

BIBLIOMETRIC ANALYSIS OF EMOTIONAL INTELLIGENCE MODELS

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ABSTRACT

Emotional Intelligence (EI) has evolved through diverse theoretical and measurement traditions, resulting in multiple models that differ in conceptual scope and methodological rigor. This study offers a detailed bibliometric analysis of all major published EI models and their associated measurement instruments from 1995 to 2026, drawing data from Scopus and Web of Science. The investigation maps the intellectual structure, thematic evolution, and citation networks underlying the ability-based, mixed, trait, and behavioral approaches to EI. The analysis compares key models such as Mayer–Salovey–Caruso (MSCEIT), Bar-On (EQ-i), Goleman’s Emotional Competence framework (ECI/ESCI), Petrides’ Trait EI (TEIQue), and workplace measures such as WLEIS, SSEIT, TMMS, Dulewicz & Higgs EIQ, and Genos EI—are assessed in terms of clearly they define EI and how rigorously they measure it. Using visualization tools, including co-citation and keyword co-occurrence mapping, the study reveals how research has shifted from theoretical formulation to applied and organizational domains.

KEYWORDS: *bibliometrics, Emotional Intelligence, intelligence, leadership, models.*

DOI: 10.24818/IMC/2025/04.06

1. INTRODUCTION

Since its conceptual emergence in the early 1990s, Emotional Intelligence (Landy, 2005) has become one of the most widely discussed and impactful ideas in psychology and the behavioral sciences. Introduced by Salovey and Mayer (1990) as a set of cognitive abilities for perceiving and managing emotions, EI rapidly gained mainstream attention through Goleman’s (1995) influential work on its relevance in the workplace. Over the decades, a variety of EI models have developed—ranging from the ability-based approach (Mayer et al., 2002), to mixed or competency frameworks (Bar-On, 1997; Goleman, 1998), trait-based perspectives (Petrides & Furnham, 2001), and behavioral and workplace-oriented instruments e.g. Genos EI (Gignac, 2008). This conceptual diversity, while stimulating theoretical debate, has also produced considerable fragmentation and measurement inconsistency within the field.

The rapid expansion of EI research has led to an abundance of overlapping instruments, differing assumptions, and contested psychometric properties. Scholars have long debated whether EI represents a unique form of intelligence, a collection of social and emotional skills, or a personality-based trait. The way EI is measured reflects these differing views. Some tools like the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT), use performance-based tasks to assess emotional abilities (Mayer et al., 2002). Others, such as the EQ-i (Bar-On, 2000), TEIQue (Petrides & Furnham, 2001), WLEIS (Wong & Law, 2002), and SSEIT (Schutte et al., 1998), rely on self-report questionnaires.

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Still others, like the Emotional and Social Competence Inventory (ESCI), use 360-degree feedback to evaluate emotional competencies in workplace settings (Boyatzis et al., 2000). Each model and instrument has attracted both empirical support and methodological criticism regarding construct validity, discriminant overlap with personality, and cross-cultural generalizability.

Given this proliferation, a systematic and data-driven overview of the EI field is essential. Bibliometric analysis offers a powerful method to examine the intellectual structure, research trends, and influence networks that have shaped the evolution of EI models. By analyzing patterns in citation, co-authorship relationships, and keyword usage, bibliometric techniques can clarify which theoretical traditions dominate literature and how the field has evolved from conceptual development to applied research across domains such as education, management, and health psychology.

This study aims to provide a comprehensive bibliometric mapping of Emotional Intelligence models published between 1990 and 2025. Specifically, it (1) identifies the key theoretical frameworks and measurement instruments that define the field; (2) analyses their citation impact and thematic clusters; and (3) compares their methodological orientations—highlighting differences between ability-based, mixed, trait, and behavioral paradigms. The findings are expected to illuminate the conceptual fragmentation of EI and guide future research toward greater theoretical coherence and psychometric rigor.

2. RESEARCH OBJECTIVES AND QUESTIONS

Despite the extensive literature on Emotional Intelligence (EI), the field remains theoretically fragmented and methodologically diverse. To address this lack of cohesion, the present study takes a systematic approach to mapping and analyzing how EI models have developed, how they relate to one another, and how they are measured across different disciplines and over time. Using bibliometric methods, it aims to reveal the conceptual evolution of EI from its theoretical foundations to its contemporary applied frameworks.

The central aim of this study is to examine how different EI models—ability-based, mixed, trait, and behavioral—have emerged, interacted, and influenced subsequent research between 1995 and 2026. Specifically, the study seeks to:

- Identify the key EI models and associated instruments represented in academic literature.
- Analyze citation networks and keyword co-occurrence patterns to uncover intellectual clusters and thematic trends.

Accordingly, the study is guided by the following research questions:

1. What EI models and instruments have had the greatest influence in academic literature?
2. How have these models evolved conceptually and methodologically over time?

3. LITERATURE REVIEW OVERVIEW

The concept of Emotional Intelligence (EI) has undergone substantial theoretical development since its formal introduction by Salovey and Mayer (1990). Initially proposed as a subset of social intelligence involving the ability to perceive, understand, and manage emotions, EI was intended to explain individual differences in emotional reasoning and regulation. In the decades that followed, the field has expanded considerably giving rise to a range of models, each grounded in distinct assumptions regarding the nature of emotional functioning and intelligence. These can broadly be categorized into ability-based, mixed, trait, and behavioral/competency frameworks, each accompanied by specialized measurement instruments.

The ability-based model, developed by Mayer and Salovey (1997), conceptualizes EI as a set of mental abilities that facilitates the accurate processing and regulation of emotion-related information. Its primary assessment tool, the Mayer–Salovey–Caruso Emotional Intelligence Test (Mayer et al., 2002), employs performance-based tasks to objectively evaluate emotional perception, facilitation, understanding, and management. Supporters of this model argue that this approach distinguishes EI

from personality or social skills, reinforcing its status as a distinct form of intelligence. However, critics (Maul, 2012; Roberts et al., 2006) question the validity of consensus scoring and the relatively modest correlations between MSCEIT scores and real-world outcomes. Despite such debates, the ability model remains the most theoretically rigorous framework for understanding EI as a cognitive capacity.

In contrast to the ability-based view, mixed models conceptualize EI as a combination of cognitive, emotional, and social competencies. Bar-On's (1997) Emotional–Social Intelligence (ESI) model, which is measured using the EQ-i, assesses intrapersonal and interpersonal skills, adaptability, stress management, and general mood. Similarly, Goleman's (1995, 1998) Emotional Competence model emphasizes workplace effectiveness through clusters such as self-awareness, motivation, empathy, and social skills, assessed through multi-rater tools like the Emotional Competence Inventory (ECI) and its successor, the Emotional and Social Competence Inventory (ESCI) (Boyatzis et al., 2000). These models gained immense popularity in organizational and applied settings due to their practical appeal and accessibility. Yet, they have faced sustained criticism for conceptual broadness and construct overlaps with established personality and competence models (Conte, 2005; Joseph & Newman, 2010; Locke, 2005). The blurred distinction between emotional abilities and personality traits has raised questions about the scientific coherence of mixed approaches.

Emerging partly as a response to these criticisms, Trait Emotional Intelligence (Trait EI), advanced by Petrides and Furnham (2001), reconceptualizes EI as a set of self-perceived emotional abilities located within the personality domain. The Trait Emotional Intelligence Questionnaire (TEIQue) measures facets such as emotionality, sociability, self-control, and well-being, offering strong internal consistency and cross-cultural validity. This model has demonstrated predictive value for psychological adjustment, stress regulation, and subjective well-being. Nonetheless, meta-analyses (van der Linden et al., 2017) reveal high correlations between trait EI and the general factor of personality, prompting continued debate over whether trait EI represents a distinct construct or a reorganization of existing personality dimensions.

A further development in the field is the creation of short-form and applied instruments such as the Wong–Law Emotional Intelligence Scale (WLEIS) (Wong & Law, 2002) and the Schutte Self-Report Emotional Intelligence Test (SSEIT) (Gignac, 2005; Schutte et al., 1998). These measures, derived from the ability and mixed traditions, offer brevity and practical utility in large-scale surveys. Although widely used, they have been critiqued for unstable factor structures and reliance on self-perceptions rather than objective performance (Gignac, 2005). Similarly, instruments like the Trait Meta-Mood Scale (TMMS) (Fernández-Berrocal et al., 2004) focus on meta-emotional traits—attention to, clarity of, and repair of emotions—representing an important but narrow slice of emotional functioning.

In organizational contexts, behavioral and competency-based measures of EI have gained prominence. Tools like the Genos Emotional Intelligence Inventory (Gignac, 2008) and Dulewicz and Higgs (2000) Emotional Intelligence Questionnaire (EIQ) assess observable emotional behaviors and leadership competencies rather than underlying abilities. These tools have proven useful for development and feedback, yet their proprietary nature and limited academic validation restrict their use in empirical research.

Taken together, the literature reveals a complex but fragmented EI landscape. The diversity of definitions and measurement methods has created challenges for theoretical integration and cumulative validation. Whereas ability-based models focus on the cognitive processing of emotional information, mixed and trait approaches prioritize self-perceived emotional competence, and behavioral frameworks emphasize applied performance and outcomes. Despite ongoing debates, all models contribute uniquely to understanding how individuals recognize and manage emotions in themselves and others.

Given the conceptual complexity of the EI field, a bibliometric approach provides an ideal methodology for systematically mapping this complex intellectual structure. By examining publication patterns, citation networks, and thematic clusters, bibliometric analysis can identify the dominant theoretical paradigms, trace their evolutionary trajectories, and highlight areas of conceptual convergence and divergence. This evidence-based mapping not only clarifies the historical development of Emotional Intelligence models but also informs future theoretical refinement and measurement innovation in the field.

4. METHODOLOGY

This study adopts a bibliometric research design to systematically analyze the development, structure, and interconnections among Emotional Intelligence (EI) models published between 1990 and 2025. Bibliometric analysis offers a quantitative approach to mapping scientific knowledge by examining citation patterns, co-authorship networks, and keyword co-occurrences. Unlike traditional narrative reviews, which can be subjective and limited in scope, bibliometric techniques provide an objective and reproducible means of examining the intellectual architecture and thematic evolution of a research field.

To support the bibliometric analysis, a comparative analysis was performed for this study. Among the available options, VOSviewer version 1.6.20 (CWTS, 2025; van Eck & Waltman, 2010) and Biblioshiny R version 4.4.3 were selected due to easy to use and graphical interpretation of data functionality. Other tools such as SciMAT and CiteSpace were considered and not selected due to their operating complexity not suitable for the purpose of this research. According to Aria and Cuccurullo (2017, 2025), "Bibliometrix provides various routines for importing bibliographic data from SCOPUS, Clarivate Analytics' Web of Science, Dimensions, The Lens, PubMed and Cochrane databases, performing bibliometric analysis and building data matrices for co-citation, coupling, scientific collaboration analysis and co-word analysis." This functionality made Biblioshiny particularly well-suited to the study's objectives. Similarly, several databases were considered, Scopus database was selected for its curated content, despite the criticism of its biases for well-known publications and authors.

The research was conducted collaboratively by a team of authors, allowing for internal peer verification of results. To further enhance data validity, the authors employed multiple self-validation procedures, including manual cross-checking, version control, re-running analyses, and comparison with outputs from alternative bibliometric tools. These measures ensured the accuracy, consistency, and reliability of the findings.

4.1 Research data collection

Data collection is an important step in any bibliometric research. To ensure accuracy, transparency and relevance, this research employed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) methodology. Widely recognized in systematic and meta-analytic research, the PRISMA method (Page et al., 2021) provides a structured and rigorous approach to literature review. The process follows four key phases: identification, screening, eligibility, and inclusion. The PRISMA framework employs a flow diagram to illustrate the study selection process, thereby improving transparency and methodological clarity.

During data collection process Scopus database was queried using the following query using the Advanced Search function: ("emotional intelligence" AND (model OR framework OR "theoretical basis" OR "conceptual model")) AND PUBYEAR & gt; 1995 AND PUBYEAR & lt; 2026 AND (LIMIT-TO (PUBSTAGE,"final")) AND (LIMIT-TO (SUBJAREA,"SOCI") OR LIMIT-TO (SUBJAREA,"PSYC") OR LIMIT-TO (SUBJAREA,"BUSI") OR LIMIT-TO (SUBJAREA,"ECON") OR LIMIT-TO (SUBJAREA,"DECI") OR LIMIT-TO

(SUBJAREA,"MULT")) AND (LIMIT-TO (DOCTYPE,"ar") OR LIMIT-TO (DOCTYPE,"ch") OR LIMIT-TO (DOCTYPE,"bk") OR LIMIT-TO (DOCTYPE,"cp")) AND (LIMIT-TO (LANGUAGE,"English")) AND (LIMIT-TO (EXACTKEYWORD,"Emotional Intelligence")). Study data collection methodology (PRISMA 2020) flow is illustrated in the below figure:

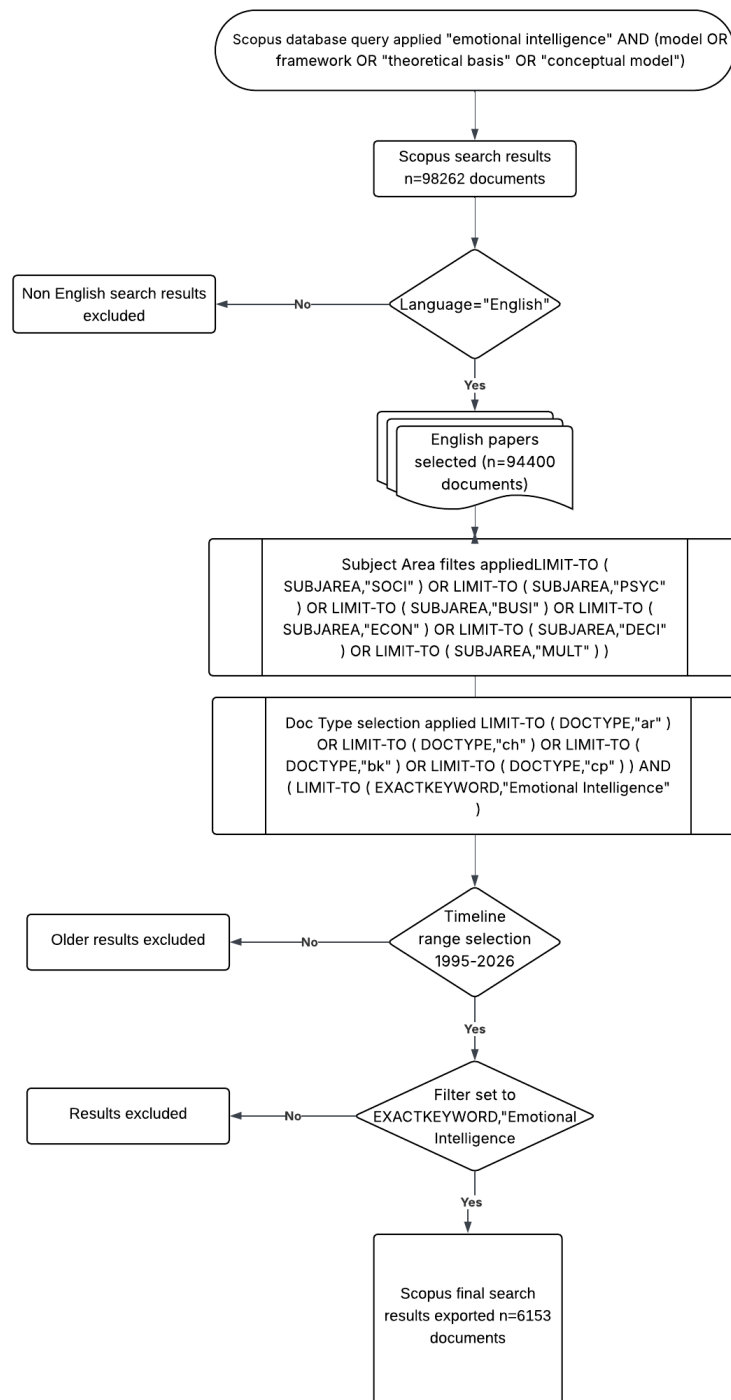


Figure 1. Study data collection methodology (flow chart)
 Source: Authors' flow generated with Lucidchart

4.2 Research data validation

To preserve all data attributes for an enhances quality all available datasets have been selected and exported in “CSV” format file named “Scopus21102025.csv”. The file was checked manually in Excel for duplicate entries, following the steps: Home > Conditional Formatting > Highlight Cells Rules > Duplicate Values. The file was also checked using an R script for duplicate values, detailed procedure is outlined in the paper appendix. The results are illustrated in below figure (Figure 2). No further actions were required as no duplicates were identified.

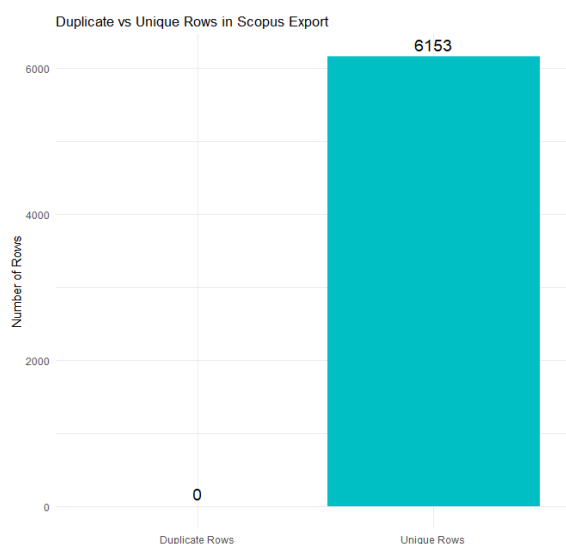


Figure 2. Bibliometric data validation: duplicate status

Source: Author graphs generated with R scripts

Second step in data validation was to check entries with missing DOI (Digital Object Identifier) in the exported file. The procedure and results are presented within the Appendix of this paper. After running the R-script 386 entries were identified, illustrated in the below figure (Figure 3).

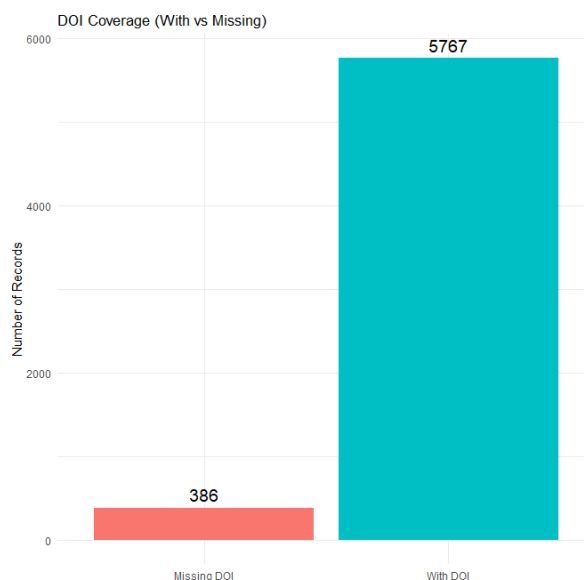


Figure 3. Bibliometric data validation: missing DOI status

Source: Author graphs generated with R scripts

As the entries with missing DOIs were evenly distributed, the decision of removing them without introducing biases was taken. Below Figure 4 was generated using R script listed in Appendix of the paper.

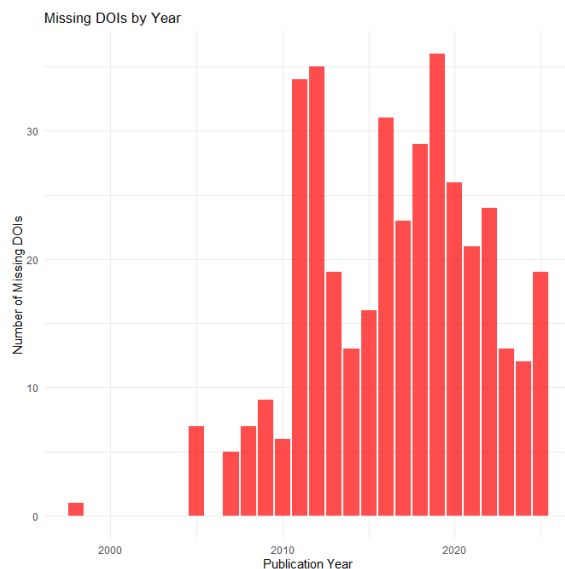


Figure 4. Bibliometric data validation: missing DOI yearly distribution
Source: Author graphs generated with R scripts

By using an R-script included in the paper Appendix, all entries having missing DOIs were removed, generating a new file named “Scopus21102025_clean.csv”. This file was retested for missing DOI entries (results illustrated in Figure 3) and no further intervention was required, no entries with missing DOIs were successfully removed. The final number of unique records identified within the file was n=5767.

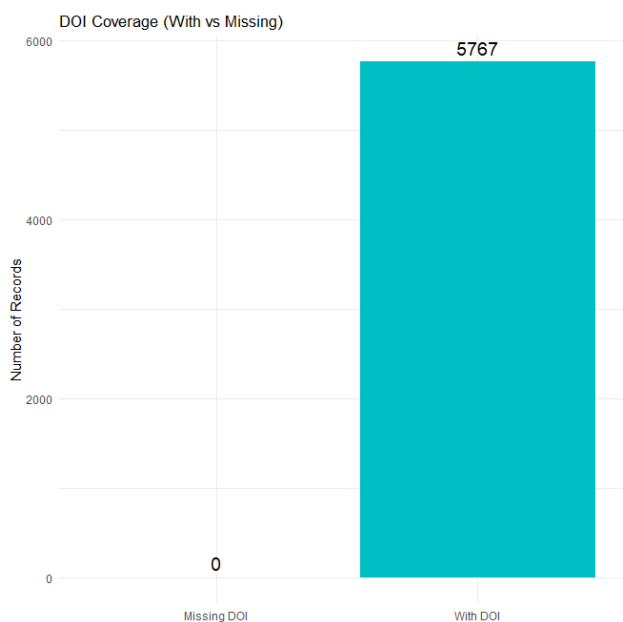


Figure 5. Bibliometric data validation: missing DOI status after DOIs missing entries were removed
Source: Author graphs generated with R scripts

4.3 Bibliometric study results

After completing the data validation and sanitization steps, the bibliometric analysis was conducted using VOSviewer version 1.6.20 (CWTS, 2025; van Eck & Waltman, 2010) for importing the validated file (“Scopus21102025_clean.csv”) to generate bibliometric research.

Table 1. Research Design and Corresponding VOSviewer Reports

Research goal	Research Question	Reports used in the analysis
Identify the most influential Emotional Intelligence (EI) models and instruments	RQ1: <i>What EI models and instruments have had the greatest influence in academic literature?</i>	<ul style="list-style-type: none"> • Co-citation network of authors and references (<i>VOSviewer visualization</i>) • Conceptual structure based on keyword co-occurrence (<i>cluster map</i>)
Explore conceptual and methodological evolution	RQ2: <i>How have these models evolved conceptually and methodologically over time?</i>	<ul style="list-style-type: none"> • Thematic evolution map showing topic progression over time

Source: Author’s own research

To address the first goal of this research, to identify the most influential Emotional Intelligence (EI) models and instruments, the following reports generated with VOSviewer version 1.6.20 (CWTS, 2025; van Eck & Waltman, 2010): Co-citation network of authors and references (VOSviewer visualization) and conceptual structure based on keyword co-occurrence (cluster map).

Below Figure 5 illustrates the co-citation network of the most frequently cited works in Emotional Intelligence (EI) research, generated using VOSviewer version 1.6.20 (CWTS, 2025; van Eck & Waltman, 2010). Each node represents a cited publication, while node size is indicating citation frequency. The connecting lines representing the correlation, the degree of co-citation, how often two documents are cited together within the same source.

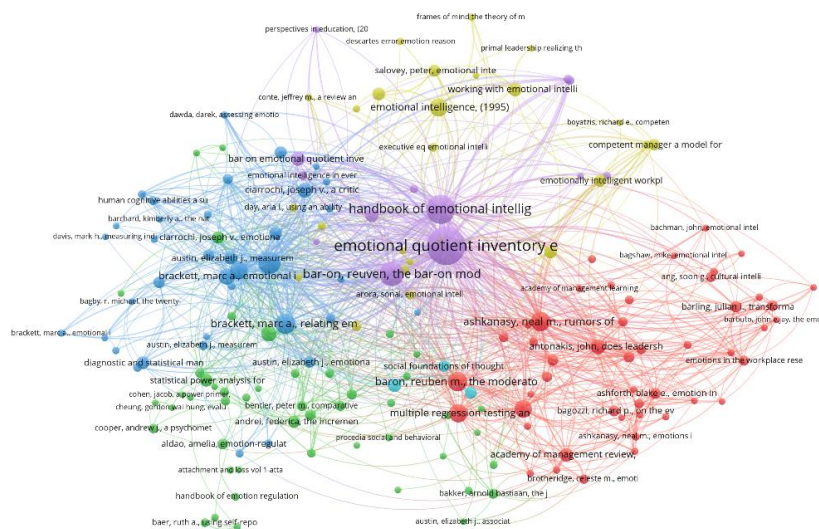


Figure 6. Co-citation Network on cited references (VOSviewer Map)

Source: VOSviewer version 1.6.20

Figure 7 displays the keyword co-occurrence network generated using VOSviewer, which maps the conceptual relationships among the most frequently occurring terms within Emotional Intelligence (EI) research. Visualization serves to identify the dominant EI models and measurement instruments that have shaped academic dialogue. The most focal terms “emotional intelligence”, “personality”, “psychology” and “human” indicates the evolution of the theoretical integration of EI within broader psychological and behavioral frameworks between 2016 to 2025. Clusters surrounding these core nodes highlight the coexistence of the major EI models—the ability-based model (Mayer–Salovey–Caruso), the trait model (Petrides), and the mixed or emotional–social model (Bar-On). Keywords such as “emotion regulation,” “empathy,” “self-efficacy,” and “resilience” are conceptually linked to validated instruments including the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), the Trait Emotional Intelligence Questionnaire (TEIQue), and the Emotional Quotient Inventory (EQ-i), respectively.

Overall, this network confirms that the most influential EI models over time—starting with Mayer and Salovey, Petrides, and Bar-On—have not only defined the conceptual boundaries of Emotional Intelligence have influenced the evolution of the contemporary research.

For research completion to address the second goal of the research and explore conceptual and methodological evolution, the following reports generated with VOSviewer version 1.6.20 (CWTS, 2025; van Eck & Waltman, 2010): Thematic evolution map showing topic progression over time. To achieve better visualization, the minimum number of occurrences of the keyword was set to 20.

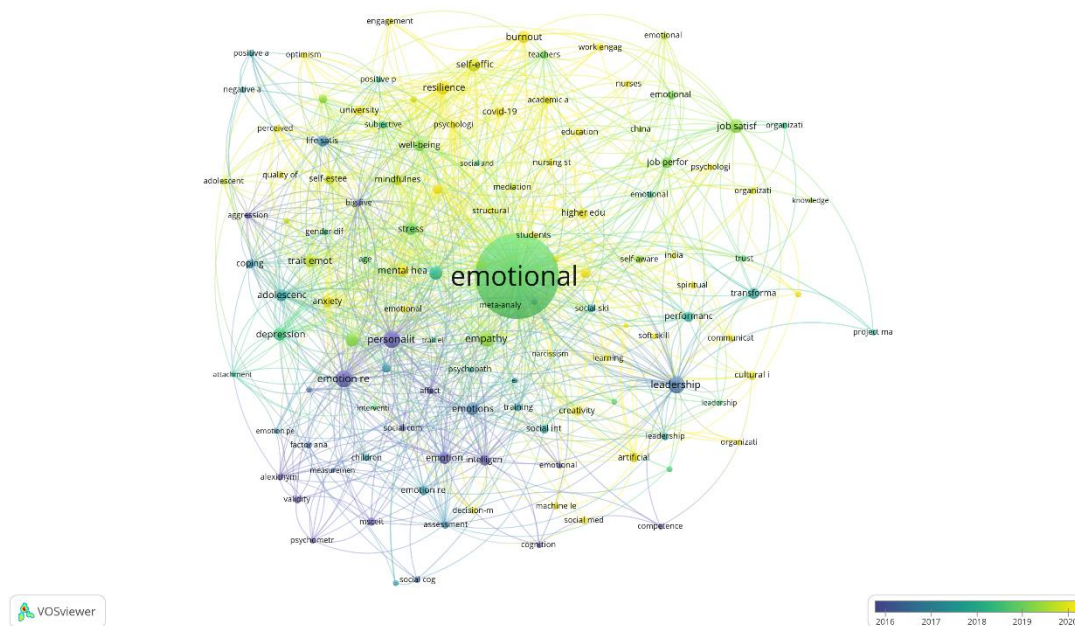


Figure 8. Thematic evolution map showing topic progression over time (VOSviewer Overlay Visualization)

Source: VOSviewer version 1.6.20

Figure 8 presents the overlay visualization generated in *VOSviewer*, illustrating the conceptual and methodological evolution of Emotional Intelligence (EI) research focusing on the timeframe between 2016 and 2020. Each node represents a frequently occurring keyword, with node size corresponding to the number of publications in which the term appears, and the color gradient, from blue (earlier studies) to yellow (more recent work), indicating the average publication year. This visualization enables the temporal mapping of research themes, revealing how the field has evolved from foundational psychometric studies toward more applied and interdisciplinary domains.

In the earlier phase of the period analyzed (depicted in blue and green hues), the network is dominated by keywords such as “emotion regulation,” “psychometrics,” “trait emotional intelligence,” and “personality.” These terms reflect the field’s methodological roots in psychological measurement, emphasizing instrument validation and model comparison among the ability, trait, and mixed EI frameworks. During this phase, researchers primarily focused on establishing hypothesis validity, reliability testing, and the differentiation of EI from related personality and cognitive concepts.

Progressing toward the green and yellow zones, the map reveals a conceptual shift. Newer studies increasingly cluster around terms such as “resilience,” “self-efficacy,” “leadership,” “job satisfaction,” “well-being,” “burnout,” and “education.” This trend indicates methodological broadening and theoretical application of EI models within organizational, educational, and health psychology contexts. The emergence of nodes such as “COVID-19,” “nursing students,” and “teacher resilience” suggests that the EI construct has been extended to address adaptive functioning, stress regulation, and professional wellbeing in contemporary social challenges.

In conclusion, the overlay visualization highlights a temporal evolution from theory construction to more contemporary challenges. Early research emphasized the psychometric refinement of EI models and measurement tools (e.g., MSCEIT, TEIQue, EQ-i), while later research integrates EI as a predictive variable influencing workplace performance, leadership effectiveness, and emotional wellbeing. This transition illustrates a methodological diversification—from correlational and validation studies to experimental and intervention-based designs highlighting the transition of Emotional Intelligence into a multidisciplinary concept bridging psychology, management, and education.

To expand the research, the bibliometric analysis was also conducted using Biblioshiny R version 4.4.3 importing the validated file (“Scopus21102025_clean.csv”) to enhance the study. After importing the file, 5767 records were identified by the tool, validating the results given by the analysis performed by R scripts. In the below table are listed all reports generated and used to meet the research goals during this phase of the study

Table 2. Research Design and Corresponding Biblioshiny Reports

Research goal	Research Question	Reports used in the analysis
Identify the most influential Emotional Intelligence (EI) models and instruments	RQ1: <i>What EI models and instruments have had the greatest influence in academic literature?</i>	<ul style="list-style-type: none"> Co-citation network Most Global Cited Documents
Explore conceptual and methodological evolution	RQ2: <i>How have these models evolved conceptually and methodologically over time?</i>	<ul style="list-style-type: none"> Trend topics Thematic evolution map,

Source: Author’s own research

Table 3. Co-citation Network underlying data export

Node	Cluster	Betweenness	Closeness	PageRank
emotional quotient inventory eq i a test of emotional intelligence (1997). 1997	1	420.356	0.016	0.098
handbook of emotional intelligence (2000). 2000	1	146.109	0.017	0.064
bar-on reuven the bar-on model of emotional-social intelligence (esi).	1	36.943	0.015	0.043
ciarrochi joseph v. 2000	1	10.249	0.013	0.017

Node	Cluster	Betweenness	Closeness	PageRank
bar on emotional quotient inventory youth version eq i yv (2025). 2025	1	1.27	0.011	0.021
measuring emotional intelligence common ground and controversy (2004). 2004	1	3.081	0.012	0.02
carmeli abraham the relationship between emotional intelligence and work attitudes behavior and outcomes: an examination among senior managers journal of managerial psychology 18 7-8 pp. 2003	1	4.851	0.012	0.011
davies m. 1998	1	1.186	0.011	0.013
emotionally intelligent workplace (2001). 2001	1	2.349	0.011	0.013
competent manager a model for effective performance (1982). 1982	1	0.22	0,01	0.011

Source: Biblioshiny R version 4.4.3

The above Table 3 presents the centrality measures for the most influential documents in the Emotional Intelligence (EI) research network. The indicators—Betweenness, Closeness, and PageRank—capture different dimensions of a document’s influence within the bibliometric structure.

- Betweenness centrality quantifies the extent to which a document acts as a bridge connecting different clusters of research.
- Closeness centrality measures how quickly a document can reach other documents in the network, indicating conceptual accessibility.
- PageRank reflects overall influence or “prestige,” accounting for both the number and quality of citations.

The analysis shows that “Emotional Quotient Inventory (EQ-i): A Test of Emotional Intelligence” (Bar-On, 1997) holds the highest Betweenness (420.356) and PageRank (0.098), establishing it as the most central and integrative work in the EI literature. This indicates that Bar-On’s EQ-i model functions as a core conceptual bridge linking diverse strands of EI research—spanning psychometric assessment, applied organizational studies, and educational psychology.

The “Handbook of Emotional Intelligence” (Bar-On, 2000) also exhibits high Betweenness (146.109) and Closeness (0.017), underscoring its role in consolidating early theoretical and methodological frameworks within the field. Similarly, Bar-On’s (1997) Emotional-Social Intelligence (ESI) and the work of Ciarrochi et al. (2000) occupy intermediary positions in the network, reflecting their contributions to psychometric validation and conceptual differentiation between ability- and trait-based EI.

In contrast, works such as “Measuring Emotional Intelligence: Common Ground and Controversy” (Matthews et al., 2004) and “The Emotionally Intelligent Workplace” (Cherniss & Goleman, 2001) show moderate centrality, indicating their influence in shaping methodological debates and organizational applications. Meanwhile, “The Competent Manager” (Boyatzis, 1982), though conceptually foundational, registers lower network centrality due to its historical role as a precursor rather than a direct EI measurement tool.

Collectively, these results confirm that Bar-On’s mixed model and associated instruments (EQ-i, ESI) serve as structural anchors within the EI knowledge network, linking conceptual, methodological, and applied research streams. The high centrality of these works demonstrates that the measurement and operationalization of Emotional Intelligence have remained the defining methodological focus of the field.

Table 4. Most Global Cited Documents Report underlying data

Paper	Total Citations	TC per Year	Normalized TC
DURLAK, 2011, CHILD DEV.	5280	352.00	55.21
WOOLLEY, 2010, SCIENCE	1860	116.25	20.23
RYFF, 2013, PSYCHOTHER. PSYCHOSOM.	1737	133.62	34.26
WEBB, 2012, PSYCHOL. BULL.	1507	107.64	24.51
MAYER, 2008, ANNU. REV. PSYCHOL.	1386	77.00	13.33
JOSEPH, 2010, J. APPL. PSYCHOL.	1207	75.44	13.13
GEORGE, 2000, HUM. RELATIONS	1167	44.88	2,17
HAJCAK, 2010, DEV. NEUROPSYCHOL.	1092	68.25	11.88
MAYER, 2008, AM. PSYCHOL.	982	54.56	9,45
HÜLSHEGER, 2011, J. OCCUP. HEALTH PSYCHOL.	901	60.07	9.42

Source: Biblioshiny R version 4.4.3

Table 4 lists the most highly cited papers in the Emotional Intelligence (EI), providing insight into the works that have had the greatest scholarly influence. The indicators include Total Citations (TC), reflecting cumulative academic impact; Citations per Year (TC/year), which adjusts for publication age; and Normalized TC, which standardizes citation counts across disciplines and years for comparability.

The paper by Durlak et al. (2011) stands out with 5280 citations, 352 citations per year, and a Normalized TC of 55.21, indicating exceptional and sustained impact. Although not limited to EI alone, this work on social and emotional learning (SEL) represents a key bridge between emotional intelligence theory and educational psychology, illustrating EI’s conceptual diffusion into school-based interventions. Similarly, Woolley et al. (2010) and Ryff (2013) contribute to the field’s interdisciplinary expansion, emphasizing collective intelligence, wellbeing, and psychological health — constructs theoretically aligned with EI.

Within the EI-specific literature, Mayer et al. (2003) and Joseph and Newman (2010) are among the most central theoretical contributions, with Normalized TC values of 13.33 and 13.13, respectively. These studies mark a methodological refinement period focused on defining the ability-based model of EI and empirically testing its predictive validity in workplace and organizational contexts. Similarly, George (2000) and Hülshager and Schewe (2011) link EI research with leadership, performance, and occupational wellbeing, representing the applied phase of conceptual evolution.

Overall, the citation data reveals a two-phase progression in EI literature. Early foundational established theoretical and measurement frameworks (George, 2000; Mayer et al., 2003), while later highly cited papers (Durlak et al., 2011; Hülshager & Schewe, 2011; Ryff, 2013) extend EI into applied, health, and organizational domains. The consistent citation performance of these studies highlights Emotional Intelligence as a conceptually robust and empirically versatile, bridging psychological theory, wellbeing research, and social-behavioral applications.

The below Figure 9 presents the thematic map produced using Biblioshiny R version 4.4.3, which visualizes the conceptual and methodological evolution of Emotional Intelligence (EI) research. The map is organized along two axes: centrality, representing the degree of a theme’s relevance and integration within the field, and density, representing its internal development and methodological maturity. Together, these dimensions illustrate how EI-related themes have evolved from foundational constructs toward more specialized or emerging research areas. In the upper-right quadrant (Motor Themes), terms such as psychology, human, female, male, and questionnaire

indicate the methodological backbone of EI studies. These themes correspond to the early experimental and psychometric approaches that established EI as a measurable construct. Their strong centrality and density reflect the consolidation of standardized testing procedures (MSCEIT, EQ-i, TEIQue) and the use of demographic and psychological variables to validate EI models. The lower-right quadrant (Basic Themes), where emotional intelligence, students, and leadership appear, represents the core conceptual frameworks that have remained central throughout the field’s evolution. These themes highlight the enduring theoretical focus on EI as both a personal and social competency and its growing application in education, organizational behaviour, and leadership development. Their stable position suggests that these topics act as the conceptual bridge between early psychometric validation and later applied research.

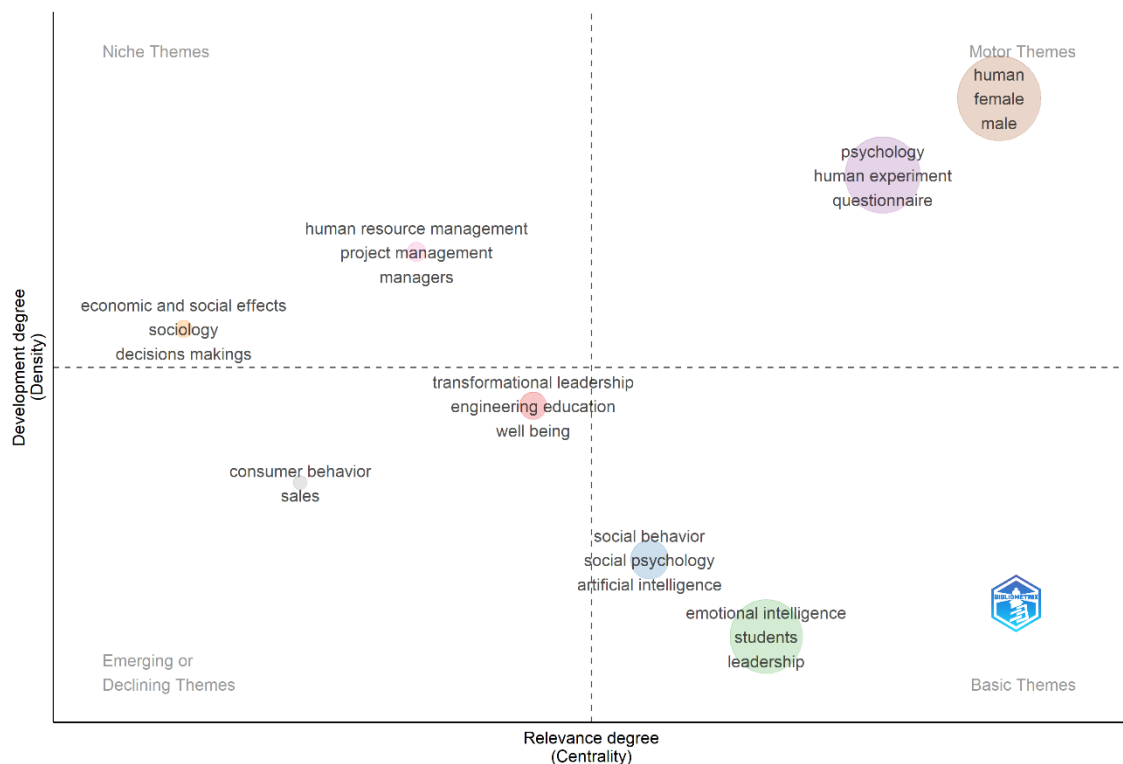


Figure 9. Thematic Map (Bibliometrics)

Source: Biblioshiny R version 4.4.3

The upper-left quadrant (Niche Themes)—including human resource management, project management, and sociology—marks the field’s diversification phase, where EI theory is being extended into specific organizational and social contexts. These clusters show methodological adaptation as researchers integrate EI constructs with management models, team dynamics, and decision-making frameworks.

Finally, the lower-left quadrant (Emerging or Declining Themes) features consumer behaviour and sales, which, while peripheral, may signal new methodological directions applying EI measurement and theory in business, marketing, and behavioural economics. Their lower density suggests that these applications are still developing, but their appearance reflects the field’s expanding interdisciplinary scope.

Overall, the thematic map reveals that Emotional Intelligence research has evolved methodologically from psychometric and experimental validation toward applied and interdisciplinary exploration. Conceptually, the field has progressed from defining and measuring EI to operationalizing it as a

predictor of performance, leadership, and wellbeing across diverse professional and educational settings.

Below Figure 10 and Table 5, generated with Biblioshiny R version 4.4.3, represent the temporal progression of key terms in Emotional Intelligence (EI) research, reflecting how conceptual and methodological priorities have shifted across last decades. The frequency and time distribution (Year Q1–Q3) illustrate the emergence, consolidation, and diversification of research themes associated with EI models.

In the early stage (2003–2010), topics such as discriminant analysis (Frequency = 5; Q1 = 2003; Q3 = 2023) and hypothesis testing (Frequency = 5; Median = 2009) were prevalent. These reflect the psychometric and methodological focus of the field’s formative period, emphasizing statistical validation of EI constructs and discriminant testing against related traits such as personality and cognitive ability. The emphasis on competences (Frequency = 24; Median = 2010) and team working (Frequency = 7; Median = 2010) demonstrates the early integration of EI into organizational and performance contexts, aligning with the development of applied measurement frameworks like the EQ-i (Bar-On, 1997) and MSCEIT (Mayer–Salovey–Caruso).

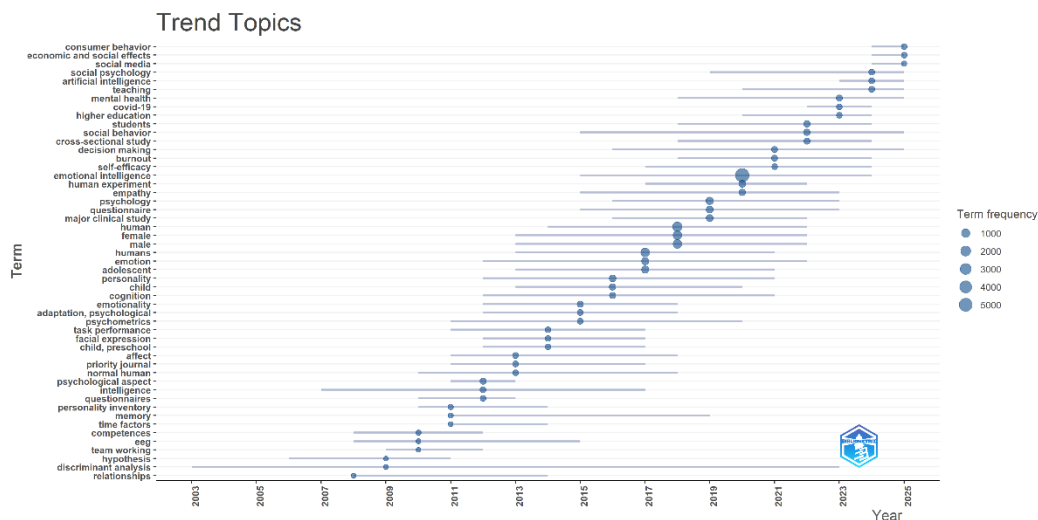


Figure 10. Trend Topics (Bibliometrics)
 Source: Biblioshiny R version 4.4.3

Table 5. Trend Topics underlying data export

Term	Frequency	Year (Q1)	Year (Median)	Year (Q3)
relationships	6	2008	2008	2014
discriminant analysis	5	2003	2009	2023
hypothesis	5	2006	2009	2011
competences	24	2008	2010	2012
eeg	8	2008	2010	2015
team working	7	2009	2010	2012
personality inventory	48	2010	2011	2014
memory	21	2011	2011	2019
time factors	16	2011	2011	2014
psychological aspect	160	2011	2012	2013

Source: Biblioshiny R version 4.4.3

Moving into the 2010–2015 period, terms such as personality inventory (Frequency = 48; Q1 = 2010; Median = 2011) and psychological aspect (Frequency = 160; Median = 2012) dominate, underscoring

a conceptual deepening of EI research within differential and personality psychology. During this phase, EI models were increasingly analysed in relation to stable personality traits, leading to the refinement of the Trait Emotional Intelligence Questionnaire (TEIQue) (Petrides & Furnham, 2001) and other self-report tools. The occurrence of EEG (Frequency = 8; Median = 2010) indicates an expansion into neurophysiological methodologies, revealing an interdisciplinary effort to link emotional processing and cognitive neuroscience to EI measurement.

By the post-2015 period, the thematic emphasis shifts toward relationships (Frequency = 6; Q3 = 2014) and memory (Frequency = 21; Q3 = 2019), illustrating the field’s transition from structural validation toward applied and cognitive dimensions of EI. This transition aligns with the thematic evolution observed in the overlay visualizations, where terms such as resilience, burnout, and leadership emerge as extensions of foundational EI constructs.

Overall, the term frequency and temporal distribution confirm that EI research has evolved from methodological validation to applied exploration. Early studies focused on distinguishing EI from personality and intelligence through psychometric rigor, whereas later research integrated EI into broader psychological, organizational, and neuroscientific contexts. This progression exemplifies the conceptual and methodological maturation of EI as a multidisciplinary construct capable of bridging theory, measurement, and practical application.

5. RESULTS

The bibliometric mapping conducted through VOSviewer and Biblioshiny for R (v.4.4.3) provides a robust overview of the intellectual and methodological structure of Emotional Intelligence (EI) research between 1995 and 2025. The validated Scopus dataset (n = 5676 records) reveals a mature and diversifying field that has transitioned from theoretical exploration toward interdisciplinary application.

Findings of the current study detailed in the above chapter are summarized below:

RQ1: What EI models and instruments have had the greatest influence in academic literature?

The co-citation network and conceptual structure analyses revealed three dominant and interconnected traditions within the EI literature: the ability-based model (Mayer–Salovey–Caruso), the mixed or emotional–social model (Bar-On, 2000; Goleman, 1998), and the trait model (Petrides & Furnham, 2001). Within this structure, Bar-On’s (1997) Emotional Quotient Inventory (EQ-i) emerged as the most influential work, displaying the highest betweenness centrality (420.356) and PageRank (0.098). This position underscores the integrative role of Bar-On’s mixed model in connecting psychometric, organizational, and applied subfields. Complementary high-impact sources include *The Handbook of Emotional Intelligence* (Bar-On, 2000) and *The Bar-On Model of Emotional-Social Intelligence*, both of which serve as methodological anchors for subsequent measurement research.

In contrast, Mayer and Salovey’s ability model remains the primary theoretical reference for defining EI as a set of cognitive–emotional abilities, while Petrides’ trait model—measured through the TEIQue (van der Linden et al., 2017)—represents the most psychometrically validated self-report framework. Keyword co-occurrence mapping confirmed the convergence of these models around a shared conceptual nucleus comprising “emotional intelligence,” “personality,” “empathy,” “emotion regulation,” “self-efficacy,” and “resilience.” These terms delineate the conceptual territory of EI and indicate its diffusion into applied domains such as leadership, education, and health.

Citation impact metrics further corroborate these trends. The Child Development paper by Durlak et al. (2011) (TC = 5,280; Normalized TC = 55.21) anchors the educational and social–emotional learning stream, while Mayer et al. (2003) and Joseph & Newman (2010) represent the field’s theoretical and methodological consolidation. Collectively, these highly cited works demonstrate the continuing influence of EI for applied behavioral research.

RQ2: How have these models evolved conceptually and methodologically over time?

Temporal and thematic analyses demonstrate a clear trajectory of evolution from psychometric validation to applied interdisciplinarity. Early-stage research (2000–2010), focused on construct validity and the demarcation of EI from personality and cognitive ability. This phase corresponds to the refinement of key instruments such as MSCEIT, EQ-i, and TEIQue.

Between 2010 and 2015, the literature diversified to include competences, teamwork, and personality inventory, signaling the assimilation of EI into organizational psychology and management. Neurocognitive terms such as EEG and memory indicate the field’s methodological broadening into neuroscience.

The most recent period (2016–2025) marks a conceptual shift toward resilience, burnout, self-efficacy, and leadership. The overlay visualization confirms this transition, with color gradients progressing from blue to yellow, denoting the rise of contextually driven and intervention-based EI research. Similarly, the thematic map positions psychology and questionnaire as motor themes (high density and centrality), while emotional intelligence, students, and leadership persist as basic and enduring themes that maintain theoretical continuity across decades.

Overall, the evidence indicates that EI scholarship has evolved from theoretical and psychometric foundations toward multidisciplinary integration, where emotional intelligence is operationalized as a predictor of adaptive functioning, wellbeing, and leadership effectiveness.

6. RESEARCH LIMITATIONS

While this study offers a comprehensive bibliometric mapping of Emotional Intelligence (EI) models, several limitations should be acknowledged to contextualize the findings.

Data source and coverage: The analysis relied primarily on the Scopus database, which, although extensive and curated, does not capture the full breadth of EI-related publications indexed in complementary sources such as Web of Science, Google Scholar, or OpenAlex. Consequently, certain regional or non-English-language contributions, conference papers, and grey literature may have been excluded, potentially introducing publication and language bias.

Temporal and database bias: Scopus indexing practices have evolved over time, which may have affected the visibility of older or less-cited works. The study period (1995–2026) ensures longitudinal coverage but may underrepresent the earliest conceptual roots of EI or the most recent post-2025 publications pending database indexing.

Methodological constraints: Bibliometric techniques offer quantitative insights into citation and keyword patterns but cannot directly assess theoretical depth, construct validity, or conceptual coherence. Co-citation and co-word analyses are limited to recorded relationships within bibliographic metadata, and results may overemphasize frequently cited works while overlooking emerging but less-cited contributions.

Interpretation and software dependence: The results are influenced by the analytical parameters of VOSviewer and Biblioshiny, including threshold settings for citation frequency and keyword occurrence. Although cross-validation was performed, visualization-based interpretations may vary with parameter adjustments.

DOI exclusion bias: Entries without Digital Object Identifiers (DOIs) were removed to ensure data integrity; however, this procedure may have excluded older or regionally published studies, potentially skewing the representation of historical and non-indexed literature.

Conceptual heterogeneity of EI: The field’s intrinsic theoretical diversity—spanning ability-based, mixed, trait, and behavioral frameworks—limits the comparability of citation-based metrics across paradigms. As a result, some conceptual nuances or cross-disciplinary linkages may remain underrepresented in the network analysis.

Future research should incorporate multi-database integration (e.g., Scopus, Web of Science, and OpenAlex), apply mixed bibliometric–content analytical approaches, and explore citation context analysis to enhance interpretive validity. Integrating AI-assisted semantic mapping and cross-linguistic data mining may further mitigate disciplinary and linguistic biases and provide a richer understanding of the evolving Emotional Intelligence research landscape.

7. CONCLUSIONS

The present bibliometric analysis offers a comprehensive bibliometric analysis of Emotional Intelligence research over the past decades, underscoring its conceptual richness and methodological diversity. Three enduring insights emerge.

First, the field is anchored by three complementary paradigms—ability-based, mixed, and trait models—each of which has contributed uniquely to EI’s theoretical coherence. The dominance of Bar-On’s EQ-i and Mayer–Salovey–Caruso’s MSCEIT in citation and centrality metrics confirms that these models remain the field’s primary reference points for both theory and measurement.

Second, the intellectual structure of EI research reflects increasing methodological sophistication and thematic convergence. Early psychometric validation efforts have evolved into integrated frameworks linking EI with organizational behavior, education, health, and leadership performance. Thematic evolution and trend analyses demonstrate that emotional intelligence has become a cross-disciplinary construct central to understanding social cognition, professional adaptation, and psychological resilience.

Third, the field is undergoing a paradigm shift from measurement to application. The increasing prominence of applied terms—resilience, burnout, self-efficacy, and well-being—signals a movement from static assessment toward intervention-based, longitudinal, and context-specific studies. This transformation reflects the maturation of EI from a contested psychological construct into a robust explanatory framework for emotion-related competencies in professional and social contexts.

Despite its progress, the EI domain continues to face methodological challenges concerning construct validity, measurement overlap, and cultural generalizability. Future research should prioritize triangulated assessment models that integrate performance-based, self-report, and behavioral indicators. Expanding bibliometric data coverage beyond Scopus, to include datasets from other databases, such as Web of Science, Dimensions, Google Scholar and OpenAlex, will enhance representativeness and cross-validation, providing an ample view on emotional intelligence models. To effectively mitigate potential biases, it is crucial to first identify both methodological and unconscious biases that may influence the research process. This involves a critical examination of the research design, data collection methods, and analysis procedures, including the scrutiny of AI-generated outputs. Artificial intelligence tools can also serve as valuable instruments for challenging underlying assumptions and evaluating the robustness of findings. Such critical engagement is especially important in cases where research has not undergone formal peer review, as AI-assisted critique can provide additional analytical depth and objectivity.

When disseminating research findings, it is essential to situate bibliometric and empirical results within established theoretical frameworks and the broader scholarly context. Ensuring that outcomes are logically coherent and theoretically grounded enhances their interpretive value and contributes to a more nuanced understanding of the research topic. This contextualization not only strengthens the internal validity of the study but also facilitates meaningful dialogue with existing literature.

Furthermore, researchers should explicitly acknowledge the limitations of their work, whether they are technical, methodological, or contextual in nature. Recognizing these constraints fosters transparency and allows for a more accurate interpretation of the results. Ethical considerations must

also be foregrounded when presenting research findings, ensuring that the study adheres to principles of academic integrity and responsible knowledge production.

Recent developments in emotional intelligence (EI) training demonstrate a growing intersection between practitioner-led innovation and research-based validation outside traditional academia. TalentSmartEQ has established one of the most widely adopted EI assessment and training systems, *Emotional Intelligence Appraisal*®. Their data, drawn from hundreds of thousands of assessments, indicate that EI competencies account for significant variance in job performance and leadership effectiveness (TalentSmartEQ, 2023). Similarly, Six Seconds, a global non-profit organization, provides extensive practitioner-oriented research through its *Six Seconds Emotional Intelligence Assessment (SEI)*, reporting predictive links between EI skills and success outcomes across more than 75,000 participants worldwide (Six Seconds, 2019). Beyond these structured models, John Parr’s Emotional Assertiveness Model (EAM) extends EI application by emphasizing the regulation and expression of emotions through assertive communication, aiming to transform emotional awareness into socially constructive behavior (Parr, 2022). Collectively, these practitioner-based frameworks illustrate the evolution of EI programs that blend applied psychology, psychometric validation, and behavioral development—bridging the gap between academic theory and real-world leadership practice.

In conclusion, Emotional Intelligence research now occupies a pivotal position at the intersection of psychology, education, and organizational science. Its evolution from theoretical construction to applied framework exemplifies the discipline’s broader shift toward interdisciplinary inquiry. The continued refinement of EI models and instruments will be essential for advancing both scholarly understanding and the practical development of emotionally intelligent leadership and organizational behaviour.

ACKNOWLEDGMENT

This study was conducted as part of a doctoral program at the Bucharest University of Economic Studies, Bucharest, Romania.

Each author contributed valuable insights from their respective disciplinary backgrounds, which together ensured the multidisciplinary perspective of this work. The complete manuscript was carefully reviewed and approved by all members of the project team prior to submission.

The authors also acknowledge the use of artificial intelligence (AI) tool (OpenAI’s ChatGPT) and R-based packages (Bibliometrix and Biblioshiny), which were employed to support data validation, script generation, and the refinement of written sections. All AI-generated outputs were carefully reviewed, validated, and edited by the authors to ensure accuracy, scholarly integrity, and alignment with academic standards.

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