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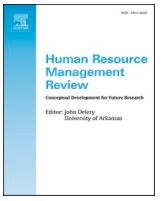

Organisational learning, learning organisation, and learning orientation: An integrative review and framework

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ABSTRACT

Organisational Learning (OL) is essential for the survival of an organisation and has led to a significant amount of conceptual and empirical studies. However, no attempt has yet been made to track the overall evolution of OL literature along with the inter-related concepts of learning organisation and organisational learning orientation. Therefore, the present study attempts to fill this gap and track the interdisciplinary flow of knowledge by applying a structural methodology called Systematic Literature Network Analysis (SLNA). The results reveal four main areas of investigation within the field: i) the fundamentals of OL; ii) OL in relation to managerial and economic variables; iii) management of learning organisation; iv) learning orientation in relation to managerial and economic variables. Furthermore, this review contributes by arranging the findings into a theoretical framework which is termed *organisational learning chain*. Based on the co-analysis of main themes and key concepts detected, the framework integrates and highlights the factors that influence learning performance in and by organisations. Finally, several further research avenues are discussed, and the benefits of the applied review methodology are highlighted.

1. Introduction

The puzzle of Organisational Learning (OL) has intrigued scholars for decades, and the interrelated concepts of 'learning organisation' and 'learning orientation' have attracted widespread attention (Gong, Huang, & Farh, 2009; Pastor Pérez, Rodríguez Gutiérrez, & Agudob, 2019; Sinkula, Baker, & Noordewier, 1997; Sun & Scott, 2003). Organisational learning is a core outcome of effective human resource management (López, Peón, & Ordás, 2006) and is based on the individual learning of members who make up the organisation. In turn, the capacity of the whole organisation to stimulate learning and to generate new knowledge is influenced by the human resource system (López-Cabrales, Real, & Valle, 2011). Prior to the mid-1990s, OL and learning organisation were used interchangeably, before being later separated into two streams. Organisational learning focuses on the *processes*—'How does an organisation learn?' (Örtenblad, 2001; Sun & Scott, 2003)—while learning organisation literature is about the *organisation* that is continuously changing its behaviour, in which the learning processes are already abnormally effective (Reynolds & Ablett, 1998). Learning orientation is also a closely affiliated concept that is more related to vision, mental models, and the cultural dimension of OL

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and which is defined as the set of organisational values that *influence* the degree to which proactive learning occurs (Sinkula et al., 1997). Despite this division into separate streams, it can be said that organisational improvement and development fundamentally revolve around the general idea of organisational learning. "Solving a problem, introducing a product, and reengineering a process all require seeing the world in a new light and acting accordingly. In the absence of learning, companies—and individuals—simply repeat old practices" (Garvin, 1993, p.2).

A number of papers have reviewed the prior literature on OL (Basten & Haamann, 2018; Berends & Antonacopoulou, 2014; Chikweche & Bressan, 2018; Crossan & Berdrow, 2003; Dixon, 1992; Easterby-Smith, Crossan, & Nicolini, 2000; Fiol & Lyles, 1985; Hedberg, 1981; Huber, 1991; Karataş-Özkan & Murphy, 2010; Levitt & March, 1988; Rashman, Withers, & Hartley, 2009; Shrivastava, 1983), and some have focused on learning organisation (Bui & Baruch, 2010; Rifkin & Fulop, 1997; Stewart, 2001; Watkins & Kim, 2018). Reviews often investigate specific antecedent-effect relationships, such as the impact of OL on innovation and performance (Patky, 2020), or the relationship between OL culture and leadership (Xie, 2019). In contrast, we seek to answer how OL, learning organisation, and learning orientation relate to each other, what the scope of these streams is, and the directions in which future research based on the field's existing themes and streams may evolve.

This review elaborates on the findings of previous studies in that it takes a more holistic view not only by considering OL *interlinked* to learning orientation and learning organisation (bringing about various organisational performance outcomes), but also by taking into account organisational and managerial aspects that can affect learning at different organisational levels (i.e. individual, team/group, and organisation).

Due to the existence of multiple literature streams, and hence the concomitant need to break up the silos between them, we have adopted a dynamic approach called Systematic Literature Network Analysis (SLNA). This methodological choice also responds to calls for more plurality and diversity within the insights derived from literature reviews (Gatrell & Breslin, 2017; Hakala, O'Shea, Farny, & Luoto, 2020). The SLNA is a dynamic method that essentially combines the core benefits of Systematic Literature Review (SLR) with Bibliographic Network Analysis (BNA) and helps to identify critical papers which determine the flow of knowledge "in a more scientific and objective way" (Kim, Colicchia, & Menachof, 2018, p.1050). While this method has been experimented within other fields (e.g. Ciano, Pozzi, Rossi, & Strozzi, 2019; Colicchia & Strozzi, 2012; Comerio & Strozzi, 2019; Khitous, Strozzi, Urbinati, & Alberti, 2020; Kim et al., 2018; Strozzi, Colicchia, Creazza, & Noè, 2017), it has not yet been applied to the field of organisational learning. Recent bibliometric studies into learning have also not considered organisational learning as such but have focused more generally on education research and cognitive science (Porter et al., 2019) or concepts such as e-learning (Bai, Li, & Liu, 2020; Tibaná-Herrera, Fernández-Bajón, & de Moya-Anegón, 2018) or statistical learning (Cunillera & Guilera, 2018). SLNA allows us to overcome some of the limitations of traditional literature reviews, which rely on subjective criteria for paper selection and the classification of research contributions, by utilising the complementarities of different bibliometric and scientometric analyses (Glänzel & Czerwon, 1996; Moed, Glänzel, & Schmoch, 2004).

The SLNA method allows us to identify the concepts occurring simultaneously and to determine how they have evolved together over time. This integrative approach to literature review (Snyder, 2019; Torraco, 2016) also allowed us to build a unifying theoretical

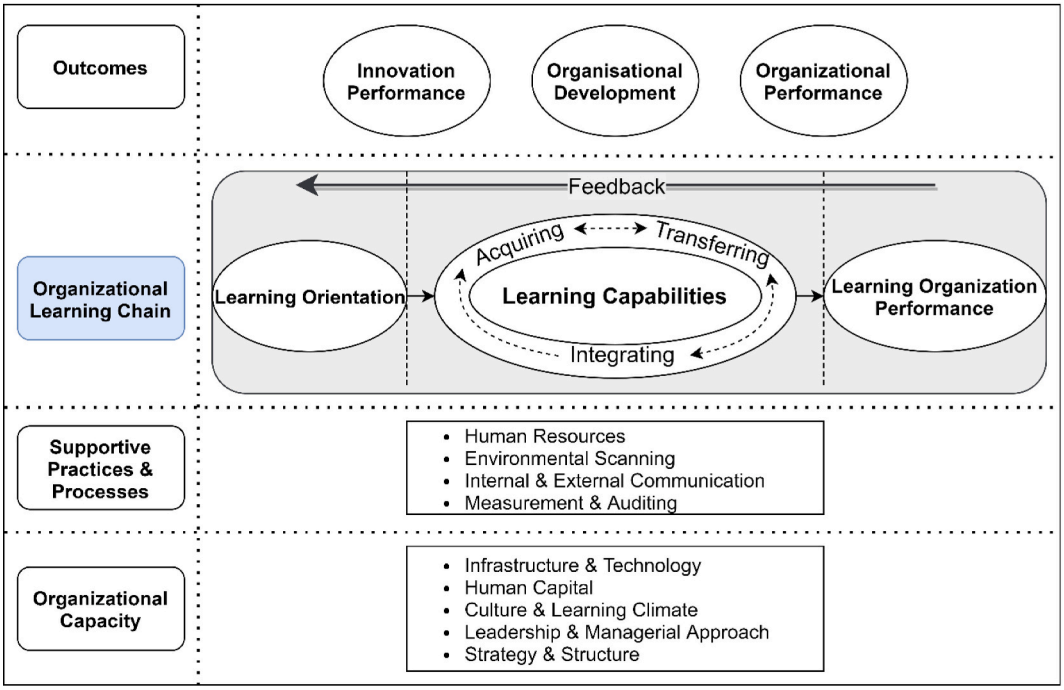


Fig. 1. Organisational Learning Chain framework, developed from the SLNA.

framework integrating the key constructs and concepts and draw attention to key factors that influence the learning performance. Hence, our framework introduced in Fig. 1 emerged abductively from the review of the literature and acts as a synthesis and discussion structure of our study, rather than determining the focus of our review. The primary elements of learning (learning orientation, learning capabilities, and learning organisation) form the core learning chain. Various types of learning capabilities are defined and linked by different stages of the OL process (acquiring, transferring, and integrating) which take place at different levels (individual, group, organisational). Learning orientation acts as the main antecedent for the development of learning capabilities, which then influence the performance of learning organisation. These elements of the learning chain, supported by further organisational practices and processes as well as organisational capacity, affect innovative and organisational performance, both individually and collectively.

The paper proceeds by describing the SLNA methodology as well as the data collection process. The findings of each analysis are summarised at the end of the corresponding section and are then compared with results of the other analyses in order to find potential complementarities and research gaps. By integrating all the findings obtained through the analyses, we discuss the proposed framework and explain how an organisational learning chain works and how it is influenced by HR practices and supportive processes, based upon the organisational capacity. To the best of our knowledge, this work is the first of its kind to shed light on the co-evolution of these learning concepts.

2. Methodology

Compared to a narrative literature review, an SLR is a more unbiased, transparent and reliable process of planning, conducting, and reporting a literature review (Tranfield, Denyer, & Smart, 2003). However, its depth can be further increased to generate a better understanding of the potential development of knowledge by analysing the connectivity within a given network of citations, references, and keywords (Colicchia & Strozzi, 2012). Bibliographic network analysis (BNA) hence complements SLR through the objective investigation of main research trends and the flow of knowledge creation and development (Hummon & Dereian, 1989).

The fundamental assumption in analysing citation networks is that fields of research are not just formless sets of articles. A citation network is a system of channels which transforms scientific knowledge or information, as researchers in a field tend to cite each other in order to position their work in the field based on prior knowledge (Hummon & Dereian, 1989). Those publications that contribute to the field by finding new and meaningful insights (built on information taken from several relevant references) can potentially link two or more channels of knowledge. The most cited papers constitute the backbone of a research tradition and might be affected by different paths. The method proposed by Hummon and Dereian (1989) to study the connectivity of the citation network, i.e. Main Path Analysis, explicitly focuses on the identification of specialities, the evolution of research traditions, and changing paradigms.

Because SLNA methodology combines the core benefits of SLR and BNA (Colicchia & Strozzi, 2012) it is well suited to analyse the evolution of knowledge in any given field. SLNA consists of two phases. In the first phase, an SLR is performed in three steps: i) scope of the analysis; ii) locating studies (time, keywords, type of documents, language); iii) study collection and evaluation. The output of this phase is a set of collected papers which will be the input of the analyses performed in Phase 2. The second phase is characterised by the visualisation of BNA: CNA-Main Path, Global Citation Score (GCS), Co-occurrence network of keywords, and Burst detection of the authors' keywords.

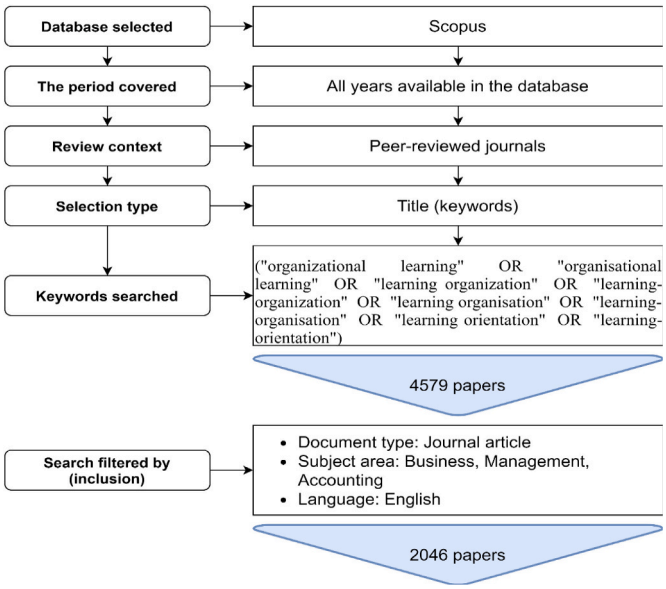


Fig. 2. The sample collection process.

3. Systematic literature review (data collection)

Scopus database was chosen as the chief bibliographic database for the sample extraction of this review, as its coverage is wider than other databases (Mongeon & Paul-Hus, 2016). The initial search on Scopus was conducted based on the keywords selected through a preliminary literature review and refined by expert recommendations. The search aimed to include all possible variations of OL, learning organisations, and learning orientation. The identified keywords were used as search terms in Scopus in the 'Title' field in order to select those papers that proclaim 'OL', 'Learning Organisation', and 'Learning Orientation' as the main goal of their research (Strozzi et al., 2017). Further filters were then selected in order to exclude irrelevant papers; these filters included language, subjects, and document type. The search resulted in 2046 articles published in English-language peer-reviewed journals in the fields of business, management, and accounting (Fig. 2).

The following graphs show the results of relevant Scopus descriptive analyses. Fig. 3 illustrates the overall number of published documents on the topics of OL, learning organisation, and learning orientation over time. It becomes evident that scholars' interest in this field has grown, especially over the last two decades. Fig. 4 illustrates the journals that have collected the highest amount of publications and, as expected, suggests that journals in learning-specific fields publish the majority of studies in this domain. It is also insightful to compare the percentage of the main concepts studied (directly) in the field (Fig. 5): results suggest that the concept of 'OL' has generated significantly more attention (66%) than 'Learning Organisation' or 'Learning Orientation' (27% and 7%, respectively). In our sample, 'OL' and 'Learning Organisation' have appeared together in the title of 20 documents while seven include the simultaneous appearance of 'OL' and 'Learning Orientation'. As anticipated, we found no document that includes all three concepts together in the topic of study.

4. Bibliographic network analysis

The Bibliographic Network Analysis (BNA), in this paper, consists of four separate analysis: Citation Network Analysis (CNA), Global Citation Score (GCS) Analysis, Co-occurrence Analysis, and Kleinberg's Burst Detection Analysis.

4.1. Citation network analysis (CNA)

CNA aims to find a network made up of nodes (papers) and links (citations) (Strozzi et al., 2017). In our study we extracted a sample made up of 2046 papers, some of which, however, were not interconnected (as illustrated in Appendix A). Given the nature of CNA (Zhao & Strotmann, 2015), it is reasonable to remove these isolated nodes (that is, disconnected papers). In this way, the so-called 'largest connected component' is obtained, in this case consisting of 1698 papers (83% of the initial sample extracted from Scopus in the first phase of the analysis).

We explored the Main Path (MP), the 'skeleton' of studies in the field, based on the traversal weights of articles and citations. This analysis consists of two steps which were run in Pajek software (Lucio-Arias & Leydesdorff, 2008): i) determination of the citation traversal weights by using an acyclic network as input data (Batagelj, Ferligoj, & Squazzoni, 2017); ii) identification of MP from the oldest reference to the newest through the creation of (Sub)Network➔Main Paths➔Global Search➔Key-Route. The final MP is shown in Fig. 6, illustrating papers that have substantially contributed to the transfer of knowledge in the field over time. Following this we proceeded to analyse the content of these studies and extracted their main contributions, recognising three main themes that are briefly described, in chronological order, in the following paragraphs.

4.1.1. The historical conceptualisation path

All identified papers in the Main Path that were published before 2000 represent conceptual research papers that concentrated on the conceptualisation of OL and learning organisations. In the oldest paper of the MP, Argyris (1977) re-examined the Management Information System (MIS) implementation crisis on the basis of OL theory. He highlighted the important role of single-loop and double-loop learning, and theories-in-use in an OL system. Then, based on a study of OL systems in 32 business organisations, different types of learning systems were identified as one-man institutions, mythological learning systems, information-seeking culture, participative learning systems, formal management systems, and bureaucratic learning systems (Shrivastava, 1981). In a later paper (Shrivastava,

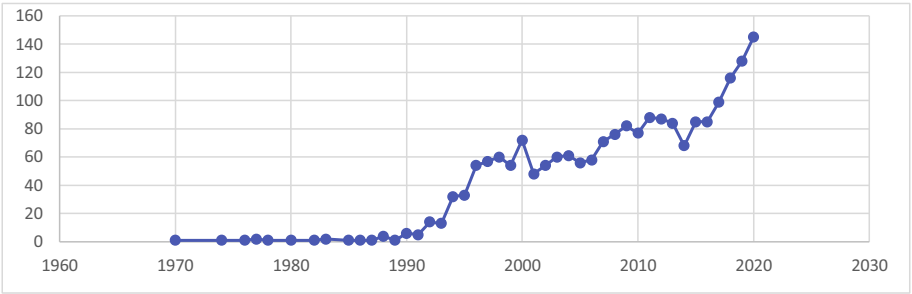


Fig. 3. Papers published by year.

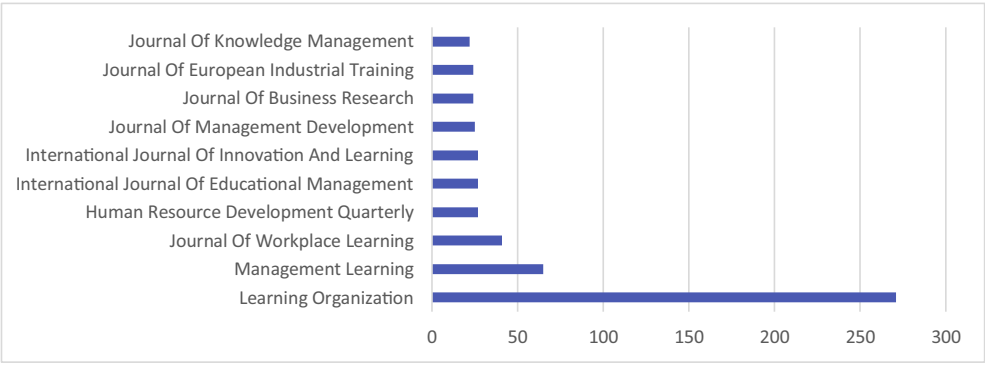


Fig. 4. Top 10 journals in terms of publication number in the field.

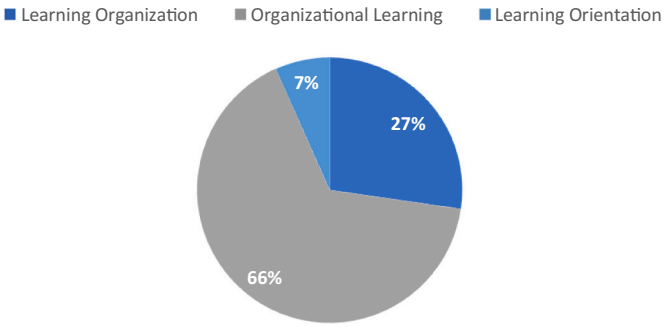


Fig. 5. The percentage of main learning concepts (including their variations) studied in the field

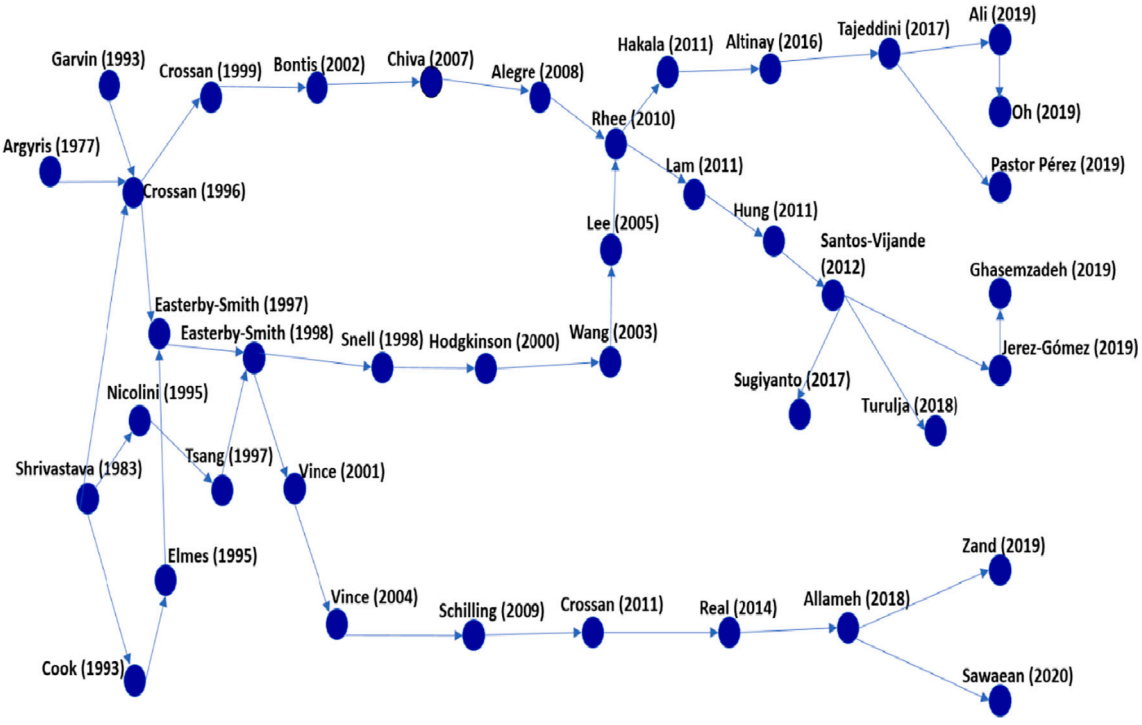


Fig. 6. The final Main Path of the largest connected component.
Note: Each node represents a paper which is labelled by the last name of the first author and the publication year.

1983) that appears in the MP, these systems were characterised by the two critical dimensions of individual-organisational design and evolutionary design. They were described in terms of the type of organisational knowledge which they handle, their structuredness, scope, media of communication, and time frame. In another seminal work, Garvin (1993) adopted a prescriptive point of view to discuss the building blocks of a learning organisation as systematic problem-solving, experimentation, learning from past experiences, learning from others, and transferring knowledge. According to the author, an organisation could move towards becoming a learning organisation by fostering an environment that is both conducive to learning and open to the exchange of ideas, as well as by applying a suitable measurement and auditing system.

By focusing on questions such as 'Can organisations learn?', 'What is the nature of learning when it is done by organisations?', 'How does an organisation learn?', and 'What interferes with an organisation's ability to learn?', subsequent studies identified in the MP defined OL from a cultural perspective, that is, beyond the cognitive activity of individual learning (Cook & Yanow, 1993; Elmes & Kasouf, 1995). In 1995, Nicolini and Meznar expanded the discussion by developing the understanding of OL as a social construction that ties together individual and organisational processes and transforms acquired cognition into accountable abstract knowledge.

After about two decades of conceptualising, Tsang (1997) examined the dichotomy between two main streams of theorising in the field which concerned themselves with the questions of 'How should an organisation learn?' (prescriptive and targeting practitioners) and 'How does an organisation learn?' (descriptive and targeting academics), and concluded that most definitions of OL are centred around aspects of both cognitive and behavioural changes. He argued that to integrate the two streams of research, "it seems more logical to start from the descriptive end of the descriptive-prescriptive continuum than the other way round" (Tsang, 1997, p.84). Easterby-Smith (1997) also made a distinction between an OL area, which is discipline-based and analytical, and the idea of a learning organisation as a multidisciplinary realm focused on action and the creation of an 'ideal type' of organisation. However, he argued against attempts to create a single framework of OL, stating that each discipline (psychology, management science, sociology and organisational theory, strategy, production management, and cultural anthropology) has provided distinct contributions and research agendas on the basis of different purposes and perspectives that can complement each other.

Later, Easterby-Smith, Snell, and Gherardi (1998) reviewed the ontology of OL disciplines according to their positivist and constructionist research approaches and based on the separation of OL practitioners (creating learning organisations) and scholarly literature (learning processes in organisations). They found 'power' to be an underlying issue which had received too little attention. The issue of (hoarded or dispersed) power in an organisation in relation to the involvement of organisation members in terms of depth, breadth and spread was further investigated in a study by Snell & Chak (1998). Incorporating Morgan's (1986) metaphors and the 'learning company' characteristics of zero, adaptive, and generative learning (Pedler, Burgoyne, & Boydell, 1991), they developed an analytical framework (illustrated by two case studies) "to assess the extent to which either scenario: Utopian sunshine (where everyone learns and wins) or Foucaultian gloom (where only heavyweights learn and win), may be taking place in particular organisations" (Snell and Chak, 1998; pp.338–339).

To better explain the process of OL, Crossan, Lane, and White (1999) developed a unifying framework based on four key assumptions: i) OL involves a tension between exploration and exploitation; ii) OL is multi-level; iii) the OL levels are linked by intuiting, interpreting, integrating, and institutionalising (the so-called 4 'I's); and iv) cognition affects action (and vice versa), supporting one central proposition: the 4 'I's are related in explorative (feed-forward) and exploitative (feedback) processes across all levels (individual, group, and organisation).

In a different study, Hodgkinson (2000) asked a group of middle managers employed in a large international company, all of whom were also post-graduate students of a management programme, to provide interpretations of a learning organisation within the context of their working lives. The author concluded that post-graduate education has a significant impact on the introduction of concepts such as learning organisation.

Between 2000 and 2011, a small number of conceptual papers can be found in the MP. Vince (2001) explored the difference between learning in an organisation and OL. He proposed a conceptual framework to better understand OL at an organisational level of analysis. This framework is based on the proposition that OL is visible in the organisational dynamics created by the interaction of politics, power relations, and emotion within any given organisation. Wang and Ahmed (2003) identified the following five focal points for the concept and practices within the existing literature to provide a clarified and updated understanding of OL: i) collective or individual learning; ii) process or system; iii) culture or metaphor; iv) knowledge management; and v) continuous improvement. Vince and Saleem (2004) examined the relationship between emotion, learning, and organising to provide a better understanding of how emotional and political aspects of organising can highlight the tensions between individual learning and OL. Schilling and Kluge (2009) developed a theoretical foundation to describe and explain impediments to OL, which were found to be actional-personal, structural-organisational, and societal-environmental barriers. Crossan, Maurer, and White (2011) reflected on how their earlier framework of OL (Crossan et al., 1999) had been used in subsequent research, and concluded that more effort was needed to develop an accepted theory of OL, for which they also proposed research directions.

4.1.2. The OL capabilities path

The MP analysis revealed that a new research trend emerged at the beginning of the twenty-first century, underlining the relationship between OL capabilities and firm performance. The study by Bontis, Crossan, and Hulland (2002) investigated the flow of learning across all levels and its impact on business performance. They found that a firm that reduces the misalignment of learning flows (feed-forward and feedback) with stocks (individual, group, and organisation) can achieve greater relative performance. Following this, based on a comprehensive analysis of the facilitating factors for learning, Chiva, Alegre, and Lapiedra (2007) proposed and validated a measurement scale to capture the organisational capability to learn. The scale is made of 14 items, which are grouped into the five dimensions of experimentation, risk-taking, interaction with the external environment, dialogue, and participative

decision-making. It was later adopted to examine how OL capability affects product innovation performance (Alegre & Chiva, 2008).

A few years later, Hung, Lien, Yang, Wu, and Kuo's (2011) empirical study demonstrated that total quality management (TQM) has significant and positive effects on OL, and that innovation performance is significantly influenced by both TQM and OL. Work by Santos-Vijande, López-Sánchez, and Trespalacios (2012) studied how OL, as a dynamic capability, facilitates firms' strategic flexibility and competitive strategy implementation to ultimately improve business performance. Altinay, Madanoglu, Vita, Arasli, and Ekinci (2016) investigated the interface between OL capability, entrepreneurial orientation (EO), and small business performance; their findings revealed a positive relationship between OL capability and EO. The findings of Sugiyanto, Armanu, Rofiaty, and Noermijati (2017) supported the indirect and significant impact of transformational leadership on the competitive advantage of micro and small enterprises (MSEs), through the mediating role of innovation, while their results showed that OL capabilities do not mediate the relationship between transformational leadership and competitive advantage.

Turulja and Bajgorić (2018) provided empirical support for the impact of OL dimensions on knowledge management and found that shared values and openness directly and positively affect knowledge management capability; managerial commitment and dialogue, however, were found to influence knowledge management capability indirectly through a shared vision.

By providing empirical evidence in the context of the hotel industry, Ali, Peters, Khan, Ali, and Saif (2019) concluded that OL and performance were indirectly related to each other through the mediating role of a hierarchy of capabilities. Zand, Kaffashpoor, Nazemi, and Malekzadeh (2019) identified multi-level OL mechanisms and found a positive association of their effect on the organisational performance of SMEs. The empirical findings of Ghasemzadeh, Nazari, Farzaneh, and Mehralian (2019), in the pharmaceutical industry context, supported the impact of OL activities and innovation culture on product and process innovation. Oh (2019) found that feedback learning flows play a strong mediating role in the relationship between learning stocks and organisational performance, and that trust in managers moderates the effect of learning stocks on organisational performance through feedback learning flows. It was also found that organisational justice plays a moderating role in the relationship between learning stocks and organisational performance through feed-forward learning flows. Jerez-Gómez, Céspedes-Lorente, and Pérez-Valls (2019) found that OL capabilities play a mediating role in the relationship between high-performance human resource (HR) practices and firm performance.

4.1.3. Learning orientation and innovation path

From 2005 onwards a new trend related to the concept of learning orientation in the context of innovativeness and performance can be observed in the Main Path analysis. In 2005, Lee and Tsai concluded that market orientation (characterised by Kohli and Jaworski (1990) as intelligence generation, intelligence dissemination, and responsiveness) is significantly associated with learning orientation and organisational innovativeness; they emphasised that innovativeness and business performance can be enhanced through an appropriate business operation mode or management style which is participative, sharing, and collaborative. Rhee, Park, and Lee (2010) also concluded that both market orientation and entrepreneurial orientation positively affect innovativeness, which ultimately influences performance by way of the mediating role of learning orientation. Lam, Lee, Ooi, and Lin's (2011) study finds that the implementation of TQM in service organisations may lead to both learning orientation and market performance; nevertheless, no significant relationship was found between learning orientation and market performance. Hakala (2011) conducted a systematic review of the 'Strategic Orientation' literature—including learning orientation—to explain how research on learning orientation can be linked to research on other main orientations, for example market orientation. In a related empirical study, Real, Roldán, and Leal (2014) found in the context of Spanish industrial companies that OL plays a comprehensively mediating role in regard to the relationship between learning orientation and performance, and that it partially mediates the relationship between entrepreneurial orientation and performance. Tajeddini, Altinay, and Ratten (2017) concluded that organic structure positively affects service innovativeness (which subsequently affects service business performance) via the mediating role of learning orientation and interfunctional coordination. In a recent study conducted in Iran, Allameh and Khalilakbar (2018) found that both learning orientation and entrepreneurial orientation influence innovation performance through the mediating role of OL. In another study, Pastor Pérez et al. (2019) found that learning orientation had a positive impact on the performance and innovation orientation of companies in Mexico. The findings of Sawaean and Ali (2020) showed that both entrepreneurial leadership (visionary, opportunity-seeking, proactivity, risk-taking propensity) and learning orientation have positive and significant implications for organisational performance and

Table 1
The first stream of the Main Path analysis.

Theme 1	The Conceptualisation (definitions, elements, process, and integration of diverse perspectives) of OL and learning organisation
Main References	Shrivastava (1983); Argyris (1977); Cook and Yanow (1993); Garvin (1993); Nicolini and Meznar (1995); Crossan and Guatto (1996); Tsang (1997); Easterby-Smith (1997); Easterby-Smith et al. (1998); Crossan et al. (1999); Hodgkinson (2000); Vince (2001); Wang and Ahmed (2003); Vince and Saleem (2004); Schilling and Kluge (2009); Crossan et al. (2011)
Main Concepts	OL systems; OL disciplines; organisational learning levels; learning process; learning exploration and exploitation; single-loop, double-loop, and triple-loop learning; organisation-as-culture; power and emotion; social construction; cognition and action; intuiting; interpreting; integrating; institutionalising; alignment of stocks and flows; caution and blame; actional-personal, structural-organisational, and societal-environmental barriers; learning organisation environment; inter-organisational learning; unlearning
Main Research Questions	• How should an organisation learn? • How does an organisation learn?
Main Methods Applied	Conceptual research, argument, and review

that innovation capacity mediates the relationships.

Tables 1, 2, and 3 represent the summary of the three themes identified, including their main references, concepts, research questions, and methodologies. The main variables examined in the MP's empirical studies are also summarised in Table 4 to illustrate conceptual relationships that have been investigated over the evolution of the field. These mainly reflect the impact of learning orientation and/or OL on performance and demonstrate the factors that affect the effectiveness and strength of this relation in the form of antecedents, mediators, or moderators, such as HR practices, structure, leadership, TQM, market and entrepreneurial orientation.

The developmental trends of the three MP themes over recent decades are shown in Fig. 7. Significant growth in the publication of conceptual research papers on OL and learning organisations becomes evident in the final decade of the twentieth century, thus corresponding to the initial developmental phase of empirical studies on OL capabilities and learning orientation. We note that interest in learning capabilities, orientation, and innovation (that is, the second and third streams) has grown considerably over the last two decades, while the definitional issues of the first stream have receded into the background.

Overall, conceptualisation of OL was largely pursued in the 1990s and resulted in the development of measures for learning. Since then studies have become more empirical and focused on drivers and consequences of OL capabilities (ability to learn) and learning orientation (willingness to learn/culture of learning). The main drivers of OL capabilities (e.g., HR practices, leadership, and TQM) and learning orientation (e.g., structure, market orientation, and entrepreneurial orientation) are found to improve the performance of the OL process, thereby ultimately affecting innovation performance and organisational performance.

4.2. Global citation score (GCS) analysis

The next step in the BNA process is GCS analysis, which shows the total number of citations that a paper has received—regardless of their inclusion in the largest connected component of the citation network—from the year of its publication until the latest available date in the Scopus database. This analysis is based on the assumption that papers receiving numerous citations are influential or seminal papers within the body of knowledge (Knoke & Yang, 2008). The total number of citations for all the collected papers is 82,197. The ten most-cited papers (that is, with the highest GCS) are reported in Table 5. It should be noted that the top-ten list is a norm for this type of analysis and limits duplicated identification of the majority of papers that emerged in the MP. Despite its limitations however, such a report can help to increase the reliability of the review by detecting the seminal or recent break-through studies (Strozzi et al., 2017), especially given the fact that MP is not simply a sub-network of the field's most cited papers.

The studies by Crossan et al. (1999) and Garvin (1993) are recognised as two seminal papers within the top ten in the GCS ranking (ranked first and third respectively) and were already detected in the Main Path. Indeed, these papers have provided a strong foundation for a robust theory of OL and the successful management of a learning organisation.

Intriguingly, eight papers in the GCS report were not detected in the MP. Most of these papers deal with the learning orientation of organisations, its relation to other dimensions of strategic orientation (e.g., market orientation), and its impact on innovation and performance. In general, learning orientation has received rather less attention in comparison to OL over the course of the field's evolution (see Fig. 5); however, its importance in the improvement and success of the OL process and organisational performance has resulted in a substantial increase of empirical research over the last decade (see Fig. 7). This importance is also reflected in the final ranking results in Table 5, calculated by weighing the total citations received by the 'lifespan' of papers, and emphasised by the high number of citations over the last year.

Hurley and Hult (1998), in the second most-cited work in the report, developed a conceptual framework to better explain the significant and positive relationship between the innovativeness of a group's culture and its innovative capacity. Their findings show that learning and development, as well as participative decision-making, are among the most important cultural characteristics of a group in explaining levels of group innovativeness. The paper ranked fourth in the list is by Calantone, Cavusgil, and Zhao (2002) and focuses on the concept of learning orientation as an important component in gaining competitive advantage. They investigated the relationship between learning orientation, firm innovativeness, and firm performance. Their findings reveal that learning orientation is crucial for innovation and performance. The fifth-ranked study by Gong et al. (2009) shows that employee learning orientation and transformational leadership are positively related to employee creativity, and that these relationships are mediated by the creative self-efficacy of employees. The study by Baker and Sinkula (1999), ranked seventh in the list, investigated the synergistic effects of market

Table 2
The second stream of the Main Path analysis.

Theme 2	OL capabilities (management) and their role in performance
Main References	Bontis et al. (2002); Chiva et al. (2007); Alegre & Chiva, 2008; Hung et al. (2011); Santos-Vijande, López-Sánchez, and Trespalacios (2012); Altinay et al. (2016); Sugiyanto et al. (2017); Turulja and Bajgorić (2018); Ali et al. (2019); Zand et al. (2019); Ghasemzadeh et al. (2019); Oh (2019); Jerez-Gómez et al. (2019)
Main Concepts	business performance; organisational performance; product innovation performance; customer performance; competitive strategy; competitive advantage; flexibility; ambidexterity; innovation performance; innovation culture; entrepreneurial orientation; alignment of stocks and flows; organisational learning capability scale; TQM; transformational leadership; knowledge management; OL mechanisms; OL processes; organisational justice; trust; human resource practices
Main Research Question	• How does OL affect performance?
Main Methods Applied	Survey, factor analysis, structural equation modelling, multiple/hierarchical regression analysis

Table 3
The third stream of the Main Path analysis.

Theme 3	Associations between learning orientation, innovativeness, and performance
Main References	Lee and Tsai (2005); Rhee et al. (2010); Lam et al. (2011); Hakala (2011); Real et al. (2014); Tajeddini et al. (2017); Allameh and Khalilakbar (2018); Pastor Pérez et al. (2019); Sawaean and Ali (2020)
Main Concepts	market orientation; entrepreneurial orientation; technology orientation; strategic orientation; shared vision; open-mindedness; commitment; entrepreneurial leadership; innovation capacity; operational business mode; organisational structure; inter-functional coordination; TQM; OL; business performance; innovation performance; market performance; organisational performance
Main Research Questions	• Why does an organisation learn? • How does learning orientation affect innovativeness and performance?
Main Methods Applied	Survey, factor analysis, structural equation modelling, multiple/hierarchical regression analysis, review

Table 4
Main variables identified in the Main Path empirical studies.

Theme 2	Theme 3
TQM ➔ OL ➔ Innovation Performance	Learning Orientation (and Market Orientation) ➔ Innovativeness ➔ Business Performance
OL ➔ Flexibility ➔ Competitive Strategy ➔ Performance	Market Orientation (and Entrepreneurial Orientation) ➔ Learning Orientation ➔ Innovativeness
OL Capability ➔ Entrepreneurial Orientation ➔ Performance	TQM ➔ Learning Orientation (and Market Performance)
Transformational Leadership ➔ (mediating role of OL Capabilities and Innovation) ➔ Competitive Advantage	Learning Orientation ➔ OL ➔ Performance
OL Processes ➔ *(moderating role of Organisational Justice and Trust)* ➔ Organisational Performance	Organic Structure ➔ *(moderating role of Learning Orientation and Inter-functional Coordination)* ➔ Service Innovativeness ➔ Performance
High-performance HR practices ➔ OL Capabilities ➔ Performance	Learning Orientation (and Entrepreneurial Orientation) ➔ OL ➔ Innovation Performance
	Learning Orientation ➔ Performance (and Innovation Orientation)
	Learning Orientation (and Entrepreneurial Leadership) ➔ Innovation Capacity ➔ Organisational Performance

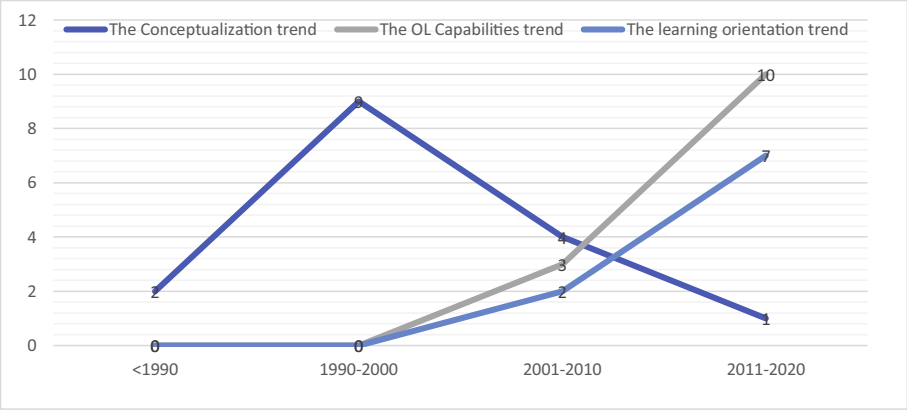


Fig. 7. The evolution of the MP streams.

orientation and learning orientation (commitment to learning, shared vision, and open-mindedness) on organisational performance. They concluded that learning orientation positively affects organisational performance by facilitating the generative type of OL that leads to product and process innovations, and that it moderates the impact of market orientation on organisational performance by improving the quality of market-oriented behaviours. Another study (ranked ninth) by Sinkula et al. (1997) provides empirical evidence for their conceptual model and finds that "an organization's learning orientation, mediated by its market information-processing behaviours, affects the propensity to change (as exemplified by marketing strategy)" (p.314).

The other three papers that emerged in the GCS table but did not appear in the MP focus on, i) the mediating role of OL in the relationship between IT competency and firm performance (Tippins & Sohi, 2003); ii) the role of learning (e.g., acquiring local market knowledge) and resources (e.g., financial) in international partner selection of both developed and emerging market firms (Hitt, Dacin, Levitas, Arregle, & Borza, 2000); and iii) the interactive role of knowledge types, organisational forms, and societal institutions in learning and the innovative capabilities of firms (Lam, 2000).

Overall, the eight studies mentioned above can complement the MP analysis in that the individual, group, and organisational

Table 5
The ten most-cited papers.

Published	Document Title	Authors	Journal Title	Cite <2020	Cite 2020	Cite 2021	Total citations	MP	Citations /years since publication	Rank
				Total (12053)	Total (1097)	Total (40)	Total (13190)			
2009	Employee learning orientation, transformational leadership, and employee creativity: The mediating role of employee creative self-efficacy	Gong et al.	Academy of Management Journal	647	155	3	805	No	73	5
2003	IT competency and firm performance: Is organisational learning a missing link?	Tippins and Sohi	Strategic Management Journal	906	102	4	1012	No	59	6
2002	Learning orientation, firm innovation capability, and firm performance	Calantone et al.	Industrial Marketing Management	1160	189	6	1355	No	75	4
2000	Partner selection in emerging and developed market contexts: Resource-based and organisational learning perspectives	Hitt et al.	Academy of Management Journal	779	44	3	826	No	41	8
2000	Tacit knowledge, organisational learning and societal institutions: An integrated framework	Lam A.	Organisation Studies	702	39	1	742	No	37	10
1999	The synergistic effect of market orientation and learning orientation on organisational performance	Baker and Sinkula	Academy of Marketing Science	936	77	3	1016	No	48	7
1999	An organisational learning framework: From intuition to institution	Crossan et al.	Academy of Management Review	2090	150	7	2247	Yes	107	1
1998	Innovation, market orientation, and organisational learning: An integration and empirical examination	Hurley and Hult	Journal of Marketing	1906	205	10	2121	No	96	2
1997	A framework for market-based organisational learning: Linking values, knowledge, and behaviour	Sinkula et al.	Academy of Marketing Science	847	72	2	921	No	40	9
1993	Building a learning organisation.	Garvin D.A.	Harvard Business Review	2080	64	1	2145	Yes	79	3

orientation of an organisation towards learning should be viewed as a separate, value-based construct which, alongside IT competencies, can affect (market-oriented) generative OL capabilities in order to enhance innovativeness and overall performance. In addition to this, the strategic role of OL in international alliances should be considered in decision-making at the corporate level.

Table 6
Results of the co-occurrence analysis.

Cluster 1 *"Transformational leadership, learning orientation, and OL capabilities towards innovativeness and performance"*	*Cluster 2* *"Strategy, leadership, and organisational development"*	*Cluster 3* *"TQM, knowledge management, and OL management"*	*Cluster 4* *"Organisational culture, organisational change, and competitive advantage"*	*Cluster 5* *"Team learning, workplace learning and training"*
Firm performance, Innovation, Innovativeness, **Learning orientation**, Market orientation, Organisational learning capabilities, Organisational learning culture, Organisational performance, Performance, Transformational leadership	Leadership, Learning, **Learning organisations**, Management, Organisational development, Spain, Strategy	Case study, China, Knowledge creation, Knowledge management, **Learning organisation**, **Organisational learning**, TQM	Competitive advantage, Knowledge transfer, **Learning organisation**, Organisational change, Organisational culture, **Organisational learning**	India, Team learning, Workplace learning, Workplace training

4.3. Co-occurrence analysis of authors' keywords

The analysis of the co-occurrence of keywords from the full set of papers detects patterns and trends in the field by measuring the association strength of the given terms (Callon, Courtial, & Laville, 1991; Ding, Chowdhury, & Foo, 2001). A 'co-word' network was built by taking into consideration all keywords that appear together at least 17 times; a choice which produced a reasonable number of clusters, each of which represented at least 4 keywords. To build the network, we used VOSviewer software to implement 'Visualisation of Similarities' clustering technique (van Eck & Waltman, 2010). The network of author keywords (Appendix B) represents a pattern of research that reveals five clusters (Table 6) within the overall body of literature, which we have labelled as: i) 'Transformational leadership, learning orientation, and OL capabilities towards innovativeness and performance'; ii) 'Strategy, leadership, and organisational development'; iii) 'TQM, knowledge management, and OL management'; iv) 'Organisational culture, organisational change, and competitive advantage'; and v) 'Team learning, workplace learning and training'.

By collecting and analysing selected studies (in our sample) that correspond to each cluster, and reviewing some out-of-sample studies (cited by selected studies in the sample or selected through specific term search on Scopus) to support the explanation of results, we were able to obtain the following insights:

Cluster 1 chiefly deals with transformational leadership, learning orientation, and OL capabilities towards innovativeness and performance. Transformational leadership and OL are discussed as being among the most important drivers of innovation within organisations. Transformational leaders aim to inspire organisational players and promote learning, creativity, and change by creating a shared vision (Bass, 1999). However, the collective process of OL appears to exhibit a stronger influence on innovation than does transformational leadership (Aragón-Correa, García-Morales, & Cordón-Pozo, 2007). One study also suggests dynamic capabilities, such as OL and innovation, play a mediating role in the relationship between transformational leadership and organisational performance (García-Morales, Jiménez-Barrionuevo, & Gutiérrez-Gutiérrez, 2012). Indeed, OL is the key component in any effort to improve organisational performance and achieve a competitive advantage by reducing the likelihood of organisational knowledge and competencies becoming outdated (García-Morales et al., 2012). Gil and Mataveli (2017) discovered that learning culture and facilitators of group learning positively affect group learning. The findings of Shao, Feng, and Hu (2017) show that transformational leaders can change followers' learning orientation and behaviour mostly by fostering organisational culture. It follows that the analysis of this cluster supports the idea that OL orientation and capabilities, facilitating culture, and transformational leadership play a key role in order for learning in organisations to occur continuously.

Cluster 2 mainly deals with strategy, leadership, and organisational development in a learning organisation. The learning organisation is seen as the ideal model for an organisation to achieve organisational development (Gil & Carrillo, 2016), in cases where all individuals are involved in learning (Retna & Ng, 2006). Senge (2006, p.3) defines learning organisations as "organizations where people continually expand their capacity to create results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together". Leadership is considered as one of the fundamental concepts in a learning organisation. Leaders play a crucial role in the creation of learning environments and in helping employees to continually develop their skills (Imran, Ilyas, Aslam, Ubaid-Ur-Rahman et al, 2016). However, an effective performance feedback system—as part of an overall organisational strategy—is necessary in order to provide a strong basis for a learning organisation (London & Smither, 2002; Mayfield & Mayfield, 2012).

Several studies have investigated the topics that are linked to the second cluster of keywords in the Spanish context. López, Peon, and Ordas (2005) stress how the need for organisational renewal and transformation has been of concern to numerous senior managers in regard to the importance of learning improvements in their organisations. The authors conclude that OL positively influences businesses' performance in the context of Spanish firms. In a further study, and based on the work by Garvin, Edmondson, and Gino (2008), Gil, Carrrillo, and Fonseca-Pedrero (2019) developed a questionnaire on the four basic dimensions of OL (leadership towards learning, learning structure, learning culture, and learning opportunities) and tested it in the Spanish educational context.

The second cluster focuses on the importance of multi-level learning improvements in organisations and their role in organisational development. It has emerged that the learning approach to strategy, structure, and culture facilitates the continuous improvement of a learning organisation and, ultimately, this highlights the importance of the role of leadership in learning organisations.

Cluster 3 largely concentrates on TQM, knowledge management (KM), and OL management. The concept of KM, which is strongly emphasised in the strategic management discipline, plays a significant role in creating a sustained competitive advantage for companies; the resource-based theory provides a better explanation of KM's effects on organisational competitive advantage (Chuang, 2004). In other words, knowledge as a source of sustainable competitive advantage is created, transferred, and stored through the OL process and managed at all organisational levels.

TQM has also emerged as a relevant concept in the main body of literature which explores all the interactions between the elements of an organisation and which aims to integrate quality into all its functions; the system effectively works based on the synergistic effect of each output (Pool, 2000). Several studies have attempted to investigate the relationship between TQM and learning organisations (Aminbeidokhti, Jamshidi, & Hoseini, 2016; Irani, Sharp, & Kagioglou, 1997; Pool, 2000). For instance, Pool (2000) concluded that the implementation of TQM principles in a supportive culture enhances OL. Aminbeidokhti et al. (2016) also investigated the relationship between TQM and OL in the context of higher education.

Numerous scholars have investigated the concept of OL in China, thereby addressing increased interest in emerging economies (Chung, Yang, & Huang, 2015; Yu, Dong, Shen, Khalifa, & Hao, 2013; Yu, Jacobs, Salisbury, & Enns, 2013; Zhu, Sarkis, & Lai, 2012). Finally, the research methodology that has significantly gained in popularity is the case study approach (Elkjaer, 2001; Kloot, 1997; Lumineau, Fréchet, & Puthod, 2011), for it is ideally suited to understanding the context and factors that affect management practices (Kloot, 1997).

In general, it can be inferred from the analysis of this cluster that KM is closely linked to OL, and that both of these are positively associated with TQM. Furthermore, in terms of a learning organisation's performance, the integration of the OL management system and the knowledge management system clearly matters.

Cluster 4 focuses on organisational culture, organisational change, and competitive advantage. Researchers have shown interest in understanding the factors that contribute to continuous intra-organisational knowledge transfer (Miesing, Kriger, & Slough, 2007)—both tacit and explicit in nature— that leads to improved OL (Liao, Chen, Hu, Chung, & Yang, 2017) so as to gain a greater sustainable competitive advantage (Liao & Hu, 2007).

This cluster also reflects OL as being interconnected with organisational change. "IT-enabled change such as process alteration and productivity improvements do not take place simultaneously with an organization's attempts to increase its capacity to acquire knowledge and decision-making ability" (Watad, 2019, p.1080). Therefore, "an organization's ability to be aligned and efficient in its management of today's business demands while simultaneously being adaptive to changes in the environment" (Raisch & Birkinshaw, 2008, p.375) is of great importance in a learning organisation, in order to achieve a sustainable competitive advantage—and this requires organisational coordination and a strong collaborative culture (Raisch & Birkinshaw, 2008).

Cluster 5 chiefly deals with team learning, workplace learning and training. The OL process, which needs to be facilitated by way of relevant practices and tools, enhances organisational performance, and the value of human capital is correlated both with the components of the OL process and organisational performance (Guţă, 2014). According to Morgeson, DeRue, and Karam (2010), leadership plays a key role in managing human capital at the team level of the OL process, specifically through transitional functions (i.e. compose team, define mission, establish expectations and goals, structure and plan, train and develop team, sense-making, and provide feedback) and actional functions (i.e. monitor team, manage team boundaries, challenge team, perform team task, solve problems, provide resources, encourage team self-management, and support social climate) that "help teams satisfy their critical needs and regulate their behaviour in the service of goal accomplishment" (Morgeson et al., 2010, p.5).

Team psychological safety has been found to be critical for both individual and team learning (Bresman & Zellmer-Bruhn, 2013; Newman, Donohue, & Eva, 2017). The positive impact of psychological safety on work attitudes of employees (e.g. organisational commitment and positive attitudes towards teamwork) is strongly supported in the literature (Newman et al., 2017). Psychologically empowered individuals "tend to be highly concentrated, self-motivated and resilient" and, as a result, could have a higher level of engagement and organisational commitment (Joo & Shim, 2010, p. 429). In addition, all team members should feel psychologically confident in frequently expressing their own views (Bstieler & Hemmert, 2010). Harvey, Johnson, Roloff, and Edmondson (2019), for example, explore how and when team learning orientation affects team learning. They found that the relationship between team learning orientation and team learning is mediated by team psychological safety, when team open-mindedness is low.

Building a learning organisation requires many activities, such as generation, collection, and dissemination of information, and training courses are crucial for the development of employees at individual, team, and organisational levels (Garvin et al., 2008). "It is, therefore, desired that the training offer benefits to the whole organization, which is largely dependent upon the transfer of acquired skills to all levels" (Islam & Ahmed, 2018, p.306). However, many training programmes do not result in the targeted learning outputs. According to Salas, Tannenbaum, Kraiger, and Smith-Jentsch (2012), in order to use training appropriately, organisations need to perceive it as a systematic process (before, during, and after training) and pay attention to the factors that contribute to its effectiveness at different stages.

India is also identified as a keyword in the fifth cluster, thereby showing the importance of research on team learning, workplace learning and training in the Indian context (Chauhan, Ghosh, Rai, & Shukla, 2016; Holtbrügge, Schillo, Rogers, & Friedmann, 2011; Shekar & Suganthi, 2015).

Overall, the co-occurrence analysis of keywords in this study contributes to the previous analyses by stressing the important roles of, i) learning orientation and organisational learning capabilities, as affected by OL culture and transformational leadership, in innovativeness and performance; ii) strategy, managerial support, and leadership in continuous learning and organisational development towards becoming a learning organisation; iii) implementation of TQM principles (including customer focus, involvement of all people, systematic and process approaches, training, teamwork, continuous improvement, and leadership) in the improvement of knowledge creation, OL, and learning organisation; iv) collaborative culture and continuous intra-organisational knowledge transfer in adapting to dynamic environments directed towards improved learning organisation; and v) HR development and training in team and workplace learning. Despite the detection of 'organisational structure' and 'technology' as two significant keywords already in the Main Path, these are not directly highlighted in this keyword analysis, although they are indirectly linked to 'strategy' (second cluster) and 'learning process' (Clusters 3 and 4), respectively.

4.4. Kleinberg's burst detection algorithm

While Keyword frequency analysis provides some insight into the field, it provides little indication of when the identified keywords became important, and the relative change of significance between keywords over time (Pollack & Adler, 2015). The final analysis in this study—Burst detection—aims to identify the topics that substantially wax and wane within research over a period of time. In this contribution the Kleinberg's Burst detection algorithm (Kleinberg, 2003) was applied to understand rapid changes in keyword use and to detect emerging trends (Pollack & Adler, 2015). The length of each burst as represented in Appendix C, shows the period needed for this process to conclude, while the weight refers to the magnitude of the change in the keyword frequency (Ciano et al., 2019). It is noteworthy to mention that Burst detection analysis shows rapid change in frequency, not total frequency, and a term may burst in popularity, but remain less significant than consistently high frequency terms (Pollack & Adler, 2015).

For the purpose of this study, Kleinberg's Burst detection algorithm was applied to the authors' original keywords and, following the

normalisation process, the list of Burst words was visualised by using the function 'visualization temporal bar graph' in the Sci 2 software (Colicchia, Creazza, & Strozzi, 2018). This process consists of separating texts into token words and normalising them in lower-case. Appendix D shows the list of Bursts obtained after the normalisation process, including respective meaning, example references, and their link to the cluster analysis and the MP. Greater attention in this work is paid to most recent Bursts as they are more likely to represent emerging topics in the field.

The Bursts 'perform', 'innov', and 'higher' reflect the increasing interest, over the last few years, in 'organisational performance', 'innovation', and 'higher education'. These concepts were also identified in the MP analysis and the co-occurrence cluster analysis, thus demonstrating their importance in the field under investigation. The influence of transformational leadership on organisational performance through OL and innovation, as well as the impact of organic structure on performance in terms of the mediating role of OL capabilities, are two examples of related studies (García-Morales et al., 2012; Mallén, Chiva, Alegre, & Guinot, 2016). There is also burgeoning interest in furthering empirical studies in the context of learning organisations in higher education. Watkins (2005), for instance, explored the question of how higher educational institutions would be different if they were learning organisations.

The Burst 'orient' refers to learning orientation, which has received increasing attention—as demonstrated also in the MP analysis, the GCS analysis, and the cluster analysis. As mentioned above, learning orientation is the main antecedent of OL and is of great importance for contemporary organisations to be able to gain a competitive edge (Calantone et al., 2002).

The other recent Bursts that have been identified are 'absorpt' and 'institut'. The first term refers to absorptive capacity, and the other to institutional theory. Absorptive capacity is a source of competitive advantage for organisations, as it allows them to continually identify and acquire relevant knowledge (Liao et al., 2017). An organisation with higher absorptive capacity is better able to apply external knowledge (obtained, for example, from R&D collaborations) more effectively and efficiently (Huang & Yu, 2011). Institutional theory is a further important topic of research and relates to an organisation's institutional environment, which consists of three fundamental dimensions: regulative, normative, and cognitive. "The regulative dimension refers to rules that organizations need to comply with to avoid formal or informal sanctions. The normative dimension is related to values and norms that prescribe appropriate patterns of behaviour. The cognitive dimension includes institutionalised practices or taken for granted behavioural patterns that express how something is viewed as given" (Phang, Kankanhalli, & Ang, 2008, p.103).

'Engagement' can also be considered as a recent Burst, although its rise in research slowed down in 2018. Park, Song, Yoon, and Kim (2014), for example, investigate the mediating role of work engagement in the relationship between learning organisation and innovative behaviour. Employees with a higher level of work engagement are more likely to develop new ideas and actively contribute to organisational development (Lin & Lee, 2017).

Looking at some old bursts, we find that *"measur", "develop", "chang"* lasted for quite long periods of time, which may signal the pivotal influence of the topics (related to these keywords) on the coevolution of OL, learning organisation, and learning orientation. These Bursts respectively refer to "measurement", "organisational development" and "change". *Measurement* mainly refers to the need to find appropriate scale items in order to investigate OL capability in organisations (Alegre & Chiva, 2008; Chiva et al., 2007). *Organisational development* which basically reflects the transformation of organisations through planned change (Massey & Walker, 1999) overlaps with *change* that as an ongoing process can be defined as "reweaving of actors' webs of beliefs and habits of action to accommodate new experiences obtained through interactions" (Tsoukas & Chia, 2002, p. 567).

The main emerging topics identified in the Burst detection are centred on the inter-relationship between learning orientation and OL (capabilities) moving towards the improvement of innovative behaviour and organisational performance, and taking into consideration the organisational absorptive capacity and institutional theory. The lateral topics that contribute to the development of the state-of-the-art in the area of investigation—which covers the second and third themes identified in the MP and which is linked to the first cluster of keywords' co-occurrence, as well as the majority of studies listed in the GCS ranking report—are also reflected in Appendix D; the concepts of knowledge management, information technology, TQM, workplace, organisational change, and organisational development are likewise highlighted in the previous SLNA analyses above, while engagement and human capital are directly detected only through the Burst detection analysis. However, neither inter-organisational learning (Jones & Macpherson, 2006) nor unlearning (Hedberg, 1981; Tsang & Zahra, 2008)—neither of which were identified as core concepts in the GCS top-ten report analysis, or the keywords co-occurrence analysis—are captured in the Burst detection analysis.

5. Discussion and conclusions

In this paper we set out to systematise and unify the research findings on OL, learning organisation, and learning orientation in a way that enabled a new theoretical framework and perspective to emerge (Snyder, 2019). The SLNA methodology allowed us to identify the key concepts and four main streams of organisational learning research. Drawing on the integration of Main Path analysis, GCS analysis (most-cited papers), co-occurrence analysis of authors' keywords, and Burst detection analysis (see Appendix E), as well as on our reading of the articles—selected through the objective process of BNA—and frequently recurring references (see Appendix F), a unifying framework was proposed (see Fig. 1). The core of this framework (along with its potential organisational outcomes) is discussed in the following paragraphs, followed by the discussion of supportive practices and processes, and organisational capacity that (directly or indirectly) affect its functionality and effectiveness. The framework (and the connectivity between different elements of the framework) is explained based on a systemic perspective, with particular attention to the function of HR.

5.1. Implications for theory and practice

5.1.1. Learning orientation

Learning orientation forms a foundation for explorative learning (i.e. proactive, generative, or double-loop) and is about the direction and intensity of learning. The direction or 'what to learn?' is influenced by the existence of a shared vision within the organisation, as well as the learning intensity, which is defined as the motivation determined by commitment and open-mindedness towards creation and usage of knowledge (Sinkula et al., 1997). "Learning orientation is conceptualized as a set of values that influence the degree to which an organisation is satisfied with its theories in use (Argyris & Schön , 1978), mental models (de Geus, 1988) and dominant logics (Bettis & Prahalad, 1995), which may or may not have their bases in the marketplace" (Baker & Sinkula, 1999, p.413).

From the HR perspective, learning oriented culture can be advanced in multiple ways. Depending on the recruitment, selection, induction and performance management, and reward practices, the HR function can influence the type of learning (exploitative or explorative) that the organisation is oriented towards but also the temporal frames within which the learning takes place (Swart & Kinnie, 2010). Strategically it does make a big difference if the culture towards learning is built on a short term need to meet current challenges, for example through training, or the longer term idea of building the learning capacities and eventually a 'learning organisation' that is able to both utilise existing knowledge, and continuously build foundations for competitive advantages. In any case, learning orientation goes beyond a customer/marketplace focus. Learning-oriented organisations encourage (or even require) organisational members to constantly question the organisational norms that guide their organisational actions and to think outside the box (Baker & Sinkula, 1999). In essence, learning orientation is reflected by a set of *knowledge-questioning* values that enable firms "to not only accomplish within-paradigm improvements (e.g., continuous improvement) but also paradigm shifts (e.g., breakthrough innovation)" (Baker & Sinkula, 1999, p. 413). Thus, it might make sense to perceive learning orientation as a dimension of strategic orientation that provides a foundation for both internally-sourced knowledge creation, and externally-rooted knowledge generation, e.g. from market, technology, competition, or societal and economic system (Baker & Sinkula, 1999; Calantone et al., 2002; Day, 1994; Hakala, 2011). Either way, the goal of learning orientation is to transfer the learned knowledge to the workplace and create capabilities that are both effective and efficient (Song & Chermack, 2008). For HR professionals in organisations this also means that they should aspire to develop HR practices that support the development of organisation-wide learning orientation such as positive attitudes towards teamwork, interpersonal adaptability and values that support diversity of knowledge within the organisation (López-Cabrales et al., 2011).

5.1.2. Organisational learning capabilities

Learning orientation determines the willingness and direction of learning, and hence acts as antecedent for the development of OL capabilities. A higher level of learning orientation results in improved OL capabilities in terms of, i) acquiring, including experimenting, learning from past experiences, and learning from the external environment (including best practices, customers, competitors, suppliers, partners, events, market and technology trends, macro-environmental shifts); and ii) transferring and integrating, including having dialogue, (cross-functional) team-working, insightful interpreting, systematic problem-solving, memorising, and unlearning (Argote & Miron-Spektor, 2011; Crossan, Lane, & White, 1999; Day, 1994; Garvin, 1993; Garvin et al., 2008; Hedberg, 1981; Huber, 1991; Santos-Vijande, López-Sánchez, & Trespalacios, 2012; Senge, 2006; Slater & Narver, 1995).

The process of acquiring, transferring, and integrating (corresponding to Crossan et al.'s 4 'I's) are inter-linked in explorative (feedforward) and exploitative (feedback) processes across individual, group, and organisational levels. In fact, organisational learning capability is a dynamic process that stems from individuals' knowledge acquisition; this knowledge is exchanged and integrated until a corpus of collective knowledge is created and stored in organisational memory (Jerez-Gómez, Céspedes-Lorente, & Valle-Cabrera, 2005). This collective knowledge, which is embedded in organisational processes and culture, will affect the type of knowledge acquired in the future, as well as the way in which it will be interpreted and transferred (Jerez-Gómez et al., 2019). Unlearning is also a part of the process that regards how and to what extent old routines (that are already recorded in human/non-human storage bins) are replaced by new ones (Tsang & Zahra, 2008).

Regarding the adoption of external knowledge, Cohen and Levinthal (1990) argue that the level of prior, related knowledge is essential to be able to recognise the value of new information and "gives rise to creativity, permitting the sorts of associations and linkages that may have never been considered before" (Cohen & Levinthal, 1990, p. 130).

Moreover, when it comes to inter-organisational learning (e.g. in alliances and customer/supplier networks), absorptive capacity is a key factor for both *recipient* organisation (influenced by its past experiences, culture, and knowledge retention capabilities) and *donor* organisation (Easterby-Smith, Lyles, & Tsang, 2008). Based on the degrees of transparency and receptivity (that are low or high), an organisation can show an interaction behaviour of avoidance, accommodation, competition, collaboration, or compromise (Larsson, Bengtsson, Henriksson, & Sparks, 1998). These interactions shape the form of inter-organisational climate, systems, and structures to share information, and determine inter-organisational relationships (Larsson et al., 1998; Sun & Scott, 2005). Once knowledge comes into the recipient organisation from donor organisation (or some external source), the recipient needs to rely on its capabilities for intra-organisational knowledge transfer to distribute the knowledge within the organisation so that it can be assimilated and utilised (Easterby-Smith et al., 2008).

OL is often put forward as a VRIN capability (that is, a Valuable, Rare, Inimitable, and Non-substitutable capability) that helps organisations attain a competitive advantage (Barney & Wright, 1998; Santos-Vijande, López-Sánchez, & Trespalacios, 2012). According to Santos-Vijande, López-Sánchez, and Trespalacios (2012), OL is a valuable capability as it can help satisfy customers' latent and actual needs in a more efficient way by generating greater knowledge and a deeper understanding of environmental opportunities and threats, as well as internal strengths and weaknesses. In addition to this, OL is a rare capability, for only certain organisations can

simultaneously generate new knowledge and adapt acquired knowledge (Crossan et al., 1999; Huber, 1991; March, 1991; Santos-Vijande, López-Sánchez, & Trespalacios, 2012). As an intangible resource, which is firmly grounded in organisational processes and which lacks any strategic equivalent, OL is neither easily transferred nor substituted (Santos-Vijande, López-Sánchez, & Trespalacios, 2012) and can be considered as a VRIN capability (Jerez-Gómez et al., 2005).

To enhance the above-mentioned OL capabilities, HR practitioners should aim to incorporate individuals who not only have the potential to acquire new knowledge and skills, but can also adapt to changes in organisational contexts as well as in the dynamic of work activities, and are capable of tolerating high degrees of uncertainty (López-Cabrales et al., 2011).

5.1.3. Learning organisation performance and the OL chain organisational outcomes

Reinforced by supportive practices and processes including HR, environmental scanning, internal and external communications, and measurement and auditing (Bui & Baruch, 2010; Garvin, 1993; Garvin et al., 2008; Marsick & Watkins, 2003), OL capabilities may positively influence the learning organisation performance in terms of, first, *knowledge management*: i) exploiting and deepening existing knowledge stocks ii) the sustained generation of new ideas and knowledge; iii) the application of relevant new knowledge, policies, or routines; iv) discarding old routines, or obsolete and misleading knowledge; and, second, *strategic behaviour*: v) flexible behaviour; vi) productive (efficient and effective) behaviour; vii) innovative behaviour; and viii) responsive and proactive market-oriented behaviour (Bell, Whitwell, & Lukas, 2002; Cohen & Levinthal, 1990; Hedberg, 1981; Huber, 1991; March, 1991; Marsick & Watkins, 2003; Narver & Slater, 1990; Santos-Vijande, López-Sánchez, & González-Mieres, 2012; Santos-Vijande, López-Sánchez, & Trespalacios, 2012; Tsang & Zahra, 2008; Yang, Watkins, & Marsick, 2004).

The identified dimensions could serve to guide the development of a comprehensive measurement scale that assesses performance and corresponds to the idea of ambidextrous learning organisations. This type of organisation explores new learning opportunities outside their current knowledge domains through a process of 'search, variation, risk taking, experimentation, play, flexibility, discovery and innovation', but also exploits existing knowledge stocks by 'refinement, choice, production, efficiency, selection, implementation and execution' (Swart & Kinnie, 2010).

Based on our review (Ellinger, Watkins, & Bostrom, 1999; Garvin, 1993; Jensen, 2005; Marsick & Watkins, 2003; Senge, 2006; Slater & Narver, 1995; Song & Chermack, 2008; Watkins & Marsick, 1993), we also put forward a more comprehensive, integrative definition of the ambidextrous learning organisation, as an evolving organisation based on internal and external information, provided through systematic processes and practices and built upon a strategic learning-oriented capacity. A learning organisation continuously adapts and generates relevant knowledge and integrates this knowledge into strategic behaviours that ultimately lead to performance-based outcomes and creation of an alternative future.

The ambidextrous way of learning in learning organisations can occur in separate units, to deal with different types of learning, and requires a configurational approach to HR that involves developing a series of employment sub-systems designed to match the different forms of capital (i.e. human, relational, or organisational capital) (Swart & Kinnie, 2010). However, it is also possible for an organisation to exercise ambidexterity by separating various stages of a project and accordingly adopting a developmental approach to HR to plan how staff will move between different types of learning (Swart & Kinnie, 2010).

Beyond these ways of exercising OL ambidexterity, an organisation can combine both adaptive (exploitative) and generative (exploratory) learning simultaneously to create new opportunities and re-configure existing ones within a single learning unit. This requires a strategic approach to HR, which seeks to influence the type of client engagements and relationships and is aimed at developing flexible human capital that can engage in different types of learning within a single unit (Swart & Kinnie, 2010).

The literature supports the idea that a high-performing learning organisation (in terms of knowledge management and strategic behaviour) is able to innovate better both incrementally (linked to the adaptive type of OL) and radically (linked to the generative type of OL), thereby leading to improved organisational development and performance (Pedler et al., 1991; Santos-Vijande, López-Sánchez, & González-Mieres, 2012; Santos-Vijande, López-Sánchez, & Trespalacios, 2012). In other words, the long-term success of an organisation is highly influenced by its learning effectiveness, as it not only affects product and process innovation performance, but also contributes to organisational development and/or transformation, e.g. through the development of an innovative culture, absorptive capacity, expertise, productivity, satisfaction, inter-personal/departmental relationships, inter-organisational relationships, and customer and public relations (Lau, Lee, & Chung, 2019; Lien, Hung, & McLean, 2007; McLean, 2006). Moreover, the dynamic nature of learning highlights the importance of feedback, so that the organisation can take corrective action on its HR practices and processes when learning does not appear to foster organisational capacity or performance.

5.1.4. Supportive HR practices and processes

Supportive processes and practices include tools and methods such as employment security, events for informal interactions, job descriptions and rotations, incentive systems, training courses, cross-functional teams, project briefings, surveys, interviews, market research, performance appraisal, and many more (Basten & Haamann, 2018; Edmondson & Harvey, 2018; Garvin, 1993; Jerez-Gómez et al., 2019; Swart & Kinnie, 2010), all of which facilitate the learning process and management of people (Leroy, Segers, van Dierendonck, & den Hartog, 2018) in learning organisations. However, as the OL chain is of a strategic nature, the HR role and function have to consider the strategic needs of the whole organisation in terms of people and their interactions with processes and tools, resource deployment and activities. In other words, organisational learning has much to do with the strategic view of human resources, concerned with "the determinants of decisions about human resource practices, the composition of the human capital resource pool (i.e., skills and abilities), the specification of required human resource behaviours, and the effectiveness of these decisions given various business strategies and/or competitive situations" (Wright & McMahan, 1992, pp. 298–299). As such, the strategic Human Resource Development (HRD) lens, as a combination of training, career development, and organisation development, could offer the practical

tools to integrate HR with the organisational learning goals (Marsick & Watkins, 1994). Strategic HRD practices, based on an understanding of organisational learning, organisational competencies and capabilities, can contribute to successful business strategy. By emphasising top management support, integration with organisational missions and goals, recognition of culture, evaluation, HRD plans and policies, existence of complementary HRM activities, environmental scanning, expanded trainer role, and line manager commitment and involvement (Tseng & McLean, 2008), they play a pivotal role in creating a well-functioning organisational learning chain. HRD practitioners, recognised as learning specialists, are uniquely positioned (through partnering with the leadership team) to facilitate OL (Dixon, 1992; Wang, 2008) by empowering individuals and teams (psychologically and organisationally), and actively engaging in the improvement of environmental scanning, open communication, and assessments (Wang, 2008). They should "actively seek appropriate training, learning, and organisation development interventions that would most effectively address the specific demands of the organisation in preparing for and handling unforeseeable and foreseeable events" (Wang, 2008, p. 439). It is commonly asserted that high-performance HR practices are likely to influence internal resources and capabilities, and these interactions will eventually determine non-financial and financial outcomes (Jerez-Gómez et al., 2019).

5.1.5. Organisational capacity

The core learning chain as well as the above-mentioned processes and practices need to work effectively based on the foundations of what we call organisational capacity. The infrastructure of technological platforms and IT systems is necessary to smooth information acquisition, dissemination, and memorisation (Tippins & Sohi, 2003). Different utilisation characteristics of learning and knowledge management activities such as business intelligence, discovery, transfer, memorisation, and usage of knowledge need to be supported by both hardware and software technological resources (Margherita, 2021). Moreover, with the help of information technology and data analytics capabilities, HR professionals in a learning organisation can effectively bring HR and business related data together to analyse, for example, human capital facts, people-related risks, engagement and culture, and performance characteristics in order to serve the needs of executives and top decision makers in the organisation to enhance strategic decisions (Margherita, 2021).

The quality of OL is of course also dependent on the quality of organisational members and their ability to generate, exchange, and integrate ideas, information, and knowledge (Hsu & Fang, 2009). Employees that possess valuable and unique knowledge and skills, as strategic assets of organisations, are more likely to promote the OL process, by exploring new ways of working and converting them into new organisational routines. Learning organisations have both financial and strategic incentives to *internally* develop this form of human capital, thus, they may rely on a *commitment-based* HR system that concentrates on nurturing employee involvement and maximizing the organisations' return on human capital investments (e.g. through training, career development, and monitoring programs) (Lepak & Snell, 1999). These organisations need to protect themselves from the transfer of their human capital investments to other organisations (Lepak & Snell, 1999). HR practitioners are also advised to select new employees not only based on their current knowledge, skills, and experiences, but also on the basis of their cognitive capacities, attitudes, and motivation, that is, learning potential (López-Cabrales et al., 2011).

It is also crucial to have an organisational culture that fosters the organisational learning climate in order to facilitate the path for the intuiting of individuals and team members, and the interpreting and integrating of information (Cook & Yanow, 1993). This type of organisational culture is characterised by important values (Bui & Baruch, 2010; Sanz-Valle, Naranjo-Valencia, Jiménez-Jiménez, & Perez-Caballero, 2011): a long-term vision, corporate-level systemic thinking, interactive communication, trust, respect and diversity encouragement, teamwork, collaboration, personal empowerment, tolerance of ambiguity, uncertainty and errors, and continuous improvement. In fact, commitment of organisational members to their organisation and their motivation to work together (in order to generate new knowledge) are encouraged in a social climate that is enhanced by HR practices (Jerez-Gómez et al., 2019), and supported by top management. OL values are related to the scope of changes and are more developed in organisations where changes in culture and strategy have taken place (Alas & Sharifi, 2002). Organisations that learn and develop their strategic HRD practices are better equipped to maintain and change their corporate culture over time (Tseng & McLean, 2008).

OL is nurtured by a strategy that encourages all members of the organisation to participate in major policy-forming processes (Pedler et al., 1991). By referring to Chandler's (1962) classic idea that an organisation needs to apply new strategies followed by a new and refashioned structure in order to operate effectively and efficiently, Tajeddini et al. (2017) suggest that learning organisations require structures that enable the learning process. Much of the literature suggests that an organic structure that "allows more open communication, more adaptability, increased flexibility, less strict task differentiation, less clear hierarchy, and a relatively higher degree of autonomy" (Tajeddini et al., 2017, p.102) works best to facilitate learning. However, there are contexts, such as subsidiaries, in which formal and more bureaucratic organisational structures may work better—if not in terms of actual learning itself, but in implementing the change initiatives that result from learning (Hakala, Sirén, & Wincent, 2016). While this type of study is rare, we suspect that it remains contested as to whether or not organic structures are always best for organisational learning; and further studies would be well advised to focus on the contexts in which specific structural arrangements function best in terms of supporting learning (Fang, Lee, & Schilling, 2010). For example, secondary structures (e.g., project teams or networks) in conjunction with the primary structure allow people to switch back and forth between two (or more) types of structure in order to decrease the tension between exploitative (i.e. single-loop or feed-back) and explorative (i.e. double-loop or feed-forward) processes (Crossan et al., 1999; Raisch & Birkinshaw, 2008).

Barriers embedded in the culture and structure of an organisation can be overcome by the exercise of leadership at all levels of the organisation. Vera and Crossan (2004) argue that "managing organizational learning requires top executives to be both transformational and transactional but that these leadership behaviours play different roles in the processes of exploration (feed-forward learning) and exploitation (feedback learning)" (p.227). Transformational leadership positively affects feed-forward learning that

challenges institutionalised learning, while transactional leadership has a positive effect on feedback learning that reinforces institutionalised learning (Vera & Crossan, 2004). It follows that not only strategy and structure but also leadership style and its role in different phases and directions of the OL process should enhance our understanding of the complex inter-relationships that affect organisational learning and its outcomes. This also suggests further investigation of theoretical and empirical analyses of the relationship between different kinds of leadership and OL (Schilling & Kluge, 2009).

Top management support, continuous improvement, employee involvement, and customer focus contribute to the creation of a learning organisation in terms of reforming corporate culture and strategy, encouraging employee engagement, and enhancing an organisation's willingness and ability to learn, to adapt, and to continuously apply changes throughout the organisation (Hung et al., 2011; Pool, 2000). In the process of creating a learning organisation, strategic HR practices can help integrate the organisational vision, mission, strategy, and practices (Tseng & McLean, 2008).

5.2. Future research needs

The existing lines of research discussed above represented by the core OL chain (i.e. learning orientation, learning capabilities, and learning organisation performance) in relation to organisational outcomes, supportive practices and processes, and organisational capacity can also be used to define potential directions for future research.

OL as a dynamic capability plays an important role in firms' acquisition and transfer of relevant knowledge, strategic flexibility, implementation of competitive strategy (Santos-Vijande, López-Sánchez, & Trespalacios, 2012), and innovation performance (Hung et al., 2011). However, the role of OL capabilities in the relationship that exists between learning orientation and learning organisation performance has yet to be empirically explored. Further empirical study should also seek to investigate how OL capabilities affect the type and intensity of innovation performance, and whether learning organisation performance plays a mediating (or moderating) role in this relationship. Moreover, while the development of OL capabilities is clearly influenced by learning orientation (which is itself affected by the HR function, organisational culture and leadership), the mechanisms and extent to which it interacts with aspects of organisational culture—or, for example, with strategic HR practices or leadership styles—appear issues that demand further research. The ways in which organisational cultural values are linked to the improvement of learning orientation and OL capabilities, as well as the degree of such linkages, is a research theme that calls for further study. Moreover, an innovative and collaborative culture has been found to play a key role in improving OL orientation and capabilities, thereby allowing the constant generation and diffusion of new ideas (Bui & Baruch, 2010). Scholars might pursue the question of how an innovation culture can be promoted by HR practices so as to achieve a sustainable competitive advantage, in particular through the mediating role of OL capabilities.

Further research could also examine the complementary effect of learning orientation with other strategic orientations (e.g., entrepreneurial) on OL capabilities and learning performance. In addition, understanding how the performance of a learning organisation is influenced by the institutional environment is an emerging research direction, as identified in the Burst detection analysis—and the exploration of this theme appears to us to be both intriguing and important.

Among OL capabilities, unlearning has been given less attention, a gap that becomes especially evident in the findings of our BNA. With regard to the dynamic and complex interplay of OL and organisational unlearning (as affected by several factors, for instance institutional legacies and governance structure), which leads to continuous or episodic change, as also suggested by Tsang and Zahra (2008), there are several issues that need to be addressed by researchers in the context of how old routines are replaced by new ones. Organisational learning creates change, but change is always limited by extant knowledge, structures, and inertia (Sirén, Hakala, Wincent, & Grichnik, 2017); nevertheless, there has been a dearth of research on the boundary conditions and factors which delimit the effectiveness of OL. While it can be argued that learning is practical and useful only when it stimulates behavioural change or promotes value creation (Argyris & Schön , 1978), the boundary conditions, such as organisational ability to oscillate between learning and forgetting (Haunschild, Polidoro Jr, & Chandler, 2015), should be explored more deeply in the future.

Learning does not respect the boundaries of any single organisation, yet, remarkably, the aspects of inter-organisational learning (Engeström & Kerosuo, 2007; Jones & Macpherson, 2006) do not surface as core topics within the literatures reviewed, despite the fact that organisations increasingly operate within various types of networks and ecosystems. Different types of inter-organisational learning concepts such as bench-marking (Askim, Johnsen, & Christophersen, 2008), relational and network capabilities (Gibb, Sune, & Albers, 2017; Vesalainen & Hakala, 2014), and co-creation (Grönroos, 2011; Prahalad & Ramaswamy, 2004; Vargo, Maglio, & Akaka, 2008) have certainly been studied, however, integrating these ideas within the core body of organisational learning could raise the profile of HR scholarship as well as practice.

OL capabilities are shaped and developed in the context of practices and processes, and often supported by various tools (Vuorinen, Hakala, Kohtamäki, & Uusitalo, 2018). Therefore, further understanding of the role of different learning tools, their usage, effectiveness, and efficiency at various levels of infrastructural capacity has potentially huge practical implications for HR professionals who aspire to develop learning capabilities and improve learning organisation performance. In practice, the HR function could play an important role in providing the tools, not only for traditional HR processes such as recruitment and training, but also for organisation-wide strategy work.

HRM has a central role for organisations in its capacity to generate new knowledge and stimulate learning (López-Cabrales et al., 2011). In particular at the strategic level, the organisational learning capability is of central interest to HRM scholars and practitioners, and all areas of the learning chain (Fig. 1) that emerged from our review warrant further research from the HR angle.

In order to optimise OL and knowledge transfer HR practitioners, together with leadership need to parallelly minimize barriers to OL (Schilling & Kluge, 2009; Sun & Scott, 2003). Schilling and Kluge (2009) classified a wide variety of OL barriers (e.g. employees' mindsets, skills and motivation, group dynamics, political activities, structure, and culture) into actional-personal, structural-

organisational, and societal environmental. They pointed out that actional-personal and structural-organisational barriers received greater attention in theory and research than societal-environmental forms; more focus has been on barriers to the stages of intuition and institutionalization rather than to interpretation and integration. This suggests opportunities for more research on these under-represented topics (Schilling & Kluge, 2009).

OL and HRM-linked academic papers generally provide practical implications, however, these implications are usually formulated in a generic way and as a consequence, managers and HRM practitioners are left to their own interpretation of scholarly knowledge, adopting policies without really knowing whether they match their organisation's culture or structure, and this can potentially reduce the opportunity for them to produce the desired results (Bleijenbergh, van Mierlo, & Bondarouk, 2021). Thus, the application of more exploratory research strategies such as case studies and action research is suggested, and better involvement of practitioners in the research process is recommended (Bleijenbergh et al., 2021).

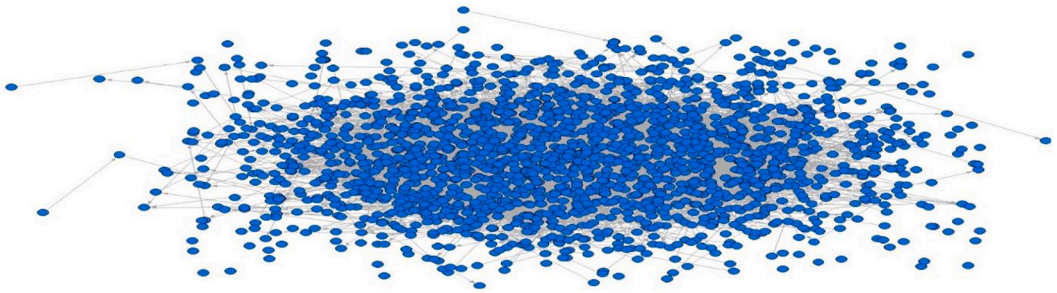
Last but not least, while the important role of organisational learning mechanisms in scanning and interacting with the external environment, together with its role in properly responding to changes have been widely accepted, less attention has been paid to the impact of OL (as a whole) on the development of sustainability-oriented practices (of responsive or proactive type), especially in supply chains, a major contemporary issue that also links to the examination of learning effectiveness in inter-organisational relations and collaborations (Oelze, Hoejmose, Habisch, & Millington, 2016), or on the success of internationalisation (Zhu et al., 2012). The shortage of conceptual and empirical studies that are centred around these topics (which account for about 5% of papers in our sample) might suggest an opportunity for future research.

5.3. Study limitations

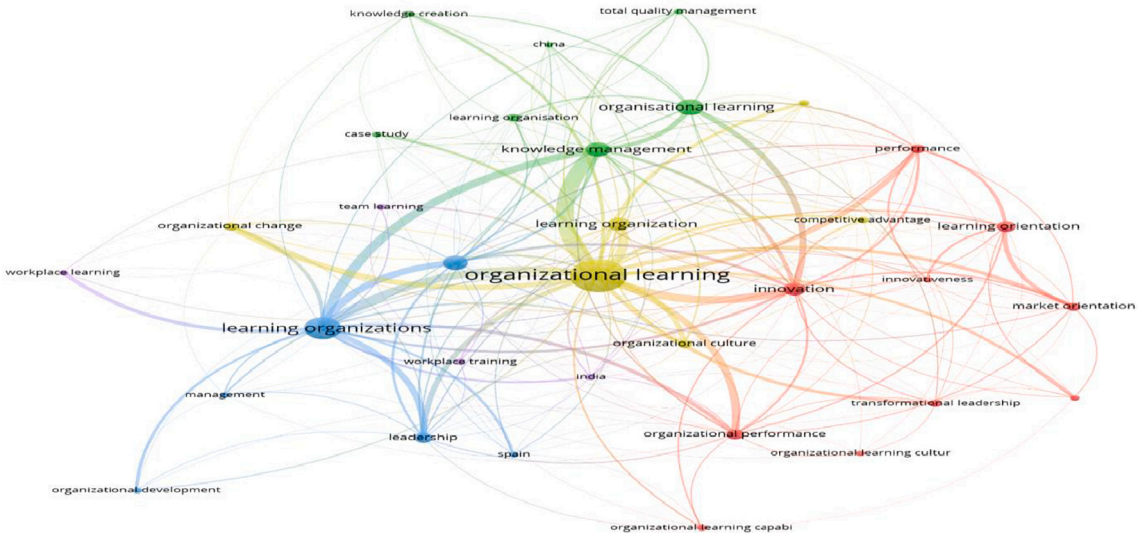
Finally, reflecting on the limitations and benefits of the SLNA methodology we utilised, it is clear that a technical analysis alone cannot suffice to explain the whole contribution of the studies to which it is applied. However, we note that it is in fact highly effective in identifying different streams of thinking spread across the extant literature. The SLNA is not a content analysis method, and hence often remains inadequate in providing an in-depth theoretical interpretation. This notwithstanding, due to the fact that we followed it with a content analysis-based theoretical synthesis, the various analyses of the SLNA greatly contributed to our identification of 'what has been hot and what has not in recent years' (Burst detection analysis), which writings have been particularly influential (Citations analysis), and which themes co-occur more frequently (keyword co-occurrence analysis). The sum of these contribute towards directing the attention of researchers pursuing a literature review in a manner that is somewhat more transparent than that of the traditional, highly subjective, and arguably quite random reading of literature generally associated with a content analysis of the literature.

Beyond this, the usual limitations that relate to any systematic literature study (the coverage of Scopus, appropriate keywords, inclusion/exclusion rules) should be observed; however, it is in particular the so-called 'Matthew effect' that may pose the most significant limitation for this type of study. The focus on citations, links, and clusters between studies accredits even more prominence to the work of well-known researchers and overlooks many of the novel outlier studies that are likely to exist in any field of study. Hence, the method is not at its best in uncovering novelty, yet it is well suited to synthesising a large field of literature and finding its most apparent research gaps—indeed, as we have done here. These concerns aside, we firmly believe that the analyses conducted in this review have generated significant results and helped us to illuminate a more objective representation of the flow of knowledge over time, as well as detecting the main trends (themes) leading towards the development of a framework that integrates learning orientation, OL capabilities, and learning organisation performance on the basis of the key contributing factors in the literature.

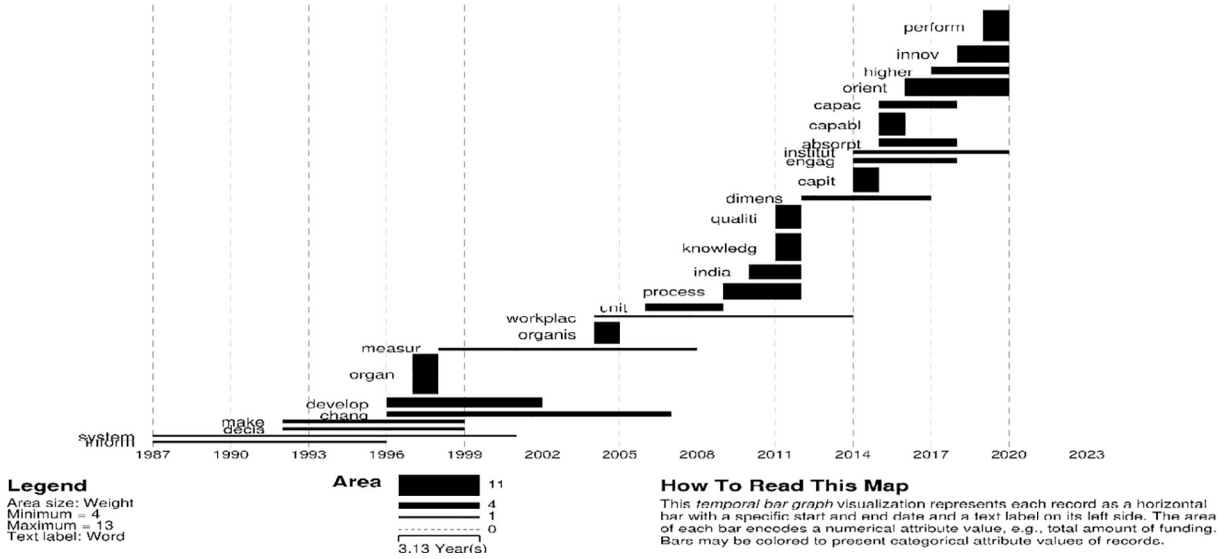
Appendix A. Citation network of papers



Appendix B. Clusters of Author's keywords using VOSviewer software



Appendix C. Kleinberg's Burst detection analysis output



Appendix D. Detected Burst words and their meanings

Period of Growth		Burst	Meaning	Relevant references	Relation to cluster analysis of authors' keywords	Relation to MP
2019	2020	Perform	Organisational performance	Sawaean and Ali (2020); Oh (2019)	Cluster 1	Themes 2 & 3
2019	2020	Innov	Innovation	Zhang and Zhu (2019)	Cluster 1	Themes 2 & 3
2017	2020	Higher	Higher education	Gil et al. (2019); Aminbeidokhti et al. (2016)	Cluster 3	Theme 2
2015	2020	Orient	Learning orientation	Allameh and Khalilakbar (2018); Sawaean and Ali (2020)	Cluster 1	Theme 3
2015	2016	Capabl		Jerez-Gómez et al., 2005); Altinay et al. (2016)	Cluster 1	Theme 2

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Period of Growth		Burst	Meaning	Relevant references	Relation to cluster analysis of authors' keywords	Relation to MP
			Organisational learning capabilities			
2015	2020	Absorpt	Absorptive capacity	Darwish et al. (2020); Liao et al. (2017)	Cluster 4	Theme 2
2014	2020	Institut	Institutional theory	Zhu et al. (2012); Phang et al. (2008)	–	Theme 1
2014	2018	Engag	Engagement	Park et al. (2014); Kwon and Kim (2020)		Theme 2 & 3
2014	2015	Capit	Human capital	Kungwansupaphan and Siengthai (2014); Hsu and Fang (2009)	–	Themes 2 & 3
2012	2017	Dimens	Dimensions of learning organisations questionnaire	Kortsch and Kauffeld (2019); Bui and Baruch (2010)	–	Theme 1
2011	2012	Qualiti	Total quality management	Hung et al. (2011); Lam et al. (2011); Pool (2000)	Cluster 3	Themes 2 & 3
2011	2012	Knowledge	Knowledge management	Nonaka (1994); Alavi and Leidner (2001); Wang and Noe (2010)	Cluster 3	Theme 2
2010	2012	India	India	Shekar and Suganthi (2015)	Cluster 5	Themes 2 & 3
2009	2012	Process	Organisational learning process	Ke & Wei (2006)	Cluster 4	Theme 2
2004	2014	Unit	United Kingdom	Lee and Cassell (2009)	–	Themes 2 & 3
2004	2014	Workplac	Workplace	Salas et al. (2012); Engeström and Kerosuo (2007)	Cluster 5	Themes 2 & 3
2004	2005	Organis	Organisational learning	Aragón-Correa et al. (2007)	Cluster 3	Theme 2
1998	2008	Measur	Measurement	Chiva et al. (2007); Alegre & Chiva (2008)	–	Themes 1 & 2
1997	1998	Organ	Organisational learning	Easterby-Smith (1997); Easterby-Smith et al. (1998)	Cluster 4	Themes 1, 2, & 3
1996	2002	Develop	Organisational development	Gil and Carrillo (2016)	Cluster 2	Themes 2 & 3
1996	2007	Chang	Organisational change	Watad (2019)	Cluster 4	Themes 2 & 3
1992	1999	Decis	Decision-making	Chiva et al. (2007); Camps, Oltra, Aldás-Manzano, Buenaventura-Vera, and Torres-Carballo (2016)	Cluster 1	Theme 2
1987	2001	System	Information system	Huysman, Fischer, and Heng (1994)	–	Themes 1 & 2
1987	1996	Inform	Information technology	Tippins and Sohi (2003); Kane and Alavi (2007)	–	Themes 1 & 2

Appendix E. Investigated areas identified through the integration of MP, GCS, Co-occurrence keywords, and Burst detection analyses

Investigated area	Relationship with Citation network analysis (MP)	Relationship with Citation Score analysis (GCS)	Relationship with authors' keywords analysis	Relationship with Burst detection
Fundamentals of OL	Theme 1: Conceptualisation (definitions, elements, process, and integration of diverse perspectives)	OL framework (Crossan et al., 1999; Lam, 2000; Sinkula et al., 1997)	Naturally linked to all clusters: 1, 2, 3, 4, and 5	Dimensions of the Learning Organisations Questionnaire *from 2012*
OL in relation to managerial and economic variables	Theme 2: OL capabilities in relation to managerial systems, innovation, and performance	The mediating role of OL in the relationship between IT competency and performance (Tippins & Sohi, 2003)	Clusters 1, 3, 4, and 5	Organisational Performance *from 2019* Innovation *from 2019* OL Capabilities *from 2015* Absorptive Capacity *from 2015* OL Process *from 2009*
Learning orientation in relation to managerial and economic variables	Theme 3: The relationship between learning orientation, innovativeness, and performance	Employee learning orientation, transformational leadership, and employee creativity (Gong et al., 2009) The effect of learning orientation (and market orientation) on innovation and organisational performance (Baker & Sinkula, 1999; Hurley & Hult, 1998)	Cluster 1	Organisational Performance *from 2019* Innovation *from 2019* Learning Orientation *from 2015*

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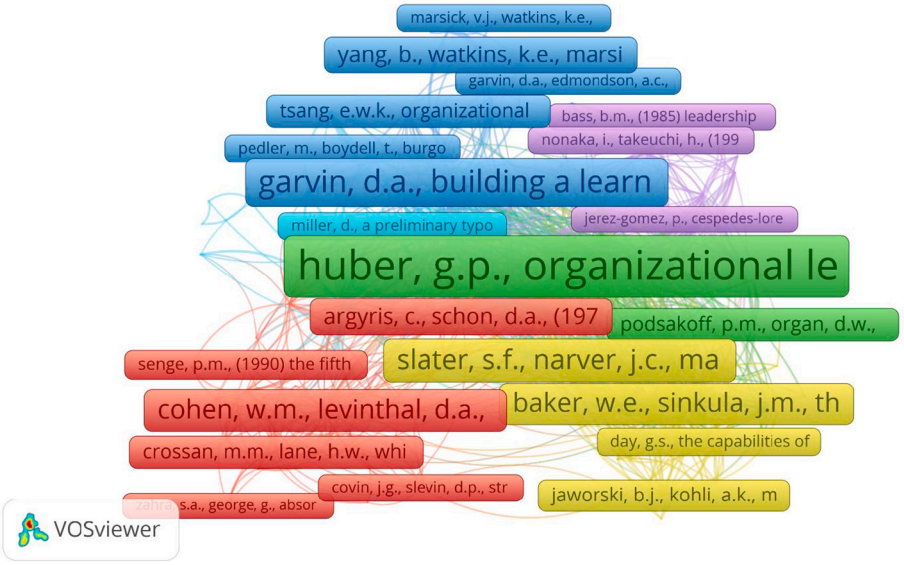
Investigated area	Relationship with Citation network analysis (MP)	Relationship with Citation Score analysis (GCS)	Relationship with authors' keywords analysis	Relationship with Burst detection
Learning organisation management (processes, technology, and people)	Theme 1: Conceptualisation (definitions, elements, process, and integration of diverse perspectives)	Building blocks of a learning organisation (Garvin, 1993)	Clusters 2, 3, 4, and 5	Higher Education *from 2017* Organisational Learning Process *from 2009* Engagement *from 2014* TQM *from 2011* Workplace *from 2004* Organisational Development *from 1996* Decision-making *from 1992* Information Technology *from 1987* Information System *from 1987*

Appendix F. Co-citation (top shared references) network



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