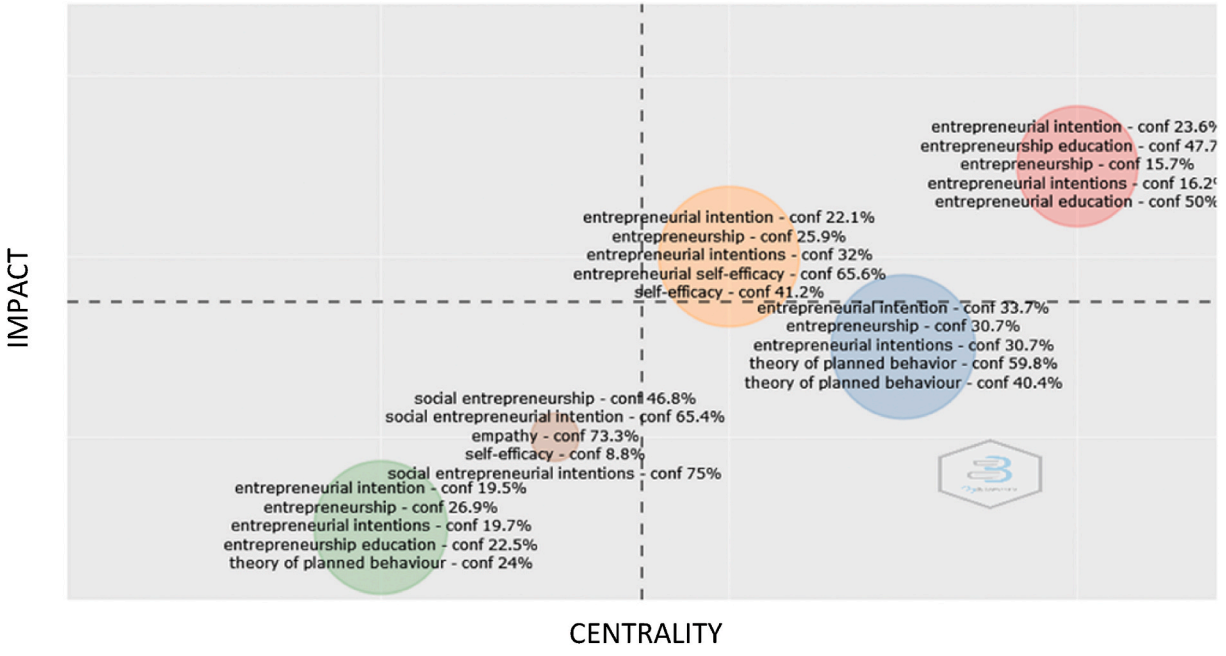
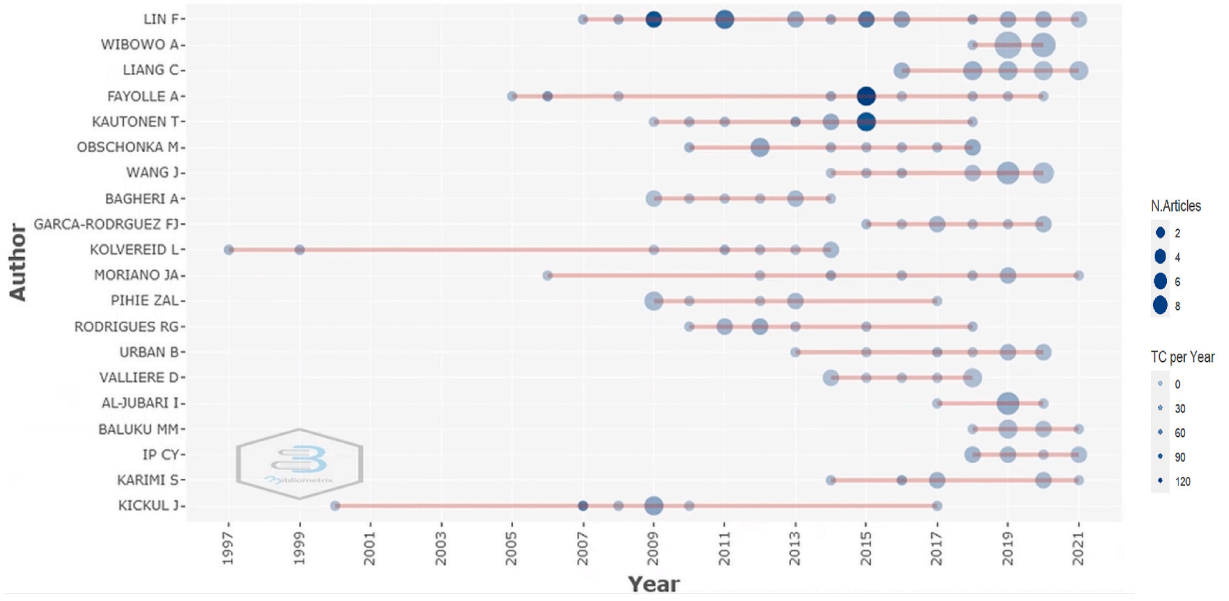


Fig. 11. Strategic map using Global Citation: Bibliographic coupling and authors' keywords.

coupling, and taking into account the LC and GC of the analysed papers (Figs. 10 and 11). As already mentioned in the methodological part of this study, Fig. 10 shows the strategic map generated through the analysis of the bibliographic references contained in the papers in the collection and which are grouped and labelled according to author keywords. The size of the circles reflects the number of documents clustered by bibliographic coupling. The 5 clusters that have been generated are thus presented, which show the main scientific conversations that have been established between researchers in the area over the years analysed. Fig. 11 replicates the analysis but taking into account in this case the Global and not only the Local Citation, showing a similar pattern of development but differentiated in one main aspect: the position of the blue cluster in this map with respect to the previous one.



Graph 1. Top authors' production over time.
* TC per Year: Total Citation per Year = Global Citation per Year

In the clusters, the keywords that characterise each cluster are overprinted together with their percentage of occurrence over the total number of terms found in each cluster, indicating the 5 terms that appear most often in the clusters. Thus, given the specialisation of the topic in the area of entrepreneurship and the term being analysed, EI, the 4 main clusters point to "entrepreneurial intention" (plural and singular) and the term "entrepreneurship" as common to all research in this area. In the fifth and last cluster, the words "social entrepreneurship" and "social entrepreneurial intention" are very representative, a theme that has its scientific basis in EI, but for initiatives that are not necessarily for business purposes. As Silva Martins et al. [36] point out, the emergence of these terms confirms the goodness of the inclusion criteria in the systematic analysis of the literature.

But in addition, specific words that give the cluster its main character stand out: in the blue cluster the terms Theory of planned behaviour (conf. 100.2%), in red "entrepreneurial (entrepreneurship) education" (conf. 97.7%), in yellow " (entrepreneurial) self-efficacy" (conf. 106.8), in green "entrepreneurship education" (conf. 22.5%) and "theory of planned behaviour" (conf. 24%) and, finally, in brown the term "empathy" (conf. 73.3%) accompanying the main terms of the cluster. It should be borne in mind that in some cases the cumulative percentage of terms, if we do not distinguish their spelling, exceeds 100% of the total number of papers grouped in a cluster, as in some cases the terms may appear in their different versions in the keywords of the same paper.

In order to be able to properly characterise and differentiate one cluster from another, distinguishing the scientific interest of each cluster, the researchers had to read the papers contained in each cluster in depth, especially those with the highest number of citations (Local or Global, as the case may be). This led us to clearly differentiate between red and green clusters, both of which had an important configuration (conf) of entrepreneurial education, and with a keywords load of 97.7% in the red cluster, and 22.5% in the green cluster.

Bibliometrix gives an added value over those maps that can be built by other bibliographic software, as it can be configured considering either the LC (Fig. 10) or the GC (Fig. 11). Thus, it not only generates the clusters but also shows us the relative position of each cluster with respect to the others, assigning it a role in the scientific dialogue that is taking place in the field and depending on whether the Local or Global Citation is considered. The in-depth analysis of the map, as the software allows to know each and every paper included in a cluster, reduces the subjectivity of interpretation of the clusters, but it also makes it possible to know the moment at which each group is in the field, making it possible to time the conversations.

Five different clusters were thus found. A detailed analysis of the works contained in a cluster leads to the following characterisation of each cluster: (i) cluster blue brings together papers that are very much focused on EI conceptualisation, the discussion of the models explaining EI, especially the TPB-based model, the methodology associated with its development, and the discussion of its components, with Esfandiar et al. [64], Kautonen et al. [59], Fayolle and Gailly [65] and Liñan and Chen [52] being those which count the most in this cluster; (ii) cluster yellow, with Hsu et al. [66] and Nowiski et al. [67] the documents characterising this cluster the most, grouping works whose central concern is the conceptual and measurement development of the construct of self-efficacy and its relationship with EI; (iii) cluster green groups those papers interested in entrepreneurship education, but mainly focused on the contextual factors that could influence EI such as institutional, cultural, regional, and economic environment factors surrounding the educational context, with Fayolle et al. [61], Urban and Kujinga [68], and Oosterbeek et al. [69] as leaders of this group; (iv) cluster red is also centred on entrepreneurial education but mainly related with individual characteristics and personal context, dominating Liñan and Rodríguez-Cohard [70], Barba-Sánchez and Atienza-Sahuquillo [71], Nowiski and Haddoud [72], and Maresch et al. [73];

Table 8
Summary of research poles and clusters in the development of EI research.

		RESEARCH POLES ON ENTREPRENEURIAL INTENTION				
		Modelling EI and discussing its antecedents and relationships	Self-efficacy as an antecedents of EI	Social EI	Effect of Education on EI	
Cluster Morphology	Cluster	Blue	Yellow	Light brown	Red Personal Factors	Green Educational context
	Strategic position in the research area	Motor theme (LC) Peripheral topic (GC)	Motor theme (LC, GC)	Emerging theme (LC, GC)	Motor theme (LC,GC)	Symptoms of exhaustion theme (LC,GC)
	Number of documents (% of the total clustered papers)[b]	537 (28.3%)	501 (26.4%)	83 (4.4%)	341 (18%)	436 (23%)
	Keywords labels (% of total keywords in a cluster)	Theory of Planned Behaviour:**59.8%** Theory of Planned Behaviour:**40.4%** Entrepreneurial intention:**33.7%** Entrepreneurial intentions:**30.7%** Entrepreneurship:**30.7%**	Entrepreneurial Self-Efficacy:**65.6%** Self-Efficacy:**41.2%** Entrepreneurial intentions:**32%** Entrepreneurship:**25.9%** Entrepreneurial intention:**22.1%**	Social Entrepreneurial Intentions:**5%** Empathy:**73.3%** Social Entrepreneurial Intention:**65.4%** Social Entrepreneurship:**46.8%** Self-efficacy:**8.8%**	Entrepreneurial Education:**50%** Entrepreneurship Education:**47.7%** Entrepreneurial Intention:**23.6%** Entrepreneurial intentions:**16.2%** Entrepreneurship:**15.7%**	Entrepreneurship:**26.9%** TPB:**24%** Entrepreneurship Education:**22.5%** Entrepreneurial Intentions:**19.7%** Entrepreneurial Intentions:**19.5%**
	Clusters' key papers	Esfandiar et al. (2019) Kautonen et al. (2015) Fayolle and Gailly (2015) Liñan and Chen (2009) [52,59,64,65]	Hsu et al. (2019) Nowiski et al. (2019) [66,67]	Hockerts (2017) Zaremohzzabieh et al. (2019) [74,75]	Liñan and Rodríguez-Cohard (2015) Barba-Sánchez and Atienza-Sahuquillo (2018) Nowiski and Haddoud (2019) Maresch et al. (2016) [70–73]	Fayolle et al. (2006), Urban and Kujinga (2017) Oosterbeek et al. (2010) [61,68,69]
	Local Citations	5690	5444	267	1593	3843
	Global Citations	16138	19036	852	5212	11605
	LCR	35.2%	28.6%	31.3%	30.6%	33.0%
	GC/LC	2.8	3.5	3.2	3.3	3.2
Cluster Key Characteristics[a]	Key papers considering LCR (Table 3)	Liñán and Chen, 2009; Kautonen et al., 2015; Souitaris et al., 2007; Krueger and Carsrud 1993 [52,59,60,63]	Thompson, 2009 Zhao et al., 2005 Chen et al., 1998 [53,54,58]		Liñán and Fayolle 2015 [5]	Krueger et al., 2000 Fayolle et al., 2006 Wilson et al., 2007 [51,61,62]
	Key journals (Table 4)	IEMJ; IJESB; E&T	IJEBR; ET&P; IEMJ	IJEBR; IJESB SS	E&T; SS; JEE	E&T; IJESB; JEE
	Key authors (Tables 5–7)	Liñán, F. Kautonen, T. Fayolle, A. Kickul, J.	Moriano, J.A.	Liang, C. Obschonka, M.	Wibowo, A.	Fayolle, A., Rodrigues, R.G.

[a] Characterisation of each cluster according to the bibliometric results of this paper, shown in previous sections.
[b] 22 papers remain unclassified. ESE: Entrepreneurial Self-Efficacy; SEI: Social Entrepreneurial Intention; Journals- ET&P: Entrepreneurship Theory & Practice; IEMJ: International Entrepreneurship and Management Journal; E&T: Education and Training; IJEBR: International Journal of Entrepreneurial Behaviour and Research; IJESB: International Journal of Entrepreneurship and Small Business; JEE: Journal of Entrepreneurship Education; SS: Sustainability (Switzerland).

and (v) cluster light brown, with Hockerts [74] and Zaremohzzabieh et al. [75] as representatives, groups documents interested in social entrepreneurial intention (SEI), and empathy as a remarkable personal antecedent of SEI. A total of 22 documents remained unclassified. Table 8 provides additional information on the characterisation and morphology of each cluster. In the same table we have also reflected the articles, authors, and journals highlighted in the preceding sections in the light of the bibliometric analysis previously carried out.

The highest number of citations, both Global and Local, are observed in the yellow and blue clusters, those that use universal concepts shared by a good number of areas. However, if we consider the weight of GC over LC, it is the yellow and red clusters that receive more attention at the global context than at the local one, with the former receiving 3.5 GC for every LC, and 3.3 GC for every LC, respectively.

The maps generated considering LC and GC are very similar, with blue, red and yellow clusters as motor themes, and light brown and green as emerging and with symptoms of exhaustion themes, respectively. If one considers the citation of these papers in other EI and non-EI research areas, GC retract the blue cluster to a position of peripheral theme (Fig. 11). In this sense, not being a core theme when global context is considered, the EI research area has a prolific production on TPB, helping other research areas to apply this theory and to build up their arguments not always related to EI. On the other hand, if we only take into account the citation within the specialised collection of EI documents, this same cluster becomes a motor theme of this field of study with an impact of 35.2% of LC with respect to GC.

7. Discussion, conclusions and limitations

This paper complements other previous literature reviews and bibliometric studies on the EI literature summarised here. The active use of LC, which delves deeper into the more specialised EI literature, as a complement to GC, leads us to interesting conclusions not highlighted by other literature reviews to date. Furthermore, the scientometric approach adopted in this work obliges us to analyse the papers included in the review not only from a purely bibliometric perspective, which maps and explores the mathematical and statistical results of the citations, but also from an in-depth analysis of the papers included in the review to reveal weaknesses and strengths of the research conducted so far about this topic. Therefore, in this results discussion section we also summarise the main conclusions drawn from the in-depth analysis of the papers contained in each cluster.

Thus, with the help of LC, four major poles of attraction for researchers in this field have been identified. Entrepreneurial education, with 41% of the EI papers published (Table 8), is a fundamental area of interest, although, concerning this area, researchers have positioned themselves on two well-differentiated work fronts: (i) contextual factors surrounding the educational environment and their impact on EI (green cluster), counting for 23% of the total EI papers published, and (ii) the individual characteristics and personal context that influence EI (red cluster), counting for 18% of the EI papers (Table 8). If we consider the timeline, the papers in the first group emerged before the papers focusing on individual characteristics, and probably did so as a way to test the models previously analysed by Krueger et al. [51] in the university context. Now, close to the first quarter of the 21st century, this cluster shows some signs of exhaustion by evolving towards the analysis of personal characteristics grouped in the red colour. Research in this area sees entrepreneurship education as a way of positively influencing EI, and as a means of promoting and changing behaviour at both the individual and collective levels. However, as Kautonen et al. [76] have pointed out, it is time for researchers to move beyond the proximity of their undergraduates to discover EI at different life stages and to seek the generalisability of the results. Moreover, by jumping out of their classrooms in looking for EI at the vocational levels, they can find as much or more EI than that of the university students. In contexts of crisis, the EI is rooted in different groups, and it is not unusual to find it, for example, at the base of the silver economy –*i.e.*, senior entrepreneurship- or in social groups such as women or immigrants. It is perhaps from this that the flourishing of social entrepreneurship has been taking shape as we have verified with the emergence of light brown cluster.

Methodology and model discussions, strongly linked to the TPB-based model and its components, represent the driving force of the research area in terms of LC, counting for 28.3% of the total number of EI papers published (Table 8). This research focus has generated special attention outside this area of study (GC), in not necessarily related areas, where this cluster plays a peripheral role. But what seems necessary is to continue to approach the study of EI from as many perspectives as possible. Despite the results of Krueger's et al. [51] work, the most cited and seminal work-related to the EI topic, which found the EEM to be more appropriate for analysing EI, researchers have embraced the use of the TPB model following the Armitage and Conner [57], and Schlaegel and Koening [30] recommendations. Probably driven by the need to contrast and discuss the previous results of other colleagues, they avoided finding new results with Shapero and Sokol's alternative EEM as we have seen when considering its GC (Fig. 6). However, Azjen's recent reflections finding the EEM highly convergent with the TPB [77] due to the versatile nature of Perceived Behavioural Control antecedent, give us the opportunity of exploiting the event triggering as part of the enablers of entrepreneurship. But, can we find out more about that booster event? Is this a necessary step to drive the entrepreneurial process? What role does this event play in forming the implementation intention? These, among others, are some of the questions that highly specialised researchers in EI should try to answer.

This last cluster is followed by those papers interested in self-efficacy and its relationship to EI, accumulating 26.4% of the total EI papers published. Although the debate on the antecedent or moderating character of the ESE does not yet seem to be over [78,79], there is no doubt that it is still necessary to verify its stability throughout the different stages of the entrepreneurial process and, especially, in groups other than those analysed so far. Finally, with a modest 4.4% of the total EI papers, an emerging subfield is attracting researchers' attention to social entrepreneurial intention, connected in many cases with the concept of empathy highlighted by Mair and Noboa [80], recently studied by Packard and Burnham [81] in the context of entrepreneurship. The application of the concept of empathy as an antecedent of perceived desirability seems well justified in the context of social entrepreneurship. However,

it has been scarcely investigated for non-social EI where it can certainly play an important role given the greater sensitivity of businesses to sustainable development objectives.

On the other hand, despite repeated calls from both a literature review and pure research papers on the topic of EI insisting on the need to demonstrate the relationship between EI and EB, the truth is that few have taken up the challenge, and those that do are tackling it outside the area of influence and progress in the EI research as the contrast of LC *vs* GC has shown. The research topic resists entering the plateau phase and continues to rise. It is still a good moment to invest time and effort in the topic of EI, especially if the new researcher focuses his (er) interest on the EI-EB relationship. In this sense, the paper by Kautonen et al. [59] was a pioneer in this particular research area, and it is highly recommended reading. To have a better update about this EI-EB relationship, it is also recommendable the recently published work of Kallas and Parts [82], with a context approach; Baluku et al. [83], interested in family support to entrepreneurship; or Bogatyreva et al. [84] who analyse the cultural role in this process.

All this knowledge has been collected in 1920 articles, published in 530 journals in which 4239 authors have contributed their works from 1977 to 2021. Ninety per cent of the publications were concentrated between 2006 and 2021, with 2020 being the most productive year to date. We agree with Dohley [4] and Ruiz-Alba et al. [38], whose work was based on GC, that Krueger et al. [51] is the most cited work in this research area even from LC. Nevertheless, we highlight the foundational role played by this paper together with those of Liñán and Chen [52], and Zhao et al. [53]. They together account for 2050 LC (38% of the most important EI papers' LC). But if it were not for the analysis of the LC, we would not know the role played by Thompson. This author develops an interesting metric that has had limited significance, showing 462 GC (Table 4), despite his paper being published in a very high impact journal. The reality is that more than half of its citations come from researchers specialising in the area of EI (LCR: 54.76%) and this information is relevant. The metric suggested by this author for EI, in relative terms, achieves, for each GC, 0.58 LC compared to the 0.52 LC achieved by Liñán and Chen's intention measurement instrument. While a paper with similar global impact, such as Kautonen et al. (2015), with 480 GC, gains its popularity outside this field of study, as more than half of its citations are obtained out of this area of research (LCR: 41.51%).

We qualify the result of Ruiz-Alba et al. [38] by finding that the majority contribution to the topic comes from the *Business, Management, and Accountant* area, while *Economics, Econometrics, and Finance*, and *Social Science* play a lesser role. However, and contrary to what these authors claim, it is European researchers who lead in the number of publications, while US researchers lead in the number of citations, without losing sight of the prominence of the Asians. Moreover, Dohley [4] and Ruiz-Alba et al. [38] rank Francisco Liñán as the most prominent author, and he certainly is, but we have also been able to reveal the long career of Lars Kolvereid and Jill Kickul in this topic, the high level of specialisation of Ricardo G. Rodrígues, and the productive capacity of Agus Wibowo. Regarding the journals, if we go deeper into LC, seven journals are highly specialised in EI: JEEE, JEE, JDE, JSBE, IJME, IJGE, and IJESB –see acronyms in Table 4.

What is certain is that direct citation added value to bibliometrics by discriminating between LC and GC, and its inclusion in future review papers is therefore advisable. However, although our methodological decisions were inspired by good practices and other bibliometric reviews [15,21], we encourage future researchers to conduct up-to-date bibliometric reviews on EI. Even though, the previous reflections should be taken with the necessary caution imposed by a study of this nature, which, like all studies, has limitations. First, in this paper, the bibliometric study has been carried out using direct citation, considering LC and GC separately, as a means of study, complementing these results with those presented by other authors in their reviews is important. Therefore, we invite the reader to analyse the results of the papers listed in Table 1. Secondly, it is important not to lose sight of the fact that our results were based on a search of published papers on EI with no date limit, but restricted in language, and the eventuality that these papers were published in a Scopus-indexed journal. In this sense, and although Scopus presents an important indexing scope, not all journals are always included throughout all the years analysed. This means, for example, that an article of some relevance to the field, such as that of Barbara Bird [85], published in the year 1988 in the *Academy of Management Journal*, was not found by our systematic search, although this author was one of the first to put a theoretical approach to the EI concept on the table. *Scopus* keeps an annual record of the citations received by the articles since 2006. Although references in Scopus go back as far as the 1970s, indexing is progressive and up-to-date citations for an author, let alone a paper, are not always available.

Another limitation has to do with the keywords selected for the search engine. Although the decision was made based on other similar works [4,5,17,34], it could leave out papers where keywords such as *entrepreneurial orientation* are used to refer to EI. It is also a limitation related to the development of bibliometrics that researchers cannot control, the formatting errors in citations that affect all papers indexed in a database. This aspect will gradually be minimised thanks to the popularisation of the use of bibliographic software by researchers, as well as the adoption of the DOI as a document identifier, among other measures.

We believe that one of the main contributions of the paper is precisely to show how the consideration of direct citation, distinguishing LC from GC, can significantly change the position of a paper or the relevance of an author in the research area under study. In addition, calculations based on LG over GC allow us to know, in the relative position of an author or journal in a ranking, whether or not they are more specialised in this specific area of research. This allows an interested researcher to know who is who in the field and the real relevance of their work within the specific topic under study, as well as the degree of specialisation of a journal in a topic.

Our results provide a satellite view useful for both junior and senior researchers interested in EI who will surely continue to grow this topic of study to new heights. This knowledge will contribute not only to the development of more precise and accurate policies to foster entrepreneurship, but also to fighting unemployment generated by the successive crises we have suffered in the last decade. Without any doubt, EI is still alive: Long live Entrepreneurial Intentions! [86].

Author contribution statement

All authors listed have significantly contributed to the development and the writing of this article.

Funding statement

Lidia Santana-Hernández was supported by European Social Fund [TESIS2020010027].

Data availability statement

Data will be made available on request.

Declaration of interest's statement

The authors declare no competing interests.

Appendix 1

Criteria for determining the scientometric character of the literature reviews included in Table 1 of this paper

PAPER	CRITERIA 1	CRITERIA 2	CRITERIA 3	Scientometric review
	Statistics, Math, AI	In depth review of papers	Research purpose	Yes/No
Determinants of Entrepreneurial Intent: A Meta-Analytic Test and Integration of Competing Models (Schaegel and Koenig 2014) [30]	No	No	Yes	No
A systematic literature review on Entrepreneurial Intentions: Citation, Thematic Analyses, and Research Agenda (Liñán and Fayolle 2015) [5]	No	No	Yes	No
The theory of planned behaviour in entrepreneurship research: what we know and future directions (Lortie and Castogiovanni 2015) [29]	No	No	Yes	No
Weight- and meta-analysis of empirical literature on entrepreneurship: Towards a conceptualisation of entrepreneurial intention and behaviour (Alferaih 2017) [37]	No	No	Yes	No
Entrepreneurial Intention: Categorisation, Classification of Constructs and Proposition of a Model (Silva Martins et al., 2018) [36]	Yes	Yes	Yes	Yes
Entrepreneurial self-efficacy: A systematic review of the literature on its theoretical foundations, measurement, antecedents, and outcomes, and an agenda for future research (Newman et al., 2019) [31]	No	Yes	Yes	No
A bibliometric analysis of research on entrepreneurial intentions from 2000 to 2018 (Dolhey 2019) [4]	Yes	No	No	No
Intentions resurrected: a systematic review of entrepreneurial intention research from 2014 to 2018 and future research agenda (Donaldson 2019) [17]	No	Yes	Yes	No
Academic entrepreneurship intentions: a systematic literature review (Neves and Brito 2020) [32]	Yes	Yes	Yes	Yes
A Systematic Literature Review on Social Entrepreneurial Intention (Tan et al., 2020) [33]	Yes	Yes	Yes	Yes
From personal values to entrepreneurial intention: a systematic literature review (Hueso et al., 2021) [34]	No	Yes	Yes	No
Analysing the past to prepare for the future: a review of literature on factors with influence on entrepreneurial intentions (Pérez-Macías et al., 2021) [1]	No	Yes	Yes	No
Entrepreneurial intentions: a bibliometric analysis (Ruíz-Alba et al., 2021) [38]	Yes	Yes	Yes	Yes
An AHP analysis of scientometrically derived factors of entrepreneurial intentions of women and constructing a conceptual research framework (Patra and Lenka 2021) [35]	Yes	Yes	Yes	Yes

References

[1] N. Pérez-Macías, J. Fernández-Fernández, A. Vieites, Analyzing the past to prepare for the future: a review of literature on factors with influence on entrepreneurial intentions, J Int Entrep 20 (1) (2021) 52–114.

[2] Z. Xu, X. Wang, X. Wang, M. Skare, A comprehensive bibliometric analysis of entrepreneurship and crisis literature published from 1984 to 2020, J. Bus. Res. 135 (2021) 304–318.

[3] P. Reynolds, N. Bosma, E. Autio, S. Hunt, N. De Bono, I. Servais, et al., Global entrepreneurship monitor: data collection design and implementation 1998-2003, Small Bus. Econ. 24 (3) (2005 Apr) 205–231.

[4] S. Dolhey, A bibliometric analysis of research on entrepreneurial intentions from 2000 to 2018, J Res Mark Entrep 21 (2) (2019) 180–199.
[5] F. Liñán, A. Fayolle, A systematic literature review on entrepreneurial intentions: citation, thematic analyses, and research agenda, Int. Enterpren. Manag. J. 11 (4) (2015) 907–933.
[6] M. Linnenluecke, M. Marrone, A. Singh, Conducting systematic literature reviews and bibliometric analyses, Aust. J. Manag. 45 (2) (2020) 175–194.
[7] M. Cobo, A. López-Herrera, E. Herrera-Viedma, F. Herrera, An approach for detecting, quantifying, and visualizing the evolution of a research field: a practical application to the Fuzzy Sets Theory field, J Informetr 5 (1) (2011) 146–166.
[8] T. Beliaeva, M. Ferasso, S. Kraus, R. Mahto, Marketing and family firms: theoretical roots, research trajectories, and themes, J. Bus. Res. 144 (2022 May) 66–79.
[9] S. Kraus, M. Breier, S. Dasí-Rodríguez, The art of crafting a systematic literature review in entrepreneurship research, Int. Enterpren. Manag. J. 16 (3) (2020) 1023–1042.
[10] J. Paul, A. Criado, The art of writing literature review: what do we know and what do we need to know? Int. Bus. Rev. 29 (4) (2020), 101717.
[11] M. Callon, J. Law, A. Rip, Qualitative scientometrics, in: M. Callon, J. Law, A. Rip (Eds.), Mapping the Dynamics of Science and Technology [Internet], Palgrave Macmillan, London, 1986, https://doi.org/10.1007/978-1-349-07408-2_7. Available from:.
[12] I. Zupic, T. Čater, Bibliometric methods in management and organization, Organ. Res. Methods 18 (3) (2015) 429–472.
[13] S. Kraus, R. Bouncken, L. Görmar, M. González-Serrano, F. Calabuig, Coworking spaces and makerspaces: mapping the state of research, J Innov Knowl 7 (1) (2022), 100161.
[14] M. Filser, V. Tiberius, S. Kraus, T. Zeitlhofer, N. Kailer, A. Müller, Opportunity recognition: conversational foundations and pathways ahead, Enterpren. Res. J. (2020), 20200124, 0(0).
[15] A. Kruggel, V. Tiberius, M. Fabro, Corporate citizenship: structuring the research field, Sustainability 12 (13) (2020) 5289.
[16] L. Luther, V. Tiberius, A. Brem, User experience (UX) in business, management, and psychology: a bibliometric mapping of the current state of research, Multimodal Technol Interact 4 (2) (2020) 2–19.
[17] C. Donaldson, Intentions resurrected: a systematic review of entrepreneurial intention research from 2014 to 2018 and future research agenda, Int. Enterpren. Manag. J. 15 (3) (2019) 953–975.
[18] A. Rauch, Opportunities and threats in reviewing entrepreneurship theory and practice, Enterpren. Theor. Pract. 44 (5) (2020) 847–860.
[19] R. Gupta, R. Pandey, V. Sebastian, International Entrepreneurial Orientation (IEO): a bibliometric overview of scholarly research, J. Bus. Res. 125 (2021) 74–88.
[20] A. Teixeira, Mapping the (in)visible college(s) in the field of entrepreneurship, Scientometrics 89 (2011) 1–36.
[21] S. Kraus, H. Li, Q. Kang, P. Westhead, V. Tiberius, The sharing economy: a bibliometric analysis of the state-of-the-art, Int. J. Entrepreneurial Behav. Res. 26 (8) (2020) 1769–1786.
[22] A. Rey-Martí, D. Ribeiro-Soriano, D. Palacios-Marqués, A bibliometric analysis of social entrepreneurship, J. Bus. Res. 69 (2016) 1651–1655.
[23] J. Mingers, L. Leydesdorff, A review of theory and practice in scientometrics, Eur. J. Oper. Res. 246 (2015) 1–19.
[24] N. Donthu, S. Kumar, D. Pattnaik, Forty-five years of journal of business research: a bibliometric analysis, J. Bus. Res. 109 (2020) 1–14.
[25] A. Rialp, J. Merigó, C. Cancino, D. Urbano, Twenty-five years (1992–2016) of the international business review: a bibliometric overview, Int. Bus. Rev. 28 (6) (2019), 101587.
[26] S. Singh, S. Dhir, V. Das, A. Sharma, Bibliometric overview of the technological forecasting and social change journal: analysis from 1970 to 2018, Technol. Forecast. Soc. Change 154 (2020), 119963.
[27] F. De Bakker, P. Groenewegen, F. Den Hond, A bibliometric analysis of 30 Years of research and theory on corporate social responsibility and corporate social performance, Bus. Soc. 44 (3) (2005) 283–317.
[28] N. Mmbaga, B. Mathias, D. Williams, M. Cardon, A review of and future agenda for research on identity in entrepreneurship, J. Bus. Ventur. 35 (6) (2020), 106049.
[29] J. Lortie, G. Castogiovanni, The theory of planned behavior in entrepreneurship research: what we know and future directions, Int. Enterpren. Manag. J. 11 (2015) 935–957.
[30] C. Schlaegel, M. Koenig, Determinants of entrepreneurial intent: a meta-analytic test and integration of competing models, Enterpren. Theor. Pract. 38 (2) (2014) 291–332.
[31] A. Newman, M. Obschonka, S. Schwarz, M. Cohen, I. Nielsen, Entrepreneurial self-efficacy: a systematic review of the literature on its theoretical foundations, measurement, antecedents, and outcomes, and an agenda for future research, J. Vocat. Behav. 110 (2019) 403–419.
[32] S. Neves, C. Brito, Academic entrepreneurship intentions: a systematic literature review, J. Manag. Dev. 39 (5) (2020) 645–704.
[33] L. Tan, A. Le, L. Xuan, A systematic literature review on social entrepreneurial intention, J Soc Entrep 11 (3) (2020) 241–256.
[34] J. Hueso, I. Jaén, F. Liñán, From personal values to entrepreneurial intention: a systematic literature review, Int. J. Entrepreneurial Behav. Res. 27 (1) (2021) 205–230.
[35] B. Patra, U. Lenka, An AHP analysis of scientometrically derived factors of entrepreneurial intentions of women and constructing a conceptual research framework, J Res Mark Entrep 23 (1) (2021) 139–158.
[36] F. Silva Martins, E. Almeida Santos, A. Silveira, Entrepreneurial intention: categorization, classification of constructs and proposition of a model, Braz Bus Rev 16 (1) (2018) 46–62.
[37] A. Alferaih, Weight- and meta-analysis of empirical literature on entrepreneurship: towards a conceptualization of entrepreneurial intention and behaviour, Int J Entrep Innov 18 (3) (2017) 195–209.
[38] J. Ruiz-Alba, V. Guzman-Parra, J. Vila Oblitas, J. Morales Mediano, Entrepreneurial intentions: a bibliometric analysis, J. Small Bus. Enterprise Dev. 28 (1) (2020) 121–133.
[39] J. Tague-Sutcliffe, An introduction to informetrics, Inf. Process. Manag. 28 (1) (1992) 1–3.
[40] McGrath, What Bibliometricians, Scientometricians and Informetricians Study; a Typology for Definition and Classification, topics for discussion, Ontario, 1989.
[41] K. Boyack, R. Klavans, Co-citation analysis, bibliographic coupling, and direct citation: which citation approach represents the research front most accurately? J. Am. Soc. Inf. Sci. Technol. 61 (12) (2010 Dec) 2389–2404.
[42] Scopus, Content Coverage Guide, Elsevier, 2020.
[43] M. Aria, C. Cuccurullo, Bibliometrix : an R-tool for comprehensive science mapping analysis, J Informetr 11 (4) (2017 Nov) 959–975.
[44] M. Loi, M. Castriotta, M. Di Guardo, The theoretical foundations of entrepreneurship education: how co-citations are shaping the field, Int Small Bus J Res Entrep 34 (7) (2016) 948–971.
[45] O. Persson, Identifying research themes with weighted direct citation links, J Informetr 4 (3) (2010 Jul) 415–422.
[46] M. Huang, Y. Chang, A study of interdisciplinarity in information science: using direct citation and co-authorship analysis, J. Inf. Sci. 37 (4) (2011) 369–378.
[47] J. Hirsch, G. Buela-Casal, The meaning of the h-index, Int. J. Clin. Health Psychol. 14 (2) (2014) 161–164.
[48] Y. Chandra, Mapping the evolution of entrepreneurship as a field of research (1990–2013): a scientometric analysis. Lozano S, editor, PLoS One 13 (1) (2018), e0190228.
[49] O. Persson, R. Danell, W. Schneider, How to use Bibexcel for various types of bibliometric analysis. In Celebrating scholarly communication studies: a Festschrift for Olle Persson at his 60th Birthday, in: F. Åström, R. Danell, B. Larsen, J. Schneider (Eds.), International Society for Scientometrics and Informetrics [Internet]. Leuven, Belgium, 2009, pp. 9–24. Available from: https://homepage.univie.ac.at/juan.gorraiz/bibexcel/.
[50] M. Callon, J. Courtial, F. Laville, Co-word analysis as a tool for describing the network of interactions between basic and technological research: the case of polymer chemistry, Scientometrics 22 (1) (1991) 155–205.
[51] N. Krueger, M. Reilly, A. Carsrud, Competing models of entrepreneurial intentions, J. Bus. Ventur. 15 (5–6) (2000) 411–432.
[52] F. Liñán, Y. Chen, Development and cross–cultural application of a specific instrument to measure entrepreneurial intentions, Enterpren. Theor. Pract. 33 (3) (2009) 593–617.
[53] H. Zhao, G. Hills, S. Seibert, The mediating role of self-efficacy in the development of entrepreneurial intentions, J. Appl. Psychol. 90 (6) (2005) 1265–1272.
[54] C. Chen, P. Greene, A. Crick, Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? J. Bus. Ventur. 13 (4) (1998) 295–316.

[55] I. Ajzen, The theory of planned behavior, Organ. Behav. Hum. Decis. Process. 50 (1991) 179–211.
[56] A. Shapero, L. Sokol, The social dimensions of entrepreneurship, in: Encyclopedia of Entrepreneurship, Prentice Hall, 1982, pp. 72–90.
[57] C. Armitage, M. Conner, Efficacy of the theory of planned behaviour: a meta-analytic review, Br. J. Soc. Psychol. 40 (4) (2001 Dec) 471–499.
[58] E. Thompson, Individual entrepreneurial intent: construct clarification and development of an internationally reliable metric, Enterpren. Theor. Pract. 33 (3) (2009) 669–694.
[59] T. Kautonen, M. van Gelderen, M. Fink, Robustness of the theory of planned behavior in predicting entrepreneurial intentions and actions, Enterpren. Theor. Pract. 39 (3) (2015) 655–674.
[60] V. Souitaris, S. Zerbinati, A. Al-Laham, Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources, J. Bus. Ventur. 22 (4) (2007) 566–591.
[61] A. Fayolle, B. Gailly, N. Lassas-Clerc, Assessing the impact of entrepreneurship education programmes: a new methodology, J. Eur. Ind. Train. 30 (9) (2006) 701–720.
[62] F. Wilson, J. Kickul, D. Marlino, Gender, entrepreneurial self-efficacy, and entrepreneurial career intentions: implications for entrepreneurship education, Enterpren. Theor. Pract. 31 (3) (2007) 387–406.
[63] N. Krueger Jr., A. Carsrud, Entrepreneurial intentions: Applying the theory of planned behaviour, Enterpren. Reg. Dev. 5 (4) (1993) 315–330.
[64] K. Esfandiar, M. Sharifi-Tehrani, S. Pratt, L. Altinay, Understanding entrepreneurial intentions: a developed integrated structural model approach, J. Bus. Res. 94 (2019) 172–182.
[65] A. Fayolle, B. Gailly, The impact of entrepreneurship education on entrepreneurial attitudes and intention: hysteresis and persistence, J. Small Bus. Manag. 53 (1) (2015) 75–93.
[66] D. Hsu, K. Burmeister-Lamp, S. Simmons, M. Foo, M. Hong, J. Pipes, I know I can, but I don't fit": perceived fit, self-efficacy, and entrepreneurial intention, J. Bus. Ventur. 34 (2) (2019) 311–326.
[67] W. Nowiński, M. Haddoud, D. Lančarič, D. Egerová, C. Czeglédi, The impact of entrepreneurship education, entrepreneurial self-efficacy and gender on entrepreneurial intentions of university students in the Visegrad countries, Stud. High Educ. 44 (2) (2019) 361–379.
[68] B. Urban, L. Kujinga, The institutional environment and social entrepreneurship intentions, Int. J. Entrepreneurial Behav. Res. 23 (4) (2017) 638–655.
[69] H. Oosterbeek, M. van Praag, A. Ijsselstein, The impact of entrepreneurship education on entrepreneurship skills and motivation, Eur. Econ. Rev. 54 (3) (2010) 442–454.
[70] F. Liñán, J. Rodríguez-Cohard, Assessing the stability of graduates' entrepreneurial intention and exploring its predictive capacity, Academia. Rev. Latinoam. Adm. 28 (1) (2015) 77–98.
[71] V. Barba-Sánchez, C. Atienza-Sahuquillo, Entrepreneurial intention among engineering students: the role of entrepreneurship education, Eur Res Manag Bus Econ 24 (1) (2018 Jan) 53–61.
[72] W. Nowiński, M. Haddoud, The role of inspiring role models in enhancing entrepreneurial intention, J. Bus. Res. 96 (2019) 183–193.
[73] D. Maresch, R. Harms, N. Kailer, B. Wimmer-Wurm, The impact of entrepreneurship education on the entrepreneurial intention of students in science and engineering versus business studies university programs, Technol. Forecast. Soc. Change 104 (2016) 172–179.
[74] K. Hockerts, Determinants of social entrepreneurial intentions, Enterpren. Theor. Pract. 41 (1) (2017) 105–130.
[75] Z. Zaremohzzabieh, S. Ahrari, S. Krauss, A. Samah, L. Meng, Z. Ariffin, Predicting social entrepreneurial intention: a meta-analytic path analysis based on the theory of planned behavior, J. Bus. Res. 96 (2019) 264–276.
[76] T. Kautonen, M. van Gelderen, E. Tornikoski, Predicting entrepreneurial behaviour: a test of the theory of planned behaviour, Appl. Econ. 45 (6) (2013) 697–707.
[77] E. Tornikoski, A. Maalaoui, Critical reflections – the theory of planned behaviour: an interview with icek ajzen with implications for entrepreneurship research, Int Small Bus J Res Entrep 37 (5) (2019) 536–550.
[78] C. Gieure, M. Benavides-Espinosa, S. Roig-Dobón, The entrepreneurial process: the link between intentions and behavior, J. Bus. Res. 112 (2020) 541–548.
[79] A. Laguía González, I. Jaén, G. Topa, J. Moriano, University environment and entrepreneurial intention: the mediating role of the components of the theory of planned behaviour, Rev. Psicol. Soc. 34 (1) (2019) 137–167.
[80] J. Mair, E. Noboa, Social entrepreneurship: how intentions to create a social enterprise get formed, SSRN Electron. J. 503 (2003) 2–22.
[81] M. Packard, T. Burnham, Do we understand each other? Toward a simulated empathy theory for entrepreneurship, J. Bus. Ventur. 36 (1) (2021), 106076.
[82] E. Kallas, E. Parts, From entrepreneurial intention to enterprise creation: the case of Estonia, J Entrep Emerg Econ 13 (5) (2021) 1192–1214.
[83] M. Baluku, J. Kikooma, K. Otto, C. König, N. Bajwa, Positive psychological attributes and entrepreneurial intention and action: the moderating role of perceived family support, Front. Psychol. 11 (2020 Dec 8), 546745.
[84] K. Bogatyreva, L. Edelman, T. Manolova, O. Osiyevskyy, G. Shirokova, When do entrepreneurial intentions lead to actions? The role of national culture, J. Bus. Res. 96 (2019 Mar) 309–321.
[85] B. Bird, Implementing entrepreneurial ideas: the case for intention, Acad. Manag. Rev. 13 (3) (1988 Jul) 442.
[86] N. Krueger, Entrepreneurial intentions are dead: long live entrepreneurial intentions, in: Revisiting the Entrepreneurial Mind [Internet], Springer, Berlin, Germany, 2009, pp. 13–34, https://doi.org/10.1007/978-1-4419-0443-0. Available from:.