



REUVEN FEUERSTEIN: A SYSTEMATIC REVIEW AND BIBLIOMETRICS (2015-2025)

*REUVEN FEUERSTEIN: UMA REVISÃO SISTEMÁTICA E
BIBLIOMÉTRICA (2015-2025)*

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BIBLIOMÉTRICA (2015-2025)*

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ABSTRACT

The theoretical work of Reuven Feuerstein has been mobilized in the educational field in studies addressing cognitive modifiability and pedagogical mediation. In order to understand how this perspective has been incorporated and investigated in Science Education, this research presents a systematic and bibliometric review of works available in the Brazilian Digital Library of Theses and Dissertations, SciELO, and Scopus. The analysis focused on the quantitative and descriptive treatment of data, aiming to identify the profile of the studies, the characteristics of authors and institutions, the geographical distribution of productions, the bibliometric patterns observed, the stages and modalities of education in which this theoretical framework has been applied, and the applications of Feuersteinian concepts in Science Education. The results indicated a growth in publications from 2020

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onward, with a higher production of scientific articles abroad and a concentration of dissertations and theses in Brazil, particularly in the Southeast region (São Paulo). It was observed that there is a predominance of studies in both Science and Mathematics. The study provides a quantitative and structured overview of national and international academic production, highlighting trends and research gaps and contributing to the understanding of the development of the Feuersteinian framework.

Keywords: mediation, cognitive modifiability, dynamic assessment, teaching, sciences.

RESUMO

A produção teórica de Reuven Feuerstein tem sido mobilizada no campo educacional em investigações que abordam a modificabilidade cognitiva e a mediação pedagógica. Com o objetivo de compreender como essa perspectiva vem sendo incorporada e investigada no Ensino de Ciências, esta pesquisa apresenta uma revisão sistemática e bibliométrica de trabalhos disponíveis na Biblioteca Digital Brasileira de Teses e Dissertações, SciELO e Scopus. A análise concentrou-se no tratamento quantitativo e descritivo dos dados, buscando identificar: o perfil dos estudos, as características dos autores e instituições, a distribuição geográfica das produções, os padrões bibliométricos evidenciados, as etapas e modalidades do ensino em que a produção teórica tem sido aplicada e as aplicações dos conceitos feuersteinianos no ensino de Ciências. Os resultados indicaram crescimento das publicações a partir de 2020, com maior produção de artigos científicos no exterior e concentração de dissertações e teses no Brasil na região Sudeste (São Paulo). Observou-se que há predominância de estudos tanto em Ciências quanto em Matemática. O estudo oferece um panorama quantitativo e estruturado da produção acadêmica nacional e internacional, evidenciando tendências e lacunas investigativas, contribuindo para a compreensão do desenvolvimento do referencial feuersteiniano.

Palavras-chave: mediação, modificabilidade cognitiva, avaliação dinâmica, ensino, ciências.

RESUMEN

La producción teórica de Reuven Feuerstein ha sido movilizada en el campo educativo en investigaciones que abordan la modificabilidad cognitiva y la mediación pedagógica. Con el objetivo de comprender cómo esta perspectiva ha sido incorporada e investigada en la Enseñanza de las Ciencias, esta investigación presenta una revisión sistemática y bibliométrica de trabajos disponibles en la Biblioteca Digital Brasileña de Tesis y Disertaciones, SciELO y Scopus. El análisis se concentró en el tratamiento cuantitativo y descriptivo de los datos, buscando identificar: el perfil de los estudios, las características de los autores e instituciones, la distribución geográfica de las producciones, los patrones bibliométricos evidenciados, las etapas y modalidades de enseñanza en las que la producción teórica ha sido aplicada y las aplicaciones de los conceptos feuersteinianos en la enseñanza de las Ciencias. Los resultados indicaron un crecimiento de las publicaciones a partir de 2020, con una mayor producción de artículos científicos en el exterior y una concentración de disertaciones y tesis en Brasil, especialmente en la región Sudeste (São Paulo). Se observó una predominancia de estudios tanto en Ciencias como en Matemáticas. El estudio ofrece un panorama cuantitativo y estructurado de





la producción académica nacional e internacional, evidenciando tendencias y vacíos investigativos, contribuyendo a la comprensión del desarrollo del marco teórico feuersteiniano.

Palabras clave: mediación, modificabilidad cognitiva, evaluación dinámica, enseñanza, ciencias.

1. INTRODUCTION

The theory developed by Reuven Feuerstein (1921-2014) represents an important contribution of cognitive psychology to 20th century education, extending into the 21st century (Lebeer, 2022). As Falik (2019) details, Feuerstein was an Israeli psychologist of Romanian origin who created an articulated set of theoretical-methodological concepts after decades of empirical and clinical research, moving in the opposite direction from determinist perspectives on intelligence and human cognitive development. The initial idea was the belief that intelligence is not a static characteristic, but is subject to structural changes through intentional interactions.

This optimistic view gave rise to what is known as the Theory of Structural Cognitive Modifiability (SCM), in which Reuven Feuerstein argues that a person's cognitive functions can be expanded and restructured when exposed to an appropriate mediation process. For Feuerstein, the mediator (who can be a family member, teacher, therapist or someone more experienced) acts between the individual and the object of knowledge, selecting, interpreting and transcending stimuli to maximize the learning process. This process was systematized in what is called the Mediated Learning Experience (MLE), whose structuring criteria (intentionality and reciprocity, transcendence and meaning) define the quality of interactions (Feuerstein. R.; Falik; Feuerstein, R. S., 2015).

Feuersteinian theory has been applied across a wide range of fields, including psychology and education (Feuerstein, 2025). However, there is a gap regarding initiatives that systematically map and analyze the state of the art in a longitudinal, prospective and bibliometric manner with a focus on Science Education, which justifies and guides the present systematic literature review.





Against this backdrop, this systematic and bibliometric review aimed to analyze research on the use of Reuven Feuerstein's theory in the field of Science Education. It seeks to map the didactic-pedagogical contributions of the Feuersteinian framework based on publications available in the Brazilian Digital Library of Theses and Dissertations (BDTD), *Scientific Electronic Library Online* (SciELO) and Scopus between 2015-2025.

Although concepts such as Structural Cognitive Modifiability, Mediated Learning Experience and Instrumental Enrichment are widely cited, there is still little clarity on how this body of work is distributed, who its main authors are and in which venues it circulates. To address these questions, the study combines three approaches. The systematic literature review makes it possible to gather and critically analyze the most relevant studies on the subject (Tranfield; Denyer; Smart, 2003). Bibliometric analysis, which consists of applying statistical methods to written output (Pritchard, 1969), draws on the three classical laws of the field (Bradford's Law, Lotka's Law and Zipf's Law) to examine journal productivity, author productivity and word frequency. Prospective projection, in turn, seeks to anticipate trends and identify gaps that deserve attention in future research. Together, these perspectives offer both a retrospective and a forward-looking view of the scientific output on Reuven Feuerstein, building on earlier studies such as those by Costa (2025), Lima and D'Aroz (2023) and Vasconcelos (2022).

2. BACKGROUND

As noted in Ros (2002), Reuven Feuerstein (1921-2014) was an Israeli psychologist of Romanian origin. His career was shaped by his work with child survivors of the Holocaust and underachieving young immigrants. His theoretical background engaged with Jean Piaget, under whom he studied in Geneva, and with Lev Vygotsky, particularly regarding the role of social mediation in cognitive development. From this interplay of influences and personal experiences, Feuerstein built his theoretical system, whose starting point is a rejection of the notion of intelligence as something fixed and predetermined.

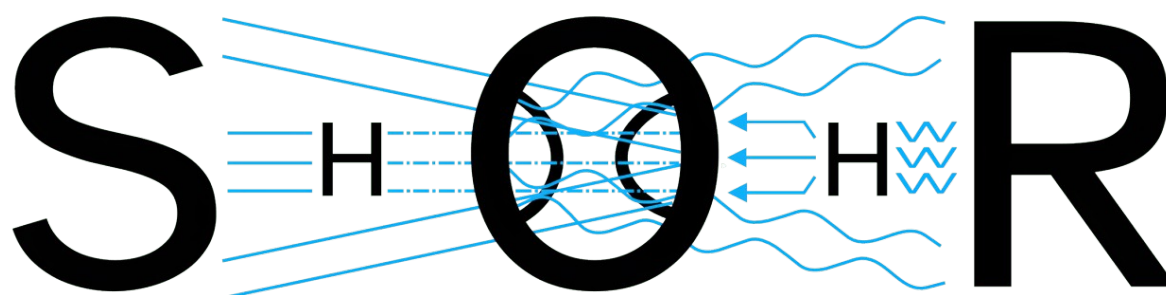




This rejection is the foundation of what the author called the Theory of Structural Cognitive Modifiability (SCM). The central premise of this theory is that human beings have an inherent tendency toward modifiability, which refers to deeper and more lasting transformations in the individual. It involves changes in cognitive capacities, reasoning abilities and personality traits, setting it apart from mere change, which is more specific and limited, occurring in particular aspects and generally proving shorter-lived and less resistant to environmental influences. Furthermore, modifiability is independent of genetic, age-related or socioeconomic factors (Feuerstein; Rand; Rynders, 1988).

For this modifiability to be realized, Feuerstein places great importance on the concept of Mediated Learning Experience (MLE) (Figure 1). Unlike learning through direct exposure to stimuli, the MLE occurs when a human mediator (H), usually an adult or a more experienced individual, positions himself between the stimulus (S) and the organism (O) and between the organism (O) and the response (R), selecting and assigning meaning to stimuli with the aim of fostering the development of new thinking skills (input), the organization and elaboration of concepts (elaboration) and non-impulsive expression (output) (Feuerstein, R.; Feuerstein, R. S.; Falik, 2014; Francese, 2016).

Figure 1 – Reuven Feuerstein's Mediated Learning Experience Model



Source: adapted from Feuerstein, Klein e Tannenbaum (1991).

As noted in Tzuriel (2000), the MLE has twelve criteria, three of which are considered sufficient (universal) to characterize this type of experience: (i) intentionality and reciprocity,



when the mediator acts with a clear purpose and seeks the engagement of the learner; (ii) transcendence, which helps the learner connect the immediate experience to other contexts; and (iii) mediation of meaning, when the mediator conveys the relevance of what is being learned. The remaining criteria are situational (specific) and applicable according to the needs of each individual, and can be found in Feuerstein, Rand and Rynders (1988).

The absence or insufficiency of exposure to mediated learning experiences is identified by Feuerstein as the cause of cultural deprivation, a concept that does not refer to the absence of culture, but rather to the breakdown of intergenerational transmission, resulting in deficits in the development of cognitive functions (Feuerstein; Rand; Hoffman, 1979).

To describe and analyze cognitive functioning, Feuerstein proposes two constructs: the list of cognitive functions and the cognitive map. As Varela (2007) explains, cognitive functions are organized into three phases of the mental act: input, elaboration and output. These phases describe the operations carried out by the individual when receiving, processing and communicating information, resulting in a mental operation. Dysfunctions in these functions are identified as obstacles to cognitive performance and can be treated as amenable to intervention. The cognitive map, in turn, is a tool for analyzing cognitive tasks that takes into account seven parameters: content, language modalities, phase of the mental act, type of operation, degree of abstraction, degree of complexity and degree of efficiency.

Also part of his theoretical-methodological framework are the Learning Potential Assessment Device (LPAD) and the Instrumental Enrichment Program (IEP). The LPAD was developed as an alternative to traditional psychometric assessments which, according to Feuerstein, measure the individual's past performance when they should instead measure his capacity for change. The LPAD adopts a dynamic assessment model, in which the evaluator actively intervenes during the administration of tasks, providing mediation and observing the extent to which the individual modifies his performance as a result of that interaction. The IEP, in turn, is a set of pedagogical instruments organized around thematic tasks, such as dot organization, spatial orientation and temporal relations, whose goal is not to transmit specific curricular content, but to develop the underlying cognitive operations that support learning in





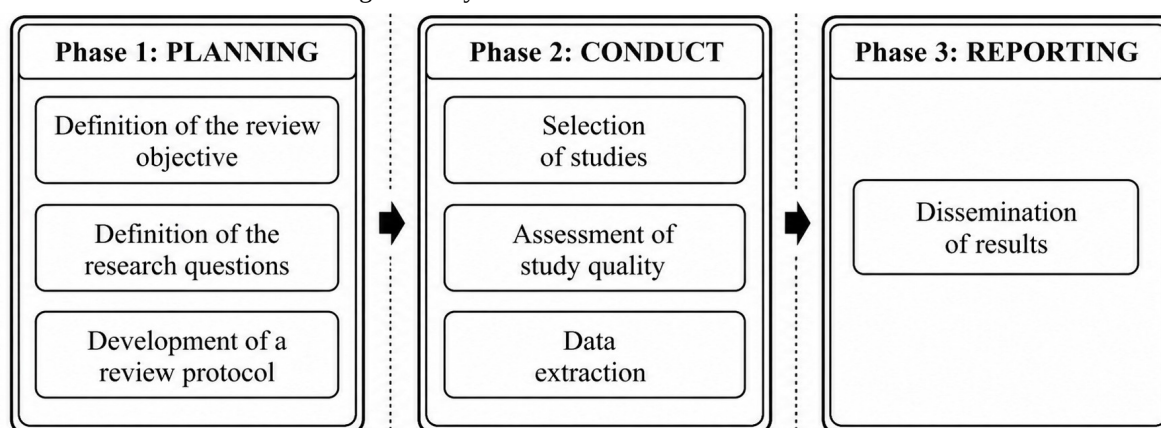
general. The program was later expanded with the creation of the Basic IEP, designed for populations with more severe cognitive impairments or younger age groups, and has been applied in educational, clinical and rehabilitation settings across many countries.

The Theory of Structural Cognitive Modifiability (SCM), the concept of Mediated Learning Experience (MLE), the Learning Potential Assessment Device and the Instrumental Enrichment Program (IEP) form an interconnected whole, whose common thread is the belief in the cognitive modifiability of human beings. This orientation has influenced the fields of educational psychology and special education, has been the subject of studies across different contexts and populations, and continues to inform practices aimed at expanding learning potential in contexts of inclusion and diversity.

3. MATERIALS AND METHODS

A quantitative review study was conducted on publications from the last ten years (2015 to 2025) drawn from three databases covering the field of Teaching/Education. To this end, the three-phase systematic process described by Kitchenham and Charters (2007) was employed, with phases labeled as: planning, conducting and reporting the review (Figure 2).

Figure 2 - Systematic Literature Review Process



Source: Adapted from Kitchenham e Charters (2007).



In the first phase of the systematic review process, the scope of the study is established, clearly delimiting the problem to be investigated and structuring a methodological plan that ensures rigor, transparency and replicability. The predefined plan is then carried out, conducting structured searches in the selected databases, examining the strength of the evidence found and systematizing the relevant information for analysis. Finally, the findings are synthesized and presented through the writing of this paper.

3.1 Phase 1: Planning

In the first phase, a protocol was built based on the model made available by the School of Arts, Sciences and Humanities (EACH) of the University of São Paulo (USP). The choice of this protocol stems from its suitability to the scope and nature of the research: unlike other models more geared toward the health sciences or clinical reviews, the EACH protocol offers a flexible structure that can be adapted for investigations in fields such as Education and the Humanities.

The protocol covers 11 sections, namely: (i) objectives; (ii) research question; (iii) criteria for source selection; (iv) list of sources; (v) language of publications; (vi) search process; (vii) study selection process; (viii) eligibility criteria; (ix) quality criteria; (x) information extraction strategy; (xi) summary of results. As a research best practice, the protocol for this review was registered on the Open Science Framework portal and assigned the digital object identifier (DOI) 10.17605/OSF.IO/DHY7U.

The objectives of this review are: (i) to outline an overview of the scientific output on Reuven Feuerstein's theory; (ii) to profile the researchers and institutions that have addressed this subject; (iii) to map the institutions and authors engaged in research on Reuven Feuerstein's theory in the field of Science Education.





In conducting this systematic review, the following questions were defined: (i) how are the studies that make up the sample characterized?; (ii) what are the demographic characteristics of the authors?; (iii) how is the institutional and geographical distribution of the studies configured?; (iv) which bibliometric laws are evidenced in the studies?; (v) what is the reach of Reuven Feuerstein's theory across educational levels and modalities?; and (vi) what are the applications of Feuersteinian concepts in Science Education?

As a database selection criterion, preference was given to those offering a larger volume of publications produced in Latin America. Accordingly, the following sources were listed: (i) the Brazilian Digital Library of Theses and Dissertations (BDTD), maintained by the Brazilian Institute of Information in Science and Technology (IBICT); (ii) the Scientific Electronic Library Online (SciELO), coordinated in Brazil by the São Paulo Research Foundation (FAPESP); and (iii) Scopus, published by Elsevier.

In the year this review was conducted (2026), the BDTD had 166 registered institutions and made available more than 789,000 dissertations and 319,000 theses from Brazilian graduate programs (Biblioteca Digital Brasileira de Teses e Dissertações, 2026). The inclusion of SciELO, in turn, is justified by its track record of over two decades of open-access scientific communication and its high-impact journal indicators, along with its network of 180 institutions responsible for more than 320 journals (Packer, 2025). This structure lends strong representativeness to Latin American scientific output, broadening the thematic and geographical coverage of searches in systematic reviews. Scopus, for its part, stands out as one of the largest scientific citation databases in the world, bringing together more than 100 million records, over 404,000 books and approximately 2.6 million preprints (Elsevier, 2026).

Regarding the language of publications, Portuguese, English and Spanish were selected. Studies on academic publishing indicate that English overwhelmingly dominates international scientific literature, with estimates suggesting that more than 90% of all published articles are written in that language (Mansour, 2023), making it essential for global reach and visibility. Although Portuguese and Spanish account for a smaller share of worldwide scientific publications (around 15% of the total) (Organización de Estados





Iberoamericanos, 2022), these languages concentrate a significant body of academic work in Latin American and Iberian contexts, capturing regional perspectives that would otherwise be underrepresented in studies conducted exclusively in English.

In the search process, a string was built by combining descriptors (controlled vocabulary) related to the application of Reuven Feuerstein's theory, using the Boolean operator OR to connect and refine the terms employed. The descriptors (Table 1) were selected based on the Controlled Vocabulary for Education and Related Fields - VOCEA (Santos, 2022) and on terms drawn from widely cited articles. The search strategy consisted of checking for the occurrence of descriptors in the titles, abstracts and keywords of publications. Study identification was carried out using the search tools available on the official pages of the selected databases.

Table 1 - Search String Terms

Portuguese terms	English terms	Spanish terms
Reuven Feuerstein	Reuven Feuerstein	Reuven Feuerstein
Aprendizagem Mediada	<i>Mediated Learning</i>	<i>Aprendizaje Mediado</i>
Modificabilidade Cognitiva	<i>Cognitive Modifiability</i>	<i>Modificabilidad Cognitiva</i>
Enriquecimento Instrumental	<i>Instrumental Enrichment</i>	<i>Enriquecimiento Instrumental</i>

Source: authors (2026).

The search and study selection process follows the PRISMA flowchart guidelines, organized into four phases (identification, screening, eligibility and inclusion) and supported by the Rayyan platform. The identification phase begins with searches across the three defined databases, using the keywords and descriptors presented in Table 1. The records are then imported into the platform through a file import process from the databases. In the screening phase, duplicate records are removed. The remaining studies move on to the eligibility phase, which is divided into two steps: in the first, two independent reviewers conduct a partial reading, evaluating titles and abstracts based on the exclusion criteria (EC); in the second, the approved studies undergo full-text reading during the inclusion phase. At





the end of this process, the studies that met the inclusion criteria (IC) are incorporated into the systematic review.

The exclusion criteria (EC) are divided into two groups. The methodological exclusion criteria group (related to publication characteristics) includes: (CEM1) studies published in a language other than Portuguese, English or Spanish; (CEM2) studies whose publication year falls outside the 2015 to 2025 range; (CEM3) publications that do not correspond to a scientific article, book, book chapter, undergraduate thesis, dissertation or doctoral thesis; and (CEM4) missing abstract. The thematic exclusion criteria group (related to study content) includes: (CET1) studies addressing mediation or mediated learning processes not grounded in Reuven Feuerstein; (CET2) thematic mismatch; and (CET3) unavailability of the study.

The inclusion criteria (IC) are as follows: (CI1) studies addressing the Mediated Learning Experience (MLE), the Theory of Structural Cognitive Modifiability (SCM) and the Instrumental Enrichment Program (IEP); and (CI2) studies addressing mediation or mediated learning processes grounded in the theoretical contributions of Reuven Feuerstein.

As quality criteria for the studies, they must be published in scientific journals or conference proceedings that adopt peer review. Preprints and grey literature will not be accepted. In the case of undergraduate theses, master's dissertations or doctoral theses, approval by an examining committee is required. For books and book chapters, publication by publishers with an editorial board and ISBN is considered the quality criterion.

As an information extraction strategy, bibliographic data will be collected from the selected studies, including authors, article title, year of publication, journal, volume, issue number, authors, DOI, abstract and keywords. This data will be organized and exported in RefMan (.ris), BibTeX (.bib) and spreadsheet (.xlsx) formats, allowing its import and management in software such as *Zotero* and *Microsoft Excel*.





Based on the results obtained, the data are systematized through the writing of a scientific article that presents and discusses the main findings of the systematic and bibliometric review.

3.2 Phase 2: Conducting

The search was carried out on March 1, 2026, with a last update on March 7, 2026. The Brazilian Digital Library of Theses and Dissertations (BDTD) was accessed through the portal <https://bdtd.ibict.br/vufind>. The search was conducted using the advanced search option, in which the descriptors were entered in the “Busca por” field, with the “Todos os campos” option also selected. In the “Correspondência da busca” field, the “QUALQUER termo” option was chosen. Under “Limitar a”, Portuguese, English and Spanish were selected as languages. In the “Tipo de documento” field, only dissertations and theses were included. In the “Ilustrado” field, the default option “Sem preferência” was kept. Finally, in the “Ano de publicação” filter, the range between 2015 and 2025 was set by entering 2015 in the “De” field and 2025 in the “Até” field.

In the BDTD, the following search was conducted: (Todos os campos:Reuven Feuerstein OU Todos os campos:Aprendizagem Mediada OU Todos os campos:Modificabilidade Cognitiva OU Todos os campos:Enriquecimento Instrumental OU Todos os campos:Mediated Learning OU Todos os campos:Cognitive Modifiability OU Todos os campos:Instrumental Enrichment OU Todos os campos:Aprendizaje Mediado OU Todos os campos:Modificabilidad Cognitiva OU Todos os campos:Enriquecimiento Instrumental). After the search, the openAccess option was selected as Access Type, which returned 12,740 publications.

The SciELO database was accessed through the page <https://scielo.org/pt-br/>. The search was conducted using the “Pesquisa avançada” option, where the descriptors were entered in the specific field and the “Todos os índices” filter was applied. This filter allows information to be searched across different fields, such as title, abstract, journal, funder,





author and year of publication. The following search was carried out: (Reuven Feuerstein) OR (Aprendizagem Mediada) OR (Modificabilidade Cognitiva) OR (Enriquecimento Instrumental) OR (Mediated Learning) OR (Cognitive Modifiability) OR (Instrumental Enrichment) OR (Aprendizaje Mediado) OR (Modificabilidad Cognitiva) OR (Enriquecimiento Instrumental). The filters applied were: Coleções: Brasil; Idioma: português or inglês or espanhol. Ano de publicação: 2015 a 2025. The search returned 120 publications.

The Scopus database was accessed through the CAPES Journal Portal via the Federated Academic Community (Café). The filters applied were: (i) *Search within: Article title, Abstract, Keywords*; (ii) *Language: limited to English, Spanish, Portuguese*; (iii) *Year: range 2015 - 2025*; (iv) *Document type: Limited to: Article, Conference paper, Book chapter, Book*; (v) *Publication stage: limited to final*; e (vi) *Open access: limited to all open access*. The search was conducted as follows: (TITLE-ABS-KEY(Reuven Feuerstein) OR TITLE-ABS-KEY(Aprendizagem Mediada) OR TITLE-ABS-KEY(Modificabilidade Cognitiva) OR TITLE-ABS-KEY(Enriquecimento Instrumental) OR TITLE-ABS-KEY(Mediated Learning) OR TITLE-ABS-KEY(Cognitive Modifiability) OR TITLE-ABS-KEY(Instrumental Enrichment) OR TITLE-ABS-KEY(Aprendizaje Mediado) OR TITLE-ABS-KEY(Modificabilidad Cognitiva) OR TITLE-ABS-KEY(Enriquecimiento Instrumental)) AND (LIMIT-TO (LANGUAGE,"English") OR LIMIT-TO (LANGUAGE,"Portuguese") OR LIMIT-TO (LANGUAGE,"Spanish")) AND (LIMIT-TO (DOCTYPE,"ar") OR LIMIT-TO (DOCTYPE,"cp") OR LIMIT-TO (DOCTYPE,"ch") OR LIMIT-TO (DOCTYPE,"bk")) AND (LIMIT-TO (PUBSTAGE,"final")) AND (LIMIT-TO (OA,"all")) AND PUBYEAR > 2015 AND PUBYEAR < 2025. The search returned 11,369 publications.





3.3 Phase 3: Reporting

The identification stage returned a total of 24,229 records. At the start of the screening phase, 338 duplicate records were identified, leaving 23,891 unique records. For this study, two publications will be flagged as potential duplicates when the similarity index is equal to or greater than 40%, as calculated by the Rayyan platform. For each potential duplicate, the title, authors and abstract will be read to allow for a manual decision. When two studies differ in publication date, the more recent one is retained.

For the eligibility analysis, the 23,891 records were subjected to the application of the exclusion criteria, organized into two groups: methodological (CEM) and thematic (CET). With regard to the methodological criteria, the first three (CEM1, CEM2 and CEM3) resulted in no exclusions, indicating that all studies were adequate in terms of language, time frame (2015-2025) and publication type, owing to the filters applied directly in the databases. On the other hand, criterion CEM4 (missing abstract) was responsible for the exclusion of 1,918 records, reducing the total to 21,973.

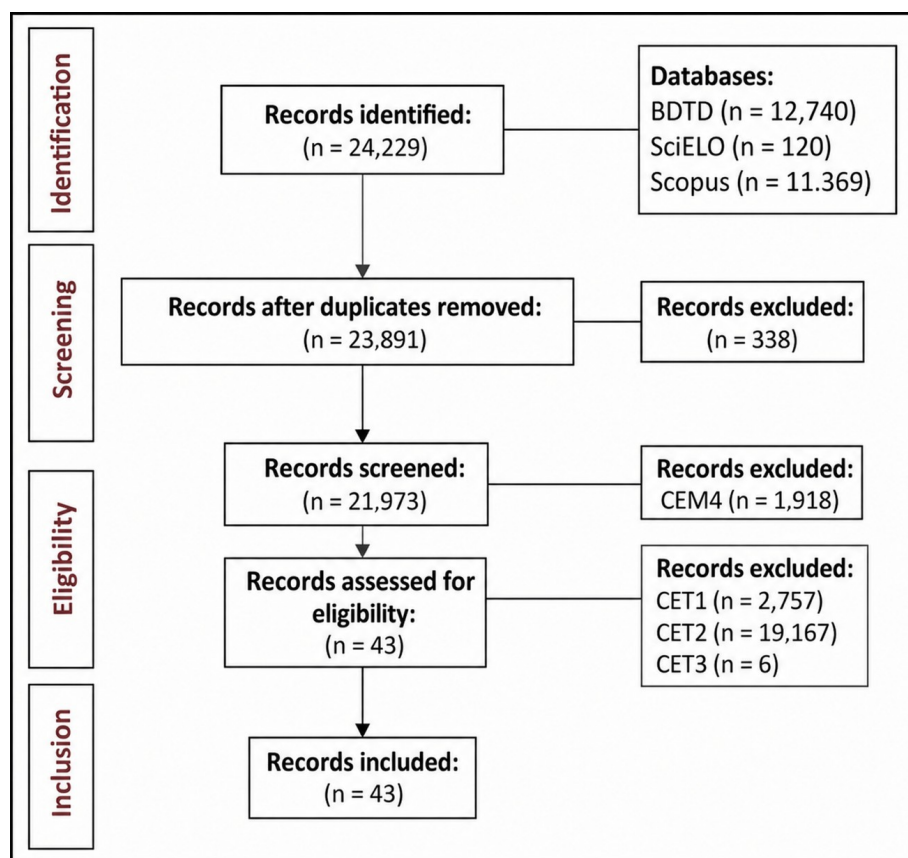
Regarding the thematic criteria, criterion CET1 excluded 2,757 studies that, although addressing mediation or mediated learning processes, were not grounded in Reuven Feuerstein's theory. Criterion CET2 (thematic mismatch) then accounted for the exclusion of 19,167 records, drastically reducing the number of studies to just 49. Finally, criterion CET3 (unavailability of the study) resulted in the exclusion of 6 records, leaving 43 studies eligible to make up the final sample of the systematic literature review.

Figure 3 illustrates the flowchart of the identification, screening, eligibility and inclusion process, in accordance with the PRISMA protocol guidelines. Table 2 then summarizes this process, highlighting the application of the exclusion criteria and the progressive reduction of records through to the definition of the final sample.





Figure 3 - PRISMA fluxogram



Source: authors (2026).

Table 2 - Study Identification and Filtering Process

Records for analysis: 24.229					
Exclusion criteria CEM			Exclusion criteria CET		
Stage	Excluded	Remaining	Stage	Excluded	Remaining
Duplicates	338	23.891	CET1	2.757	19.216
CEM1	0	23.891	CET2	19.167	49
CEM2	0	23.891	CET3	6	43
CEM3	0	23.891			
CEM4	1.918	21.973			
Remaining records: 43					

Source: authors (2026).



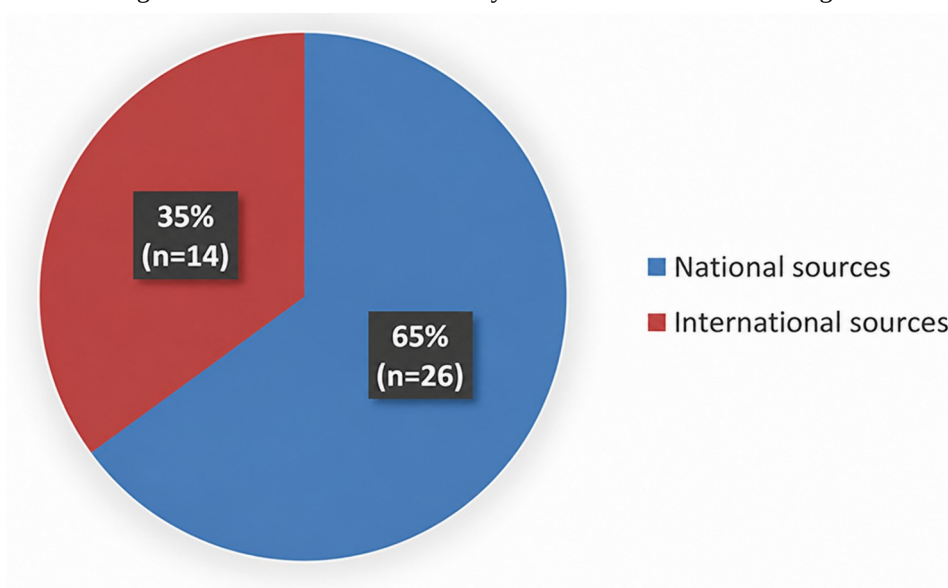


4. RESULTS AND DISCUSSION

4.1 How are the studies that make up the sample characterized?

Using the biblioshiny interface, available in R through the bibliometrix package, 43 documents were identified as making up the sample for the period 2015 to 2025. These studies are distributed across 40 distinct sources, of which 26 are national (65%) and 14 are international (35%), as illustrated in Figure 4. The distribution of these sources, organized by origin, is presented in Table 3.

Figure 4 - Distribution of sources by national and international origin



Source: authors (2026).

Table 3 - List of sources by origin (national and international)

Source origin	Sources
National	IFAM, PEE, PUC/SP, PUCRS, RBEE, REAS, REDIE, UEPB, UERJ, UFC, UFJF, UFMG, UFMA, UFMS, UFPA, UFPE, UFRGS, UFRN, UFS, UFSCAR, UFU, UNESP, UNOPAR, UPM, USP, UCS
International	BRAIN SCIENCES, CULTURAL-HISTORICAL PSYCHOLOGY,



DEMENTIA AND GERIATRIC COGNITIVE DISORDERS EXTRA, FPSYG, FWU, IJI, IJTS, J. PHYS., JLTR, JMIR, KONTAKT, SCT, TEACHING IN HIGHER EDUCATION, TPLS

Source: authors (2026).

The documents that make up the portfolio are organized in Table 4, which provides an overview of each work through an incremental identifier code (ID) along with title, author, year of publication and document type, presented in grouped form to facilitate the synthesis of information and optimize space in the table.

Table 4 - List of selected theses and dissertations

(continued on next page)

ID	Title Author Year Document type
D01	El libro de Morfeo: experiências de aprendizagem mediada em um role-playing game matemático TAMAYO-MARTÍNEZ, E. D. 2025 Doctoral Dissertation
D02	A divulgação e recepção dos conceitos teóricos de Reuven Feuerstein e suas contribuições para a Psicologia e a Educação brasileiras VASCONCELOS, T. C. 2022 Master's Thesis
D03	Contribuições do jogo para a criança com TEA: Um estudo a partir da perspectiva pedagógica de Reuven Feuerstein RUFINO, K. A. D. 2020 Master's Thesis
D04	Experiência de aprendizagem mediada apoiada por uma plataforma adaptativa: um estudo com crianças em situação de vulnerabilidade social FELÍCIO, A. C. 2024 Master's Thesis
D05	Eficácia do Programa de Enriquecimento Instrumental-PEI, versão básica, em crianças com transtornos do neurodesenvolvimento (TDAH e Dislexia) RICCI, K. A. 2016 Master's Thesis
D06	Processos de mediação docente e o desenvolvimento cognitivo dos estudantes em um clube de ciências: pontos de conexão entre a abordagem teórica de Reuven Feuerstein e o ensino de ciências por investigação ALMEIDA, W. N. C. 2022 Doctoral Dissertation
D07	Casos de crimes no ensino de física: explorando a mediação e o caráter lúdico no ensino de mecânica com atividades de perícia criminal PEREIRA, M. L. 2023 Master's Thesis





Table 4 - List of selected theses and dissertations

(continued on next page)

ID	Title Author Year Document type
D08	A mediação do professor no ensino de História a partir da Teoria de Reuven Feuerstein: Uma proposta pedagógica para o ensino fundamental nos anos finais SOUZA, K. S. 2022 Master's Thesis
D09	Proposta de construção e aplicação de um programa de formação docente em experiência de aprendizagem mediada para crianças com paralisia cerebral: um estudo preliminar BAPTISTA, E. C. L. 2019 Doctoral Dissertation
D10	Aprendizagem adaptativa por meio da experiência de aprendizagem mediada SANTOS, E. R. 2019 Doctoral Dissertation
D11	Uma introdução da Experiência da Aprendizagem Mediada (EAM) como metodologia para o ensino de Desenho Geométrico FERRACINI, J. M. 2021 Master's Thesis
D12	A criança com Transtorno do Espectro Autista (TEA) e o professor: uma proposta de intervenção baseada na Experiência De Aprendizagem Mediada (EAM) MACÊDO, C. R. S. 2015 Master's Thesis
D13	Intervenção mediacional na aprendizagem do braille: um estudo com crianças deficientes visuais DIONÍSIO A. M. P.; VECTORE C. 2017 Paper
D14	Estratégias pedagógicas empregadas por professores de educação especial aos seus alunos com Deficiência Intelectual severa: um estudo descritivo da prática docente. CARAMORI, P. M.; DALL'ACQUA, M. J. C. 2015 Paper
D15	Validação da escala Homo Zappiens-tecnologias digitais para avaliação do uso das TICs na aprendizagem dos alunos do terceiro ano do ensino médio no Colégio Militar em Fortaleza/CE: estudo de caso LOPES, J. C. V. 2018 Doctoral Dissertation
D16	Transtorno do espectro autista e matemática: mediações para o ensino e aprendizagem nos anos iniciais durante a pandemia CARMO, A. F. 2022 Master's Thesis
D17	Lego® Education: Um recurso didático para o ensino e aprendizagem sobre os artrópodes quelicerados ALMEIDA, F. L. 2016 Master's Thesis
D18	Oficina de Robótica no Ensino Médio como metodologia de construção de conhecimentos de Ciências Exatas LIBARDONI, G. C. 2018 Doctoral Dissertation
D19	Gaze, Conversational Structures, and Mediation in Chilean Primary Education





	VILLALTA-PAUCAR, M. A.; LIVÁCIĆ-ROJAS, P.; REBOLLEDO-ETCHEPARE, J.; CARVAJAL, L. B.; DROGUETT, M. A. G. 2025 Paper
D20	Teacher as a Mediator in Foreign Language Speaking Fluency Development: A Case Study of an Advanced-Placement Chinese TBLT Classroom JING, L.; APEDOE, X. S. 2025 Paper
D21	Mediating Language Fluency Development: An Action Research Study in a High-School Chinese Classroom JING, L.; APEDOE, X. S. 2025 Paper

Table 4 - List of selected theses and dissertations

(continued on next page)

ID	Title Author Year Document type
D22	Uma caracterização do papel do professor de matemática para o desenvolvimento de competências socioemocionais em alunos do ensino médio – Aracaju (SE) SANTOS, V. F. M. S. 2025 Master's Thesis
D23	Cognitive Functions for Successful STEM Implementation KRIŽANOVÁ, M.; BRESTENSKÁ, B. 2025 Paper
D24	Behind the thinking of attention disorder ZAMBONI, D.; SNYDER, V. N. S. 2025 Paper
D25	Perfil do professor mediador: estudo de caso nas licenciaturas no IFAM – CMC. LIMA, M. B. R. M. 2016 Master's Thesis
D26	Feuerstein Instrumental Enrichment Program for People With Schizophrenia After the First Episode of Psychosis: Protocol for an Open-Label Intervention Study FONSECA, A. O.; GOMES, J. S.; NOVAES, R. A. C. B.; DIAS, C. L.; RODRIGUES, M. E. M. A.; GADELHA, A.; NOTO, C. 2024 Paper
D27	Mediating learning with learning analytics technology: guidelines for practice FARRELL, T.; ALANI, H.; MIKROYANNIDIS, A. 2022 Paper
D28	Uso de jogos digitais no desenvolvimento de competências curriculares da matemática PEREIRA, A. B. C. 2017 Doctoral Dissertation
D29	Formação docente e os cursos de graduação em pedagogia na modalidade EAD: processos formativos e a autonomia do sujeito. CORTELINI, V. G., 2017 Master's Thesis
D30	Mediação pedagógica no processo de educação pré-natal VIVAN, A. M. 2022 Master's Thesis
D31	YouTube: uma possibilidade de mediação pedagógica na formação científica de alunos da “Educação” Superior EAD SANTORO, M. A. S. 2022 Master's





	Thesis
D32	Mediação do professor na contação de histórias para crianças com TEA na educação infantil MENEZES, H. G. D. 2024 Master's Thesis
D33	A conlang como método de ensino de conceitos linguísticos: problemática e possíveis encaminhamentos GIRARDI, J. E. 2025 Doctoral Dissertation
D34	Intervenção mediacional e promoção da saúde: um estudo com crianças pré-escolares MOREIRA, K. C. C. 2016 Paper
D35	A Quasi-Experimental Study on the Effectiveness of Early Interventional Techniques on Self-Esteem Social Skills and Core Academic Achievements among School Children with Specific Learning Disabilities in Selected Schools at Chennai. SELVI, A. A.; HEMA, V. H. 2023 Paper
D36	The Impact of Achievements in Mathematics on Cognitive Ability in Primary School KLIZIENE, I.; PASKOVSKA, A.; CIZAUSKAS, G.; AUGUSTINIENE, A.; SIMONAITIENE, B.; KUBILIUNAS, R. 2022 Paper

Table 4 - List of selected theses and dissertations

ID	Title Author Year Document type
D37	A Mediated Learning Experience Perspective on Engagement with Feedback Through a Sequence of Tasks DANG, T. T. D. 2022 Paper
D38	Changes in Brain Volume Resulting from Cognitive Intervention by Means of the Feuerstein Instrumental Enrichment Program in Older Adults with Mild Cognitive Impairment (MCI): A Pilot Study. DWOLATZKY, T.; FEUERSTEIN, R. S.; MANOR, D.; COHEN, S.; DEVISHEIM, H.; INSPECTOR, M.; ERAN, A.; TZURIEL, D. 2021 Paper
D39	Can an Educational Activity Program Based on Feuerstein's Program and Gardner's Theory Increase Excellence and Creativity in Math in Omani Students? ELSAYED, A. M. A.; ABBAS, R. E. S.; ABDOL, M. A. S. 2021 Paper
D40	Why Teachers Need Metacognition Training? KOZULIN, A. 2021 Paper
D41	The Effect of the Feuerstein Project on the Cognitive and Functional State of Community-Dwelling Individuals Aged 65 Years and Older with Mild Cognitive Impairment: A Pilot Study OSTREI, U.; EFRATI-CHOMSKY, D.; ZUR, A.; ROBES-ALKALAY, Y.; NAVE, A.; PUNCHIK, B.; PRESS, Y. 2020 Paper
D42	Teacher-vs. Peer-mediated Learning of Grammar through Dynamic Assessment: A Sociocultural Perspective KHANAHMADI, F.; SARKHOSH, M. 2018 Paper
D43	Is Feuerstein's Instrumental Enrichment (FIE) a good method for social inclusion of



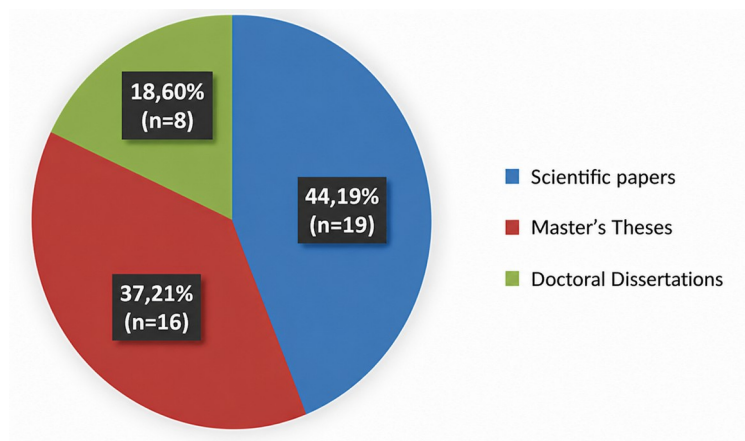


poor Slovak children in school? A study focused on social and educational levels |
KOZUBÍK, M.; SÍTHOVÁ, S.; KAJANOVÁ, A.; RÁC, I. | 2018 | Paper

Source: authors (2026).

The mapped output is distributed across three modalities of scientific writing: scientific paper, Master's Thesis and Doctoral Dissertation. As shown in Figure 5, papers published in specialized journals lead with 19 occurrences, accounting for nearly half of the compiled material (44.19%). Master's Thesis occupy an intermediate position, totaling 16 works and corresponding to 37.21% of the collection. Doctoral Dissertation, present in smaller proportion, amount to 8 productions and make up 18.60% of the documental universe investigated.

Figure 5 - Sample composition by document type



Source: authors (2026).

As illustrated in Figure 6, which presents the number of documents published over 10 years, and detailed in Table 5 and Table 6, it was observed that in 2015, 2 studies were published (D12 and D14), comprising 1 article and 1 Master's thesis, followed by 4 in 2016 (D5, D17, D25 and D34) and 3 in 2017 (D13, D28 and D29). In 2018, the number rose again to 4 publications (D15, D18, D42 and D43), while in 2019 and 2020 there was a slight decline, with 2 studies in each year. From 2021 onward, a resumption of growth is noted, with 4 studies published (D11, D38, D39 and D40), followed by a peak in 2022, which





concentrated 9 publications (D2, D6, D8, D16, D27, D30, D31, D36 and D37), composed predominantly of master's theses. In more recent years, 2 studies were identified in 2023 (D7 and D35), 3 in 2024 (D4, D26 and D32) and 8 in 2025 (D1, D19, D20, D21, D22, D23, D24 and D33), with this last year marked by a significant predominance of papers.

Figure 6 - Number of documents under analysis by year of publication

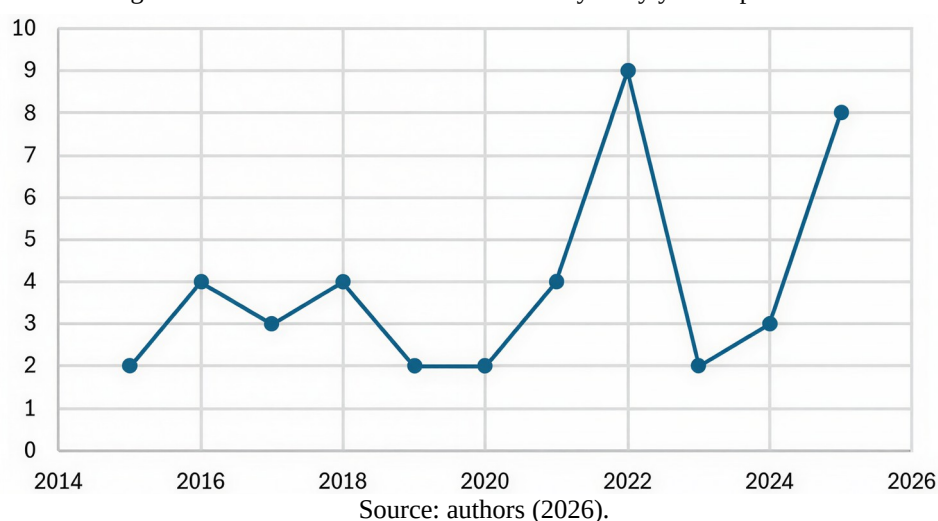


Table 5 - Distribution of documents by type and year of publication

	'15	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25
Paper	1	1	1	2	0	1	3	3	1	2	5
Master's thesis	1	3	1	0	0	1	1	5	1	1	1
Doctoral dissertation	0	0	1	2	2	0	0	1	0	0	2
Total	2	4	3	4	2	2	4	9	2	3	8

Source: authors (2026).

Table 6 - List of documents by year of publication

Year	Documents	Year	Documents
2015	D12, D14	2021	D11, D38, D39, D40
2016	D5, D17, D25, D34	2022	D2, D6, D8, D16, D27, D30, D31, D36, D37
2017	D13, D28, D29	2023	D7, D35
2018	D15, D18, D42, D43	2024	D4, D26, D32
2019	D9, D10	2025	D1, D19, D20, D21, D22, D23, D24, D33
2020	D3, D41		

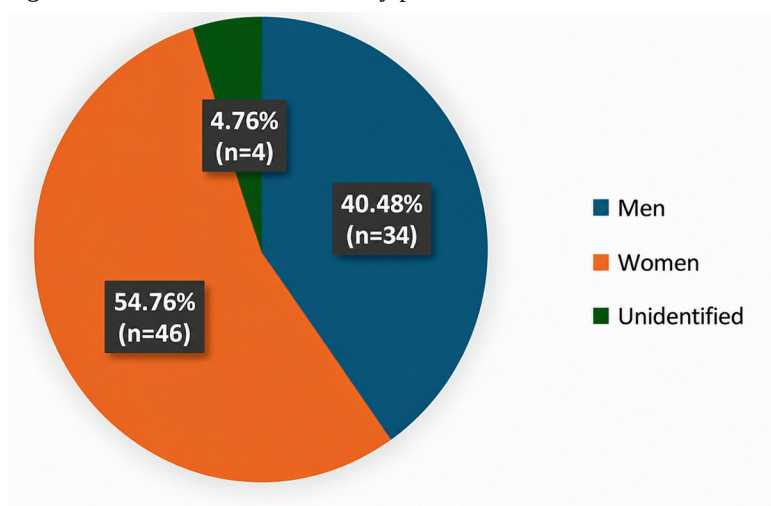
Source: authors (2026).



4.2 What are the demographic characteristics of the authors?

Regarding authorship, the sample brings together a total of 84 authors, distributed as follows: 46 women (54.76%) and 34 men (40.48%). However, 4 authors could not be identified (4.76%), due to foreign names and the absence of photos, academic biographies or textual descriptions that would allow for inference (Figure 7). Men are present in 19 studies, while women appear in 32 studies. Unidentified authors appear in 2 studies (Table 7).

Figure 7 – Number of documents by presence of male and female authors



Source: authors (2026).

Table 7 - Distribution of documents according to the presence of men and women authors

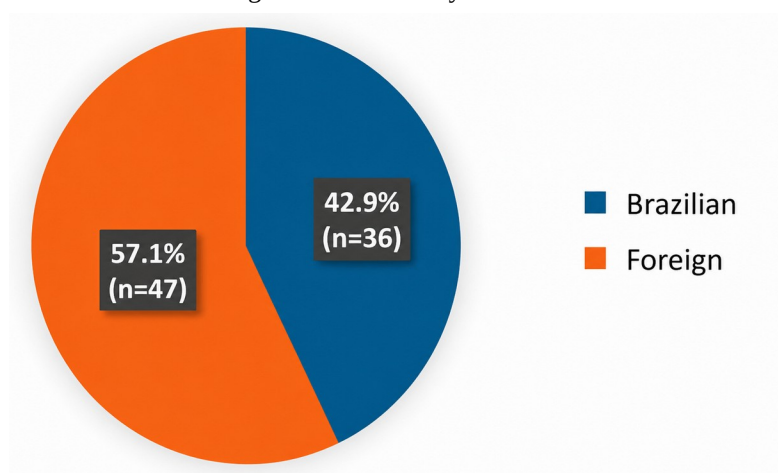
Gender	Documents
Men	D01, D04, D07, D15, D17, D18, D19, D22, D26, D27, D28, D31, D36, D38, D39, D40, D41, D42, D43
Women	D02, D03, D05, D06, D08, D09, D10, D11, D12, D13, D14, D16, D19, D20, D21, D23, D24, D25, D26, D27, D29, D30, D32, D33, D34, D35, D36, D37, D38, D39, D41, D43
Unidentified	D35, D41

Fonte: authors (2026).



Regarding nationality (Figure 5), it is estimated that approximately 42.9% of the authors ($n = 36$) are of Brazilian origin, while around 57.1% ($n = 48$) may be foreign. These figures constitute predictions based on the analysis of authors' names and the information available in the study metadata, and it is not possible to assert with full precision the nationality of all those involved.

Figure 8 – Nationality of authors



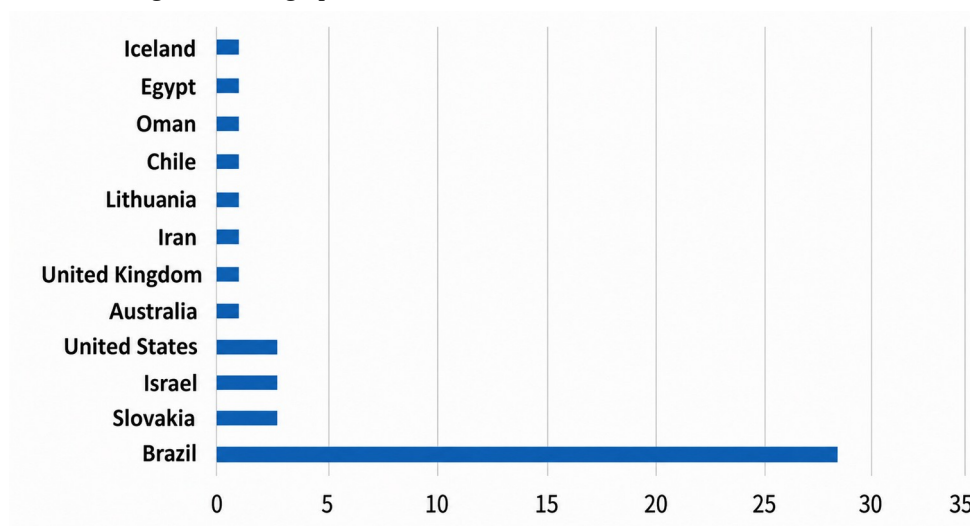
Source: authors (2026).

4.3 How is the institutional and geographical distribution of the studies configured?

Regarding the geographical distribution of authors' affiliated institutions (Figure 9), the 43 studies are linked to institutions in 12 countries (Australia, Brazil, Switzerland, Egypt, Israel, Iran, Iceland, Lithuania, Oman, Slovakia, United Kingdom, United States). Brazil stands out as the most represented country, with 29 studies (67.4% of the total), followed by Slovakia, Israel and the United States, with 2 publications each, and the remaining countries (Australia, United Kingdom, Iran, Lithuania, Chile, Oman, Egypt and Iceland) contributing 1 publication each (32.6% of the total).



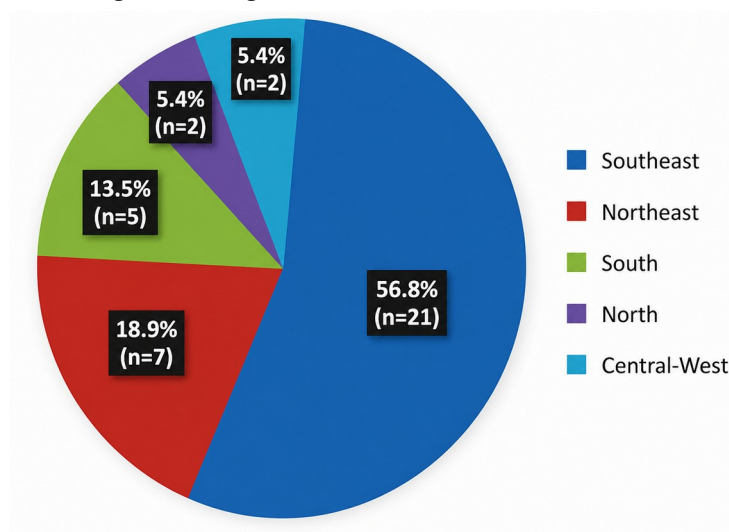
Figure 9 - Geographical distribution of authors' affiliated institutions



Source: authors (2026).

Regarding the regional distribution of Brazilian authors (Figure 10), the majority are affiliated with institutions in the Southeast region (21 authors; 56.8%), followed by the Northeast (7 authors; 18.9%), South (5 authors; 13.5%), North (2 authors; 5.4%) and Central-West (2 authors; 5.4%).

Figure 10 - Regional distribution of Brazilian authors



Source: authors (2026).



When it comes to federal units (Table 8), institutions from São Paulo lead in number (6 institutions; 25%), followed by Minas Gerais and Rio Grande do Sul (3 institutions each; 12.5%), and Mato Grosso do Sul with 2 institutions (8.3%). The remaining states (Amazonas, Ceará, Maranhão, Pará, Paraíba, Pernambuco, Paraná, Rio Grande do Norte, Rio de Janeiro and Sergipe) each account for 1 institution, representing 4.17% of the total.

Table 8 - Distribution of institutions by federal unit

State	Institutions	Freq.	%	State	Institutions	Freq.	%
SP	UNESP; PUC/SP; UNIFESP; UFSCAR; USP; UPM	6	25	PA	UFPA	1	4,17
MG	UEJF; UFU; UFMG	3	12,5	PB	UEPB	1	4,17
RS	UCS; UFRGS; PUCRS	3	12,5	PE	UFPE	1	4,17
MS	UFMS; INST. POTENC. HUMANAS	2	8,3	PR	UNOPAR	1	4,17
AM	IFAM	1	4,17	RN	UFRN	1	4,17
CE	UFC	1	4,17	RJ	UERJ	1	4,17
MA	UFMA	1	4,17	SE	UFS	1	4,17

Source: authors (2026).

Table 9 shows how the documents are distributed across the federal units. São Paulo leads with 9 documents (D01, D04, D05, D14, D26, D28 and D33), followed by Minas Gerais with 5 (D02, D03, D13, D16 and D34) and Rio Grande do Sul with 4 (D10, D18, D29 and D30). Mato Grosso do Sul and Rio Grande do Norte contribute 2 documents each, while the remaining states (Amazonas, Ceará, Maranhão, Pará, Paraíba, Paraná, Pernambuco, Rio de Janeiro and Sergipe) are each represented by 1 document.

Table 9 - Distribution of documents by federal unit

State	Documents	State	Documents
AM	D25	PE	D07
CE	D15	PR	D31
MA	D08	RJ	D09
MG	D02, D03, D13, D16, D34	RN	D12, D32
MS	D11, D24	RS	D10, D18, D29, D30
PA	D06	SE	D22
PB	D17	SP	D01, D04, D05, D14, D26, D28, D33

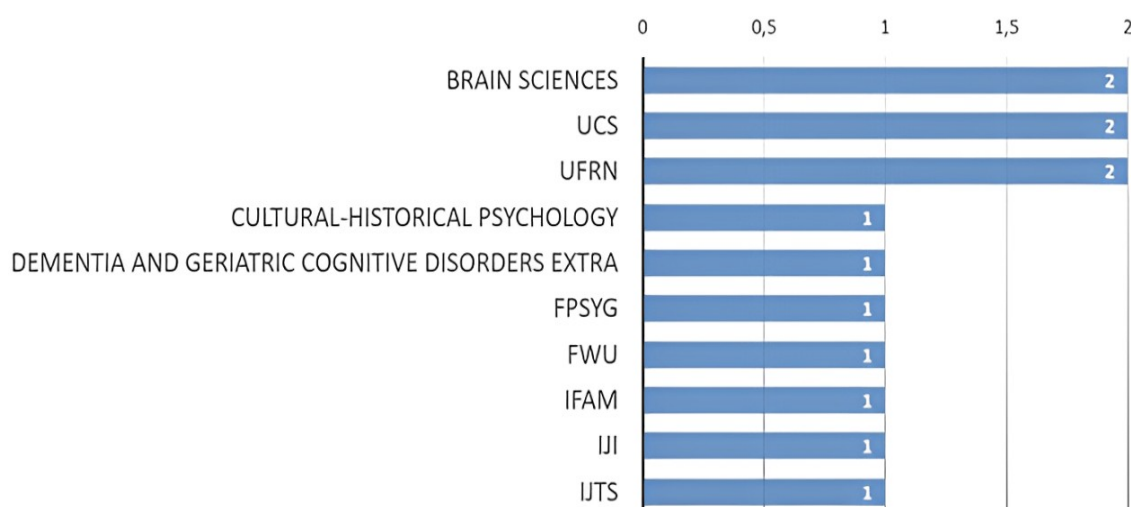
Source: authors (2026).





Figure 11 presents the ten most frequently occurring sources in the analyzed corpus, arranged alphabetically. Brain Sciences, Universidade de Caxias do Sul (UCS) and Universidade Federal do Rio Grande do Norte (UFRN) stand out with two records each, while the remaining sources contributed one publication each.

Figure 11 - The top ten sources by publication frequency

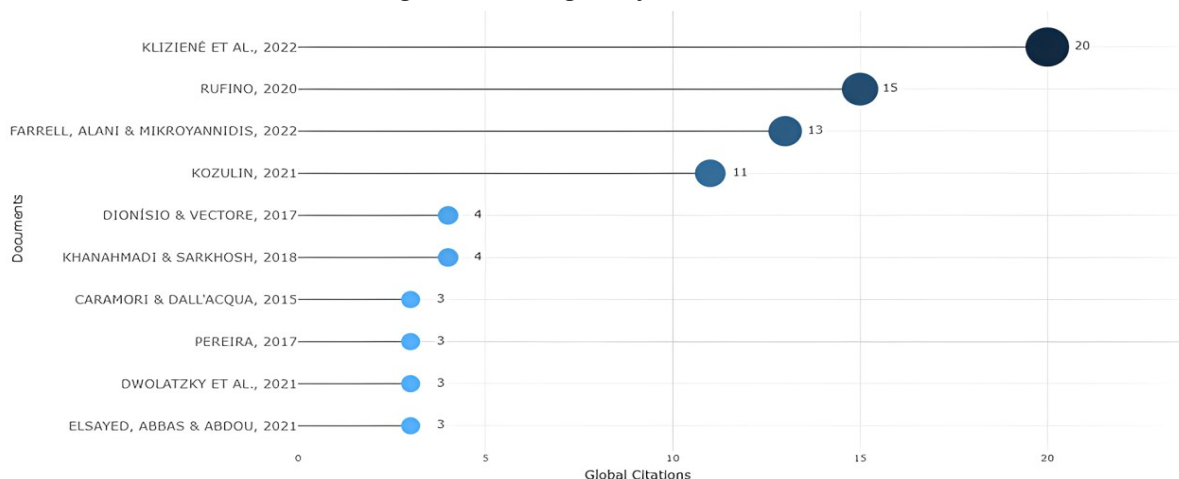


Source: authors, from biblioshiny interface (2026).

Figure 12 shows the ten most globally cited documents. The work by Klizienė et al. (2022) is the most influential in the set, with 20 references. This is followed by Rufino (2020) with 15 citations and Farrell, Alani & Mikroyannidis (2022) with 13. Kozulin (2021) ranks fourth with 11 citations. Beyond fifth place, a sharp drop in citation volume is observed: Dionísio & Vectore (2017) and Khanahmadi and Sarkhosh (2018) each receive 4 citations, while the remaining articles — Caramori & Dall’Acqua (2015), Pereira (2017), Dwolatzky et al. (2021) and Elsayed, Abbas and Abdou (2021) — each record 3 citations.



Figure 12 - Most globally cited documents



Source: authors, from biblioshiny interface (2026).

4.4 Which bibliometric laws are evidenced in the studies?

The examination of scientific output can benefit from the combined application of the three fundamental laws of bibliometrics. Lotka's Law (or the Inverse Square Law), named in tribute to statistician Alfred J. Lotka (1880-1949), suggests that the majority of scientific publications in a given field are produced by a small group of authors, with the vast majority of researchers publishing only once (Lotka, 1926). Bradford's Law, in recognition of documentalist Samuel Clement Bradford (1878-1948), explains how articles on a given subject area tend to cluster in a small core of specialized journals, dispersing progressively across a growing number of journals with lesser thematic relevance (Bradford, 1934). Finally, Zipf's Law, named after linguist George Kingsley Zipf (1902-1950), describes the frequency distribution of words in a textual corpus, indicating that few terms appear with high frequency while the majority occur rarely (Zipf, 1949).

Applying Bradford's Law analysis (Figure 13), the corpus of sources is found to be distributed across three productivity zones. The Core concentrates 12 sources, accounting for approximately 35% of the output (15 documents). Zone 2 encompasses 14 sources, with one



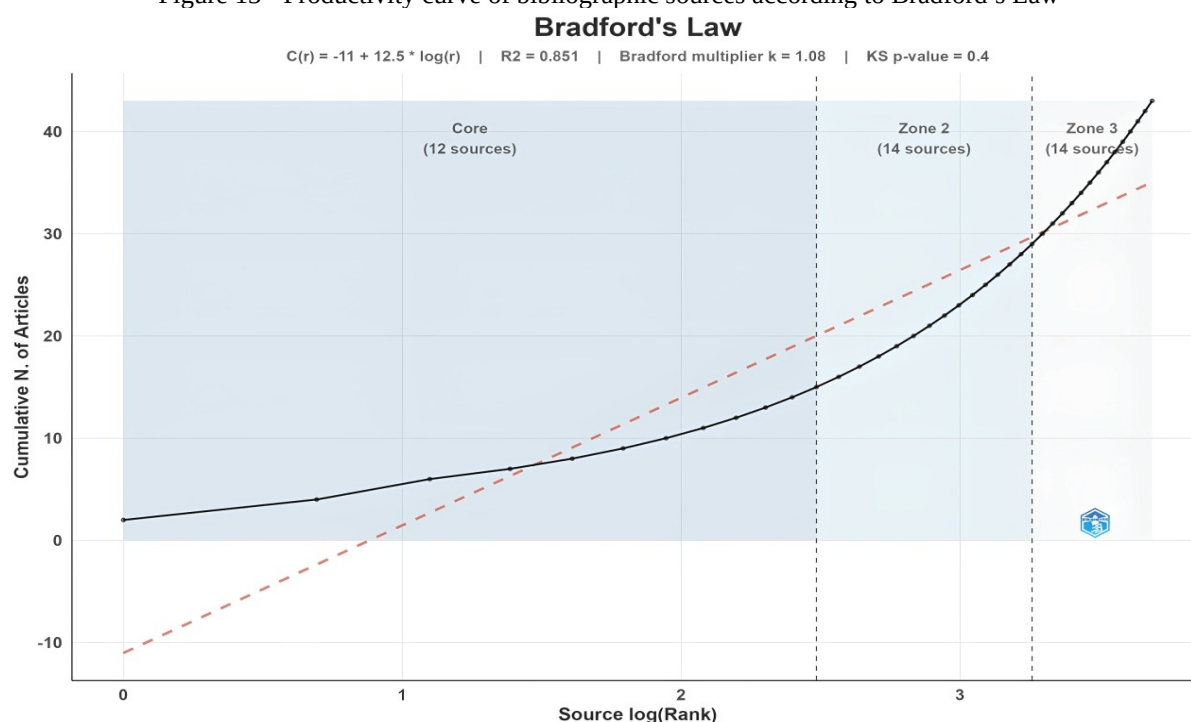
document each, accumulating 15 documents; and Zone 3 likewise brings together 14 sources with one article each, making up the remaining 15 documents (Table 10).

Table 10 - Distribution of sources and documents by productivity zones according to Bradford's Law

Zone	Sources and number of documents per source	Number of sources	Number of documents
Core	Brain Sciences (2), UCS (2), UFRN (2), Cultural-Historical Psychology (1), Dementia and Geriatric Cognitive Disorders Extra (1), FPSYG (1), FWU (1), IFAM (1), IJI (1), IJTS (1), J. Phys. (1), JLTR (1)	12	15
Zone 2	JMIR (1), Kontakt (1), PEE (1), PUC/SP (1), PUCRS (1), RBEE (1), REAS (1), REDIE (1), SCT (1), Teaching in Higher Education (1), TPLS (1), UEPB (1), UERJ (1), UFC (1)	14	14
Zone 3	UFJF (1), UFMA (1), UFMG (1), UFMS (1), UFPA (1), UFPE (1), UFRGS (1), UFS (1), UFSCAR (1), UFU (1), UNESP (1), UNOPAR (1), UPM (1), USP (1)	14	14
Total		40	43

Source: authors (2026).

Figure 13 - Productivity curve of bibliographic sources according to Bradford's Law

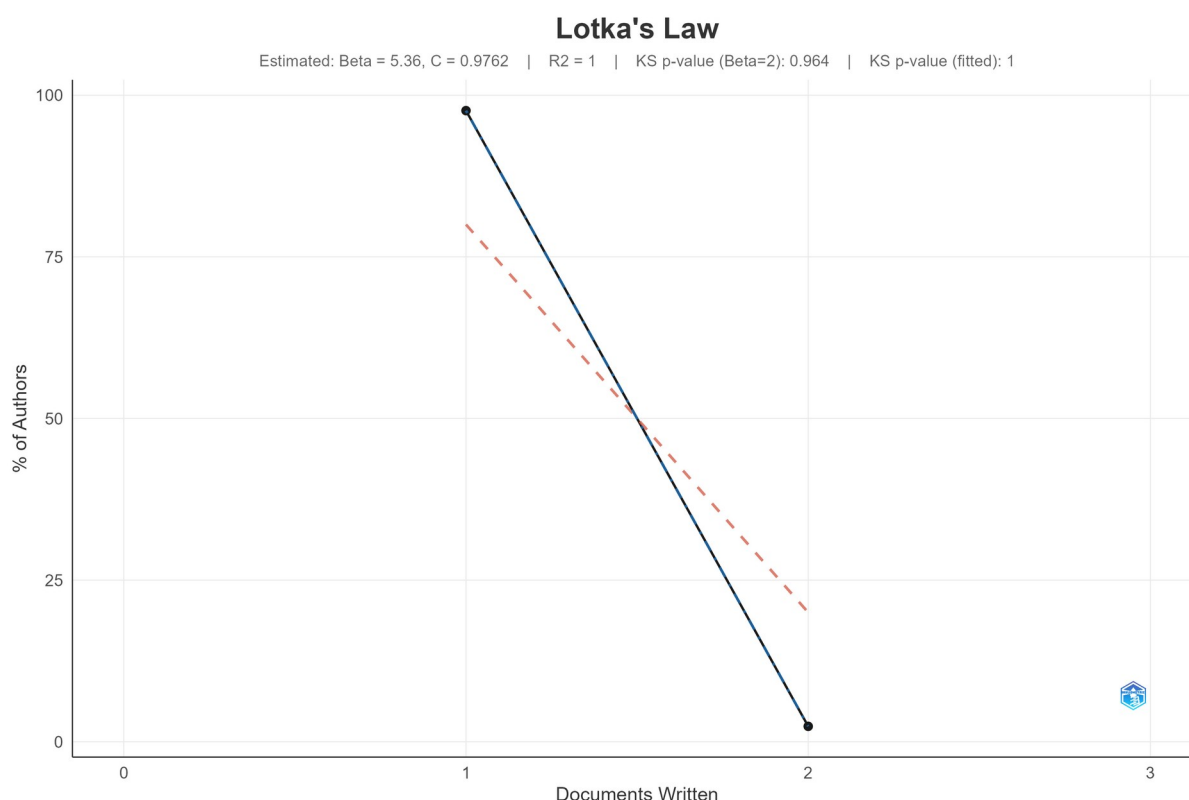


Source: authors, from biblioshiny interface (2026).



Next, the productivity of the authors in the corpus is analyzed in light of Lotka's Law, which postulates a relationship between the number of publications (horizontal axis) and the proportion of authors responsible for those publications (vertical axis). In Figure 14, the solid line (in a darker color) corresponds to the observed distribution; the dashed line (in a lighter color) represents the classic Lotka model ($\text{Beta} = 2$). Of the 84 authors analyzed, 82 (97.62%) contributed only one document, while 2 (2.38%) had two contributions, with no records of authors with three or more publications during the period.

Figure 14 - Distribution of author productivity according to Lotka's Law



Source: authors, from biblioshiny interface (2026).

Finally, the analysis grounded in Zipf's Law reveals that the author keyword with the greatest semantic weight is "mediated learning experience" ($n=6$), followed by "mediation" ($n=5$) and "experiência de aprendizagem mediada" ($n=4$). At intermediate frequency ($n=3$),



terms such as “aprendizagem”, “educação especial”, “mediação”, “mediação pedagógica” and “transtorno do espectro autista” appear. Next, with lower recurrence (n=2), terms such as “feuerstein instrumental Enrichment”, “instrumental Enrichment” and “mediational intervention” are found. Finally, single-occurrence descriptors such as “braile”, “Arduino”, “attention deficit hyperactivity disorder” and “children with cerebral palsy”, although less frequent, are significant in that they highlight specific applications and particular contexts, contributing to an understanding of the thematic breadth of the field.

Figure 15, through a word cloud, visually highlights the predominance of the most recurring terms.

Figure 15 - Word cloud representing the frequency of authors' keywords



Source: authors, from biblioshiny interface (2026).

4.5 What is the reach of Reuven Feuerstein's theory across educational levels and modalities?

The analysis of the corpus of this systematic review reveals that Basic Education concentrates the largest share of the productions examined. With regard to Early Childhood Education, four studies were identified (D03, D13, D32, D34). Document D03 addresses the



development of socialization in 4 and 5-year-old children with Autism Spectrum Disorder (ASD) in a municipal school, through the creation of a digital game called Adivinha, structured around the parameters of the MLE and SCM. Document D13 proposes and evaluates ten mediational intervention workshops for reading and writing in the Braille system with 6 and 7-year-old children with visual impairments in a special education school, drawing on the universal criteria of the MLE. Document D32 analyzes the mediation strategies used by two teachers during storytelling sessions in early childhood classrooms that included 5-year-old children with ASD and complex communication needs, identifying intentionality and reciprocity as the most recurrent mediational category across the 16 filmed sessions. Finally, study D34 assesses the knowledge of six preschool children aged 3 and 4 in situations of social vulnerability on health promotion topics, before and after structured mediated play workshops based on the five universal criteria of the MISC program (Mediated Intervention for Sensitizing Caregivers), derived from Feuerstein's work.

With regard to Elementary Education, 15 studies were identified (D01, D04, D05, D06, D07, D08, D09, D11, D12, D16, D28, D33, D36, D39 and D43), making it the segment with the highest concentration of productions in the entire analyzed corpus. Document D01 investigated how mediated learning experiences manifest in a mathematical RPG, whose missions involved content such as permutation, Laplace's rule, exponentiation, logarithms, systems of equations and properties of Platonic solids, with 15 students aged 14 to 16 taking part. The concepts mobilized were the MLE and SCM.

Document D04 investigated, through an exploratory qualitative study, the application of Feuerstein's MLE parameters alongside the digital platform Jovens Notáveis for teaching additive structures to 28 children aged 7 to 11, enrolled from the 2nd to the 6th year of elementary school and living in situations of social vulnerability. The central goal was to enhance students' ability to approach and solve mathematical problems involving additive structures, combining Feuerstein's mediational criteria with the resources of an educational digital platform.





Document D05 examined, through a quasi-experimental design, the effectiveness of the Basic version of the IEP with 22 children with ADHD and dyslexia, enrolled from the 2nd to the 7th year of elementary school. A range of neuropsychological tests were used, including the Raven Progressive Matrices, the Wechsler Intelligence Scale for Children (WISC-IV), the Trail Making Test (Parts A and B), the Pre-School Trail Making Test, the Semantic Stroop Test, the Executive Functioning and Child Regulation Inventory, the Word and Pseudoword Repetition Test, the Children's Naming Test, the Rey Complex Figure and the Computerized Dynamic Test of Inductive Reasoning for Children.

Document D06 is a participatory research study with a qualitative approach that structured a modifying investigative environment in a traveling Science Club, examining how teacher mediation anchored in Feuerstein's theory and inquiry-based Science teaching contributes to the cognitive development of children aged 10 to 12 in the 5th and 6th years of elementary school. The intervention drew on the Inquiry-Based Teaching Sequence entitled "The Sound Problem" as its empirical axis and involved eight students and three teacher monitors as participants.

Document D07, classified as an applied and exploratory study, developed and validated a Physics teaching sequence for the 9th year of elementary school, structured around the parameters of Feuerstein's Mediated Learning Experience and enriched by the use of gamification with criminal forensic cases as a motivating context. The subject content covered was mechanics, involving two classes of 43 students each, totaling 86 adolescents.

Document D08 applied, in a qualitative study with an action research design, the parameters of Feuerstein's Mediated Learning Experience to the teaching of History for 14 children aged 10 and 11 in the 6th year of elementary school, from single-parent families. The pedagogical proposal was structured around four sequential thematic axes: work and forms of social and cultural organization; different forms of work in the ancient and medieval world; social and cultural organization in the Middle Ages; and child labor.

Document D09, a quasi-experimental study with a mixed-methods approach, proposed and evaluated a teacher training program in MLE aimed at curriculum adaptation for students





with cerebral palsy, involving 2 students and 6 teachers from federal and municipal public institutions. Document D11 analyzed the MLE as a methodology applied to the teaching of Geometric Drawing for 25 students in the 8th year, using GeoGebra and Teams.

Document D12 investigated, through a qualitative quasi-experimental case study, whether an increase in the teacher's level of mediation positively impacts the social and academic performance of a 9-year-old child with ASD in the 4th year of elementary school. The activities carried out were related to Mathematics (counting), Arts (colors, puzzle, cutting and painting) and Portuguese (vowels). The study involved the class teacher and the student's mother, recognizing the role of these two mediating figures in the child's developmental process.

Document D16, a qualitative case study, sought to identify which pedagogical mediations contribute to the Mathematics learning of an 8-year-old child with ASD in the 3rd year during the Covid-19 pandemic. The mathematical content covered included notions of quantity, the decimal number system, numerical organization, fundamental operations, time measurement and the monetary system.

Document D28 investigated the contributions of digital games to the development of mathematical curriculum competencies in the 8th and 9th years, through workshops called “Mathematical Experiences” with 60 students and 3 teachers, adopting a mobile learning and flipped classroom approach grounded in the MLE framework.

Document D33 investigated whether the use of constructed languages (conlangs) as a playful and mediated activity leads 6th-year students to understand how natural languages work, involving 144 students divided between an experimental group and a control group.

Document D36, a quantitative longitudinal correlational study, developed a diagnostic test of cognitive abilities (DTCA) grounded in Feuerstein's dynamic assessment for 202 students in the 4th year of elementary school. The instrument was designed to evaluate nine specific cognitive functions, namely: systematic exploration, spatial orientation, sequencing, image recognition, relationships, information gathering and processing, algorithm development, data management and combination building.





Document D39, a quasi-experimental study with a quantitative approach, tested the effectiveness of a mathematics activity program based on the IEP combined with Gardner's multiple intelligences, involving 71 female students in the 8th year in Oman. The curricular content covered was the "Groups and Relations" program, developed over 30 lessons spread across six weeks with the experimental group, while the control group followed traditional teaching methods.

Finally, document D43, an exploratory-descriptive pedagogical intervention with a mixed-methods approach, applied the IEP across 12 fortnightly sessions with 8 children from communities in situations of social vulnerability in the 2nd year of elementary school. Progress was recorded in classroom participation and in the reduction of impulsivity, although no proven effect on school grades was observed.

With regard to Secondary Education, five studies were identified (D15, D17, D18, D22, D37). Document D15 validated the Homo Zappiens-Digital Technologies Scale (HZTD) to assess the use of ICTs in Mathematics learning in the 3rd year of Secondary Education. The study compared the academic performance of 120 students from a military institution, using a mixed-methods approach, case study design, the G-36 Non-Verbal Intelligence Test and SPSS analysis. The MLE and SCM underpin the hypothesis that the level of mediation experienced by the student throughout schooling bears on his ability to appropriate digital technologies as cognitive tools.

Document D17 developed and validated a didactic guide using educational robotics (LEGO® Education) for the teaching of Zoology in the 2nd year of Secondary Education, grounded in the MLE framework. The proposal involved programming a scorpion robot (Scorpion Digital) as a strategy for non-traditional teaching, with 83 adolescents aged 14 to 18. The MLE guides the mediation during the interaction between teacher, students and technological artifact.





Document D18 investigated how robotics activities using Arduino can be structured to support the construction of Physics knowledge in the 2nd and 3rd years of Secondary Education, involving 16 students and 2 teachers. The MLE underpins teacher mediation in the assembly, programming and problem-solving activities with Arduino.

Document D22 characterized the role of the Mathematics teacher in promoting socio-emotional competencies during the teaching of linear functions in the 1st to 3rd years of Secondary Education. The study involved 11 teachers in a qualitative action research study. The MLE serves as the central theoretical framework, linking intentional mediation and the holistic development of the student beyond disciplinary content.

Document D37 investigated the engagement of 31 tenth-grade students in English as a foreign language writing tasks in light of the MLE, examining how teacher strategies, peer collaboration and the use of the mother tongue meet the Feuersteinian criteria of intentionality/reciprocity, transcendence and mediation of meaning.

Regarding higher education, four studies were identified (D25, D27, D29 and D31). Document D25 examines the profile of the mediating teacher in undergraduate degree programs at IFAM Campus Manaus Centro, with 36 teachers as participants. The mixed-methods study resulted in the development of the PROFMED questionnaire, designed to help identify and self-assess this profile based on Feuerstein's didactic parameters, drawing on the concepts of MLE and SCM.

Document D27, developed at a virtual educational institution with 18 teachers and 22 students from undergraduate and graduate programs, applies Feuerstein's mediated learning concepts to assess the potential of learning analytics technologies as mediators of large-scale learning in distance higher education.

Document D29 follows, over the course of one academic semester, three subjects from Axis V of the Distance Learning Pedagogy degree program at the UAB/UFRGS hub in Vila Flores (RS), with 13 female students, analyzing the mediation strategies employed and their contribution to the construction of learning and teaching autonomy, drawing on Feuerstein and Paulo Freire as theoretical foundations.





Finally, document D31 seeks to answer whether synchronous online interactions via YouTube present mediation quality and, if so, how this mediation is characterized. To this end, it analyzes transcribed interactions from the virtual environment of the Distance Learning Scientific and Technological Initiation Program (PICT-EaD) at Pitágoras Unopar Anhanguera University, using the three universal criteria of the MLE as a priori analytical categories: intentionality and reciprocity, transcendence and mediation of meaning.

Regarding teaching modalities, Distance Education (DE) is represented by three studies (D10, D29 and D31). Documents D29 and D31 have already been described in the previous paragraph. Document D10, a mixed exploratory study, investigated the contributions of adaptive learning combined with the parameters of the MLE to the construction of pedagogical models in personalized open and online courses (POOCs) in a Moodle virtual learning environment, involving 10,754 enrollees across 11 education and management courses, with a predominantly adult profile between 31 and 40 years of age. The study proposed and validated a pedagogical framework that integrates initial diagnosis, personalized learning pathways and pedagogical mediation.

Special Education, in turn, is represented by a single study in the corpus. Document D14, a qualitative exploratory study, was conducted in four Special Education classrooms in the municipality of Araraquara (SP), focusing on the teaching practice of four teachers working with students with severe intellectual disabilities. The study identified 36 pedagogical strategies used by the teachers and analyzed their correspondence with the mediation criteria proposed by Feuerstein.

Table 8 presents the distribution of the studies analyzed in this systematic review according to the educational levels and modalities in which Reuven Feuerstein's theory was applied, identifying the corresponding documents.





Table 11 - Distribution of studies on Feuerstein's theory by educational level and modality

Level / Modality	Documents	Freq.
Early Childhood Education	D03, D13, D32, D34	4
Elementary Education	D01, D04, D05, D06, D07, D08, D09, D11, D12, D16, D28, D33, D36, D39, D43	15
Secondary Education	D15, D17, D18, D22, D37	5
Higher Education	D25, D27, D29, D31	4
Distance Education (DE)	D10, D29, D31	3
Special Education	D14	1
Not identified, not specified, not categorized or cross-cutting	D02, D19, D20, D21, D23, D24, D26, D30, D35, D38, D40, D41, D42	13

Source: authors (2026).

4.6 What are the applications of Feuersteinian concepts in Science Education?

In the field of Science, the studies focus on Elementary and Secondary Education, addressing teaching in Science Clubs (D06), gamified teaching sequences for the teaching of mechanics (D07), chelicerate arthropods (D17), robotics using Arduino (D18) and connections with the STEM approach (an acronym for Science, Technology, Engineering and Mathematics) (D23).

As for the other fields, Mathematics encompasses studies ranging from Early Childhood Education to Secondary Education and Distance Education. The research investigates the application of the MLE to the teaching of additive structures (D04), geometric drawing (D11), functions (D22), the development of cognitive skills related to mathematical performance (D36) and groups and relations (D39).

Other fields covered include the teaching of History, addressing content related to work and social organization (D08), and Language, with investigations into the teaching of the mother tongue through constructed languages/conlangs (D33) and mediated writing strategies (D37). Studies in the field of foreign language teaching were also identified, with two studies conducted in the United States focusing on Chinese as a second language within





the Advanced Placement program (D20; D21), while research from Iran (D42) and Vietnam (D37) explores the mediational effects on the teaching of English as a foreign language.

Table 12 summarizes the applications of Feuersteinian concepts across the different fields of knowledge identified in the studies analyzed.

Table 12 - Applications of Feuersteinian concepts by field of knowledge

Area	Documents	Freq.
Science	D06, D07, D17, D18, D23	5
Math	D04, D11, D22, D36, D39	5
Foreign Language	D20, D21, D37, D42	4
Languages	D33, D37	2
History	D08	1

Fonte: authors (2026).

5. FUTURE PROJECTIONS

Paraphrasing the famous warning attributed by some to physicist Niels Bohr that “prediction is very difficult, especially about the future”, the projections presented here should be interpreted with appropriate caution. Even so, the analysis of the scientific output life cycle, carried out with the aid of the biblioshiny interface (Figure 16), offers important signals about the trajectory of research on Reuven Feuerstein.

Examining the life cycle of scientific output, it is observed that there were few publications before 2020, with a gradual increase in recent years. The projection points to a peak of close to 12 annual publications around 2041. After this period, the model forecasts a gradual decline in output, suggesting a likely waning of interest or theoretical saturation.

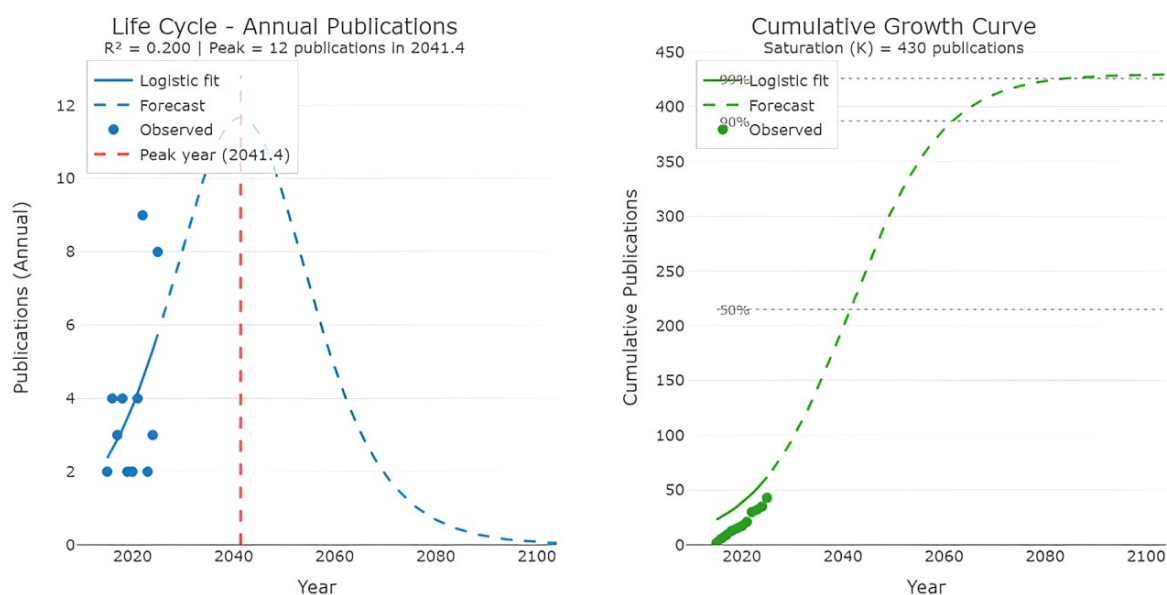
The cumulative growth curve of publications reveals a sigmoidal pattern that organizes the development of the field into three phases: an initial emerging phase, marked by low volume and slow growth; a phase of accelerated growth, projected for the coming decades (up to 2060), in which there is rapid expansion of scientific output with more than 200





productions; and finally, a maturity phase, in which the pace of growth slows until it approaches saturation, estimated at around 430 publications in total.

Figure 16 - Life cycle and cumulative growth curve of publications



Source: authors, from *biblioshiny* interface (2026).

6. FINAL CONSIDERATIONS

This systematic literature review set out to outline an overview of the scientific output on Reuven Feuerstein's theory, to profile the researchers and institutions that have addressed this subject, and to map the institutions and authors engaged in research on Reuven Feuerstein's theory in the field of Science Education.

The analysis points to a growing trend of scientific interest in the subject, particularly from 2021 onward. It is worth noting that no publications in the format of books or book chapters were identified, revealing a concentration of scientific output in journals and stricto sensu academic work.



The analysis also reveals that scientific output on the Feuersteinian framework is predominantly produced by women. This finding is consistent with the historically observed female predominance in the fields of education, psychology and psychopedagogy.

The concentration of studies in the Southeast region may reflect the density of graduate programs in that area or the proximity of mediator training centers, both of which drive local academic output.

The modalities of Youth and Adult Education (EJA), Rural Education, Indigenous School Education and Quilombola School Education were not addressed by any of the studies identified in this systematic review. This absence points to gaps in the scientific output linking Feuerstein's theories to specific educational contexts historically marked by distinctive pedagogical demands and populations in situations of vulnerability — a gap that deserves attention in future research agendas.

The projected peak in 2041 is uncertain, as the model was built on limited historical data (2015 to 2025). Feuerstein's work may be gaining renewed relevance and may not yet have reached its peak in terms of scientific output, which leads us to believe this is an emerging field with significant potential for expansion in the coming decades. The evidence, however, points to a subject still in a growth phase rather than one of maturity.

A limitation of this study is the absence of network and relationship analysis between authors, institutions or themes, which would provide a deeper understanding of the interactions and collaborative dynamics at play.

As a direction for future work, it is recommended that the systematic literature review be expanded through the inclusion of additional databases and languages, in order to capture a more diverse body of scientific output.

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