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Estudio del proceso indagatorio inherente a una revisión sistemática documental Prisma 2020 con empleo de metaanálisis

Study of the investigative process inherent to a Prisma 2020 Documentary Systematic Review using meta-analysis

Estudo do processo investigativo inerente à revisão documental sistemática Prisma 2020 por meio de meta-análise

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Resumen

En esta investigación se consideró adecuado emplear el metaanálisis como herramienta metodológica para evaluar la consistencia interna de los datos recopilados, así como la metodología empleada en una revisión sistemática en las que se siguieron las directrices de Prisma 2020. El objetivo fue evaluar la contribución de 30 artículos científicos a la elaboración del manuscrito publicado, para lo cual se verificaron 27 ítems que conforman la escala de verificación de Prisma. En concreto, se aplicó una escala de alta confiabilidad para la valoración de los artículos científicos con el fin de descartar posibles sesgos en la primera selección, y se calificó el artículo publicado. La aplicación de la lista de verificación permitió identificar fortalezas y desafíos en el proceso de búsqueda y gestión de la información. Asimismo, el análisis estadístico permitió determinar la fiabilidad del cuestionario Colin y los aportes por dimensiones de los artículos en revisión. La evaluación del artículo publicado, de acuerdo con la escala para evaluar documentos científicos, lo ubicó en el rango medio alto y, según la prueba Rho de Spearman, se obtuvo un valor de 0.667, con un nivel de significancia de 0.002. Esto demostró una correlación positiva moderada entre el promedio de las calificaciones obtenidas por los artículos en revisión y el de las calificaciones conseguidas por el artículo publicado. En conclusión, se informó sobre el examen del proceso de recolección y gestión de la información, los resultados de las pruebas estadísticas y la calidad del artículo publicado. Además, se expusieron los desafíos para el desarrollo de revisiones sistemáticas y se propusieron líneas de investigación futuras.

Palabras clave: cuestionario Colin, metaanálisis, Prisma 2020, revisión sistemática documental.

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Abstract

In this research, it was considered appropriate to use meta-analysis as a methodological tool to report on the value of internal consistency of the data collected and the methodology used in a systematic review conducted in accordance with the Prisma 2020 guidelines. The objective was to evaluate the contribution of 30 scientific articles in the construction of the published manuscript. Compliance with 27 items that make up the Prisma verification scale was verified. A scale for the evaluation of scientific articles, of high reliability, was applied to rule out possible biases in the first selection and the published article was qualified.

The application of the checklist made it possible to know strengths and challenges in the information search and management process. The statistical treatment made it possible to establish the reliability of the Colin questionnaire and contributions by dimensions of the articles under review. The evaluation of the published article according to the scale to evaluate scientific articles placed it in the medium high range and according to Spearman's Rho test, a value of .667 was reported with a significance level of .002; demonstrating a moderate positive correlation between the average of the qualifications obtained by the articles under review and the average of the qualifications obtained by the published article. In conclusion, the scrutiny for the collection and management of information, the result of the statistical tests and the quality of the published article were reported; In addition, challenges for the development of systematic reviews and future lines of research were exposed.

Key words: Questionnaire Colin, documentary systematic review, meta-analysis, Prisma 2020.

Resumo

Nesta pesquisa, considerou-se adequado o uso da meta-análise como ferramenta metodológica para avaliar a consistência interna dos dados coletados, bem como a metodologia utilizada em uma revisão sistemática na qual foram seguidas as diretrizes do Prisma 2020. avaliar a contribuição de 30 artigos científicos para a elaboração do manuscrito publicado, para os quais foram verificados 27 itens que compõem a escala de verificação Prisma. Especificamente, foi aplicada uma escala de alta confiabilidade para avaliação de artigos científicos, a fim de descartar possíveis vieses na primeira seleção, e o artigo publicado foi avaliado. A aplicação do checklist possibilitou identificar pontos fortes e desafios no processo de busca e gestão de informações. Da mesma forma, a análise estatística permitiu determinar a fiabilidade do questionário Colin e as contribuições por dimensões dos artigos em análise. A avaliação do artigo publicado, segundo a escala de avaliação de documentos científicos, colocou-o na faixa médio-alto e, segundo o teste Rho de Spearman, obteve-se o valor de 0,667, com nível de significância de 0,002. Isto demonstrou uma correlação positiva moderada entre a média das notas obtidas pelos artigos em análise e a das notas obtidas pelo artigo publicado. Concluindo, foram relatados o exame do processo de coleta e gerenciamento de informações, os resultados dos testes estatísticos e a qualidade do artigo publicado. Além disso, foram apresentados os desafios para o desenvolvimento de revisões sistemáticas e propostas futuras linhas de pesquisa.

Palavras-chave: Questionário Colin, meta-análise, Prisma 2020, revisão documental sistemática.

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Introduction

The word *meta-analysis*, according to Fau and Nabzo (2020), was first used by psychologist Glass in 1976 to refer to the statistical analysis of results obtained in multiple clinical trials related to a common topic, so that they could be jointly validated. Thus, in later years, it was used in both psychology and social sciences, until it gained greater popularity starting in 1980. Among the reasons for its use is its function as a synthesis tool, since it allows estimating quantitative relationships between variables, increase the precision of estimates, propose generalizations, evaluate the quality of the methodology used, identify areas of opportunity, and increase the validity of individual studies.

However, its uncritical use has been questioned since methodological rigor is sometimes ignored by ignoring limitations in the collection and evaluation of data from original research. This is important, as Cañón-Montañez and Rodríguez- Acelas (2021) point out, as well as Page *et al*. (2021), since systematic reviews (SR) and meta-analysis, by promoting rigorous research methodologies, generate new knowledge by consolidating findings in the studies analyzed. In line with this, Manterola *et al*. (2023) explain that SRs propose an exhaustive and complete search of the available evidence on a specific field of study, which implies following a standardized protocol to optimize the literature search.

Based on the above, the present study seeks to delve into formal aspects of the measurement process, which include both the properties of the instrument and the data management procedure. The objective of this analysis is to evaluate the contribution of 30 scientific articles used in the preparation of the published document. As established by Villalobos-Antúnez *et al*. (2024), this procedure is situated in the positivist paradigm, widely accepted and applied. Specifically, the controversies inherent to the worldview that underpins it are not addressed, but rather the strengths of its methodology, which considers internal validity as the basis of scientific rigor. In this sense, it seeks to correlate variables to detect general relationships between the observed phenomena, using the hypothetical-deductive method and resorting to information collection techniques such as questionnaires and coded scales to measure attitudes.

In accordance with the above, the instruments used must present adequate reliability and validity characteristics that support the information collected (Fernández González *et al*., 2024). Consistency in the measurement process refers to reliability, which increases as the variation in the values of repeated measurements of the instrument decreases, allowing us to evaluate the degree to which it measures what it was designed to measure. One of the most used statistics to determine this variable is the Cronbach's alpha correlation coefficient.

On the other hand, validity refers to the degree to which the instrument measures the variable being measured, which includes both content validity, which reports on the degree to which the values obtained are representative of the topic to be measured, and face validity, which focuses on the degree to which the instrument evaluates the selected variable (Del Real-García, 2023).

Specifically, the present study focuses on the analysis of the selected evidence around

the following research question: what results does the meta-analysis provide on information management and the structure of the articles used in a systematic review on the topic? of digital culture in the telesecundary school curriculum? To provide a framework of reference for the statistical treatment, the process of collecting and systematizing the documentation was analyzed.

Furthermore, the question asked was tested using the following general hypothesis: there is a correlation between the average of the grades obtained by the articles under review and the average of the grades obtained by the published article.

To support the statistical analysis process, integrating matrices were used with the support of the Excel program and tests were carried out using IBM SPSS *software*. Likewise, Cronbach's alpha test was used as a reference statistic, as well as tests to determine the normality of the data and attention was paid to fundamental statistics such as Spearman's Rho test.

Methodology

A fundamental step to take advantage of the strength of meta-analysis is the review of the documentary information collection system. Therefore, in the first phase, the search and data collection strategies of the document object of this study were examined, whose records adhere to a checklist of 27 items that includes 42 elements for verification, specifically those linked to the systematic reviews (SR) according to the Prisma 2020 methodology (López-Rodríguez *et al*., 2023).

For Ramos-Galarza and García-Cruz (2024), the antecedents of SR are found in narrative reviews that were based on documentary sources on a given topic. These reviews lacked a rigorous method for collecting and locating information. However, with the advancement of digital culture and the exponential growth of information, it is assumed that current narrative reviews must include a systematic process that describes the method followed for searching for information and locating documents.

Based on these criteria, this study article has characteristics that define it as a SR, since its findings are related to bibliographic references available on the web and have been systematized following a rigorous method. According to González and Balaguer (2021), a precedent for the methodology used in the reference article is found in the Prism Declaration, which contributes to the clarity of the data collection, systematization, and interpretation process, as well as transparency in the publication. of scientific articles. This statement includes an extension of 32 items, especially useful for SRs that use network meta-analysis, as it incorporates novel concepts and terminologies in the treatment of scientific evidence.

Subsequent reviews of this methodology consolidated in 2020 a checklist of 27 items related to each of the sections and topics of scientific publications, which specify the review by verifying 42 elements, usually supported by a documentary flow chart and accurate reports.

Regarding the second phase, data analysis, we focused on statistical aspects typical of meta-analysis. As established by Araujo- Inastrilla (2024), statistical tests are used to determine the probability that the results obtained from a sample are applicable to the population of origin, which is why they recommend not unnecessarily complicating this process. Usually, in statistical analyses, normality contrasts between the data are defined, the

purpose of which is to show to what extent the distribution of the data differs taking as reference a normal distribution with equal mean and standard deviation. In this sense, Riva *et al*. (2024) ensure that through measurement it is possible to address both theoretical and practical aspects, which allows inferences related to the potential of instruments, techniques or methodologies to be established.

Following this principle, the instrument developed by Colin and referred to by García-Castellanos (2016) allows, through a questionnaire with 13 criteria, the evaluation of scientific articles using the Likert scale. To do this, the researcher assigns each of the questions a rating with a minimum score of 1 point and a maximum of 4, thereby obtaining a sum of 52 per article. In the case of this review, the minimum value for being accepted in the final phase was 39 points, equivalent to 75% of the potential to be evaluated. The methodology requires that the inclusion and exclusion conditions be assessed by two researchers to strengthen the review. The qualification of each article provides data that, integrated into a matrix, can be analyzed quantitatively using descriptive and inferential statistics with the support of graphs, which allows the selection to be made in accordance with the established requirements and inform the reasons for discarding or acceptance.

In this meta-analysis it was verified that, prior to the application of the Colin questionnaire, adjustments were generated to contextualize the instrument to the research topic according to the 13-question model (in all cases referring to the style recommended by the author). Likewise, the previous choice by quartiles was replaced, so that a preliminary screening was carried out according to the publication quality of the journals of origin. Then, each of the 30 items was evaluated independently using the Likert scale. Likewise, with the purpose of corroborating the risk of bias in the selection of articles, a factor analysis was carried out that allowed the data to be grouped into 8 dimensions for analysis, although it should be noted that this grouping is not part of the original proposal of the Colin questionnaire.

In addition to this, it was considered appropriate to take advantage of the potential of the Scale for Evaluating Scientific Articles in Social and Human Sciences (EACSH), which, according to López-López *et al*., (2019), can serve as a guide in writing or evaluating scientific articles, especially in the Latin American context. This scale is characterized by being oriented towards quantitative studies of a descriptive and exploratory type in the social and human sciences. The instrument consists of 8 dimensions and 21 descriptors that are evaluated using the Likert scale, where the minimum score per item is 1 and the maximum is 5, with a potential of 95 points. The rating scale establishes 5 levels, from very low to very high, according to ranges of 19 elements. The reliability of the EACSH was established at 0.937, according to Cronbach's alpha correlation coefficient. In this regard, it should be noted that Prieto (2021) recently used this scale to carry out a systematic review in education.

Now, to deepen the analysis, the contributions of Arias Gonzáles (2021) were taken into consideration, who mentions that for the coding of the study it is necessary to develop a protocol that addresses moderating variables. Therefore, methodological variables related to the instrumentation in data collection and publication of the article were selected as references (Table 1). Likewise, the recommendations of the author were considered, who defines the operationalization of variables as an orderly and specific process of quantitative nature, which goes from the general to the particular, in order to evaluate variables through

the analysis of dimensions and indicators.

The research question formulated was the following: what results does the meta-analysis provide on the management of information and the structure of the articles used in a systematic review on the topic of digital culture in the telesecundary school curriculum?

The general hypothesis was this: there is a correlation between the average of the grades obtained by the articles under review and the average of grades obtained by the published article.

Table 1. Operationalization of variables

Variables	V1. Articles under review	V2. Article published
Conceptual definition	Coherent, clear, precise, brief, and organized publications; subjected to scrutiny according to the scientific potential of constituent elements.	Editorial document with scientific potential; It integrates contributions to answer an investigative question in accordance with methodological, publication and style criteria, agreed upon by the academic community.
Operational definition	Application of the EACSH to 30 articles under review.	Application of the EACSH to 1 article published in *Eduweb magazine* in 2023.
Dimensions	A. Cover and summary	A. Cover and summary
	B. Introduction	B. Introduction
	C. Methodology	C. Methodology
	D. Results	D. Results
	E. Discussion	E. Discussion
	F. References	F. References
	G. Appendices	G. Appendices
	H. Style and format	H. Style and format
Indicators	13	twenty-one
Scale	Ordinal. Likert. Levels: 1 = Very low; 2 = Low; 3 = Medium; 4 = Medium high and 5 = Very high.	Ordinal. Likert. Levels: 1 = Very low; 2 = Low; 3 = Medium; 4 = Medium high and 5 = Very high.

Source: Own elaboration based on Arias González (2021)

Ramírez and Polack (2020) highlight the importance of recognizing that quantitative research methodology classifies statistical tests into parametric and non-parametric tests, which are distinguished by their inherent strength. Parametric tests, considered more robust, require meeting conditions such as following a normal distribution and homoscedasticity, which refers to the constancy of the value of the error variance between variables, with a value of $p \geq 0.05$.

In contrast, nonparametric tests are used in small samples or when the conditions for a normal distribution are not met, and do not require homoscedasticity. Regarding biases, Conejero (2021) warns that publication bias, that is, the decision to publish or not the data collected in scientific studies, is a risk to the reliability of any meta-analysis. This is due to the tendency to selectively publish significant discoveries, which can lead to the exclusion of papers with statistically non-significant findings.

Results

Phase 1. Search and data collection strategies

At the genesis of this meta-analysis, the trial of the successive qualitative documentary screening technique is described as a complement to the Prisma 2020 flow chart. Table 2 summarizes the work moments, the actions followed, and the results obtained in this phase.

Table 2. Summary of the successive qualitative documentary screening technique

Stage	Description	Results
ID	Search according to keywords and inclusion-exclusion criteria.	General review of 914 documents, found on 8 digital platforms.
Coarse sieve	Reading recognition, inclusion exclusion criteria, digital collection.	47 selected articles. Discarded 867.
Medium sieve	Reading with emphasis on key words, summary, and conclusions.	Selected 34. Deleted 13.
Aggregates	Inclusion of articles not considered justifying probable impact and contribution.	Four articles were included and the reasons for inclusion were justified.
fine sieve	Journal metrics analysis. Selection according to CIRC.	30 articles chosen; CIRC C or higher. Discarded 8 with CIRC D or lower.
Screening	Application of an instrument to assess the quality of bibliographic articles.	28 articles considered suitable. 2 with a score lower than desired.
Final selection	Integration of data and statistical criteria. Colin test with Likert scale. Correlation test.	Average per article 89% = 3.56. Likert 28 > 75%; 2 < 75%. Cronbach's alpha: 0.68

Source: Own elaboration

Regarding the technique used, the existence of documentary records that detail the inclusion route for each of the articles has been verified, as well as a precise description of the process to follow. However, although this information has been shared among colleagues, the piloting process has not yet been formalized.

Likewise, it has been confirmed that the selected digital platforms meet scientific criteria for hosting research documents, of which the downloads of Scopus, Redalyc, Internet Archive Scholar and Scielo stand out. With this information, comparisons of metrics from these sources were carried out, as summarized in Table 3.

Table 3. Classification of magazines and selected articles

Magazine title	CIRC 2020	Articles
Communicate.	CS A+	4
Digital Education Review.	C.S.B.	1
Education XX1.	CS A+	4
Education Policy Analysis Archives.	C.S.B.	1
IE Educational Research Magazine of the REDIECH.	CS C	2
Journal of New Approaches in Educational Research.	CS A	4
REDIE. Electronic Journal of Educational Research.	C.S.B.	1
RELATEC.	C.S.B.	1
RELIEVE.	C.S.B.	1
Renote.	CS D	1
Eureka Magazine on Science Teaching and Dissemination.	C.S.B.	4
Ibero-American Journal of Higher Education.	CS C	1
Ibero-American Journal of Studies in Education.	C.S.B.	1
Innova Education Magazine.	CS C	1
Mexican Journal of Educational Research.	C.S.B.	1
Interuniversity magazine of teacher training.	C.S.B.	1
Theias.	CS C	1

Source: Own elaboration

To support the scrutiny, an exhaustive search was carried out in the published article to compare the findings with the documentary records that gave rise to the writing of the manuscript, which allowed the process to be comprehensively verified. In this regard, it is specified that the published article corresponds to a systematic documentary review whose protocol was reviewed and shared among colleagues but was not hosted in any institutional repository or electronic platform with free access and verified quality available for this purpose.

In relation to this, an account of the process followed in the systematization of the study was made, with emphasis on the inclusion and exclusion criteria. The search for data on digital platforms was also verified regarding metrics and statistics of the publications. Subsequently, the compliance of the items was compared according to the Prisma 2020 checklist. Of a total of 27 items, it is reported that 16 were completely complied with, 2 were partially complied with, and no information was provided for nine, as shown. in table 4.

Table 4. Checklist for presentation of SR and meta-analysis

Items: Sections and topics	List	Aspects to verify	Pages
Qualification	1	Identify the study as a systematic review.	1
Summary	2	Indicate objective, methods, results, and conclusions.	1
Basics	3	Describe topic and justify use of the review.	2
Goals	4	Explain objectives or questions that guide the study.	1-3
Admission criteria	5	Justify inclusion and exclusion requirements.	4-5
Information sources	6	Complete description of sources used.	2-5, 13-15
Search strategy	7	Explain the inquiry strategy in detail.	3-5
Study selection	8	Specify compliance with admission criteria.	1,4,5
Data collection	9	Report on methods and tools used.	3-6
Databases	10a	Show search variables, settings, and results.	4.5
	10b	Clarify complementary variables in the search.	6-12
Bias assessment	11	Assess risk of bias and the role of reviewers.	
Effect measures	12	Specify effect measures for each outcome.	
Synthesis methods	13a	Explain management and combination of results.	5-6
	13b	Review method for presenting synthesized data.	4-5
	13c	Describe method to display the results.	5-6
	13d	Justify method when presenting synthesis of results.	4-6
	13e	Explain method used to explain heterogeneity.	3-4
	13f	Describe analysis to evaluate synthesis robustness.	4
Reporting bias	14	Describe how bias was assessed in the absence of results.	
Certainty assessment	15	Outline method(s) to evaluate reliability.	4
Study selection	16a	Trace the process of searching and selecting works.	4,5,6,11
	16b	Explain causes of exclusion of potential sources.	5
Study characteristics	17	Declare included studies and their characteristics.	4-5
Risk of bias in analysis	18	Validate risk of bias for each included study.	
Individual studies	19	Display detailed statistical results and graphs.	5
Synthesis results	20 a	Show risk of bias between participating studies.	
	20b	Display results of the total statistical synthesis.	5
	20c	Present the product of causes of heterogeneity.	
	20d	Present solidity analysis in summary of results.	
Reporting biases	21	Refer bias assessments in the absence of results.	
Certainty of evidence	22	Manifest evaluations of reliability of results.	12
Discussion	23a	Interpret results according to different perspectives.	6-12
	23b	Reason limitations of the evidence presented.	12,13
	23c	Demonstrate limitations in the review processes.	
	23d	Analyze the effect of results in various areas.	12,13
Registration and protocol	24a	Review registration data or clarify non-registration.	
	24b	Route access to the protocol or clarify that it was not prepared.	
	24c	Explain settings in registration and/or protocol.	
Support	25	Describe sources of support and their influence on the revision.	
Conflict of interests	26	Refer if there are conflicts of interest due to reviewers.	
Documentary support	27	List resources and where they are available.	

Source: Own elaboration based on the Prisma checklist (2020)

It was confirmed that the article addresses the treatment of 27 of the 42 aspects of the checklist, all of them related to the systematization of a systematic review (SR).

The aspects not indicated by the published article are linked to the identification and validation of bias factors, the analysis of the robustness of the findings and the integration of complementary documentation, relevant aspects to consider in a meta-analysis.

Furthermore, it was verified that the documentary support is integrated, although it is not hosted in any publicly accessible digital repository, nor is the possibility of free access

for other researchers mentioned.

During the examination of the work log, matrices in Excel format that systematized data management were reviewed, from the investigation of general descriptors and thesauruses to the first tests with Boolean operators, access and the results obtained on each of the platforms, compliance with the inclusion and exclusion criteria, as well as the justification of minor changes made during the research, such as the incorporation of 4 articles considered with potential contribution, but not initially selected, and some style adjustments in the capture boxes of information.

In relation to the bibliographic support of the research, the system used to integrate documentary sources into digital folders, the management of citations and references with the help of the Zotero program, the process of integrating categories from matrices for analysis were examined. of keywords in Excel and their management online with the Lingua kit program.

The process of incorporating the information derived from the application of the Colin questionnaire in a matrix was also verified.

In addition, drafts were reviewed, and corrections suggested by both co-authors and colleagues, including testing through anti-plagiarism programs such as Plagiarism Checker

Phase 2. Statistical tests

Orozco and Lamberto (2022) maintain that - from scientific, legal, and ethical perspectives - it is imperative to collect evidence that ensures the validity of the inferences in the search for new knowledge, hence progress has been made in the analysis of the scores obtained.

Review of the internal structure of the articles as a documentary source

The results of the first evaluation of the documentary sources are summarized in table 5. Of the 30 documentary sources, 28 were selected. The minimum inclusion score was 75%, while the average score was 88.8%.

Likewise, the reliability of the questionnaire used for the selection of articles was determined, using the preceding matrix of figures.

The reliability of the instrument is revealed in tables 6 and 7.

Table 5. Matrix according to application of the Colin questionnaire (screening stage)

Article	Questions. Qualification obtained.													Score	Average	Qualification	Category
	1	2	3	4	5	6	7	8	9	10	11	12	13				
1	4	4	4	1	2	1	4	2	0	2	3	3	0	30	2.3	57	Exclude
2	4	4	4	4	3	0	4	4	4	4	4	3	4	46	3.5	88	Include
3	4	3	4	4	3	0	4	4	4	4	3	3	4	44	3.4	85	Include
4	3	3	1	1	3	0	4	4	2	4	4	3	4	36	2.8	69	Exclude
5	3	4	4	4	4	2	4	4	4	4	4	4	4	49	3.8	95	Include
6	4	4	4	4	3	2	4	4	4	4	4	4	4	49	3.8	94	Include
7	4	4	4	4	4	1	4	4	4	4	4	4	4	49	3.8	94	Include
8	4	4	4	4	4	2	4	4	4	4	3	4	4	49	3.8	94	Include
9	4	4	4	4	3	2	4	4	4	4	4	4	3	48	3.7	92	Include
10	4	4	4	4	3	3	4	4	4	4	4	4	4	49	3.8	94	Include
11	4	4	4	4	4	3	4	4	4	4	4	4	4	51	3.9	98	Include
12	4	4	4	4	4	4	4	4	4	4	4	4	4	52	4.0	100	Include
13	4	4	4	4	3	4	4	4	4	4	4	4	4	51	3.9	98	Include
14	4	4	4	4	3	4	4	4	4	4	4	4	4	51	3.9	98	Include
15	4	4	4	4	4	4	0	4	4	4	4	4	4	48	3.7	92	Include
16	4	4	4	4	4	4	4	4	4	4	4	4	4	52	4.0	100	Include
17	3	4	4	4	3	0	4	3	4	4	2	2	3	40	3.1	77	Include
18	4	4	4	4	4	4	0	4	4	4	4	4	4	48	3.7	92	Include
19	4	4	4	4	4	0	0	4	4	4	4	3	4	43	3.3	83	Include
20	4	3	4	4	3	3	0	4	4	4	4	4	4	45	3.5	87	Include
21	4	4	4	0	3	0	4	4	2	4	4	3	4	40	3.1	77	Include
22	3	4	4	4	4	2	0	4	4	4	4	4	4	45	3.5	87	Include
23	3	4	4	4	4	1	4	4	4	4	4	4	4	48	3.7	93	Include
24	3	4	4	2	4	1	0	4	4	4	4	4	4	42	3.2	81	Include
25	3	4	4	4	4	4	4	4	4	4	4	4	4	51	3.9	98	Include
26	4	4	4	4	3	1	4	4	4	4	4	4	4	48	3.7	92	Include
27	3	4	4	4	4	2	4	4	4	4	4	4	4	49	3.8	95	Include
28	4	3	4	0	3	2	3	3	4	4	1	4	4	39	3.0	75	Include
29	3	4	4	4	3	1	4	4	4	4	4	4	4	47	3.6	91	Include
30	3	4	1	4	4	1	4	4	4	4	4	4	4	47	3.6	91	Include

Source: Own elaboration

Table 6. Analysis to determine the reliability of the Colin questionnaire

Case Processing Summary			
Cases		N	%
	Valid	13	100.0
	Excluded [to]	0	.0
	Total	13	100.0
to. Listwise elimination is based on all variables in the procedure.			
Reliability statistics			
Cronbach's alpha		# of elements	
.922		30	

Fountain. Own elaboration

Table 7. Classification by Cronbach's alpha reliability levels

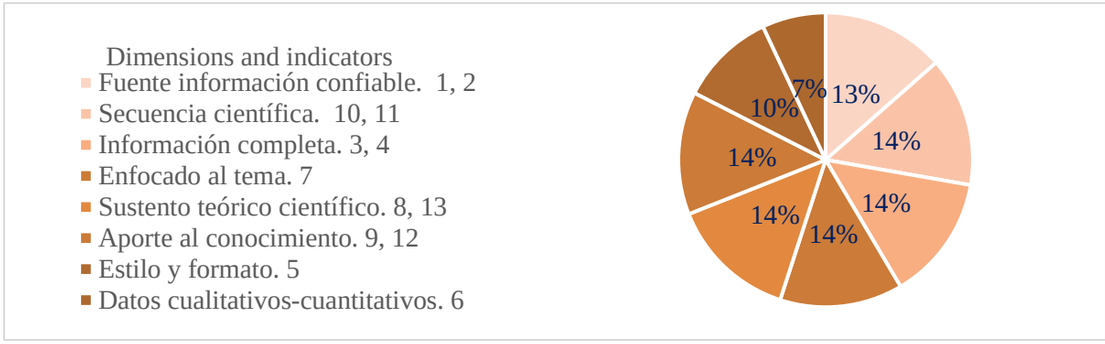
Index	Reliability level	Cronbach's alpha value
1	Excellent	.900 - 1
2	Very good	.700 - .899
3	Well	.500 - .699
4	Regular	.300 - .499
5	Deficient	.001 - .299

Source: Own elaboration based in Tuapanta data *et al*. (2017)

Conclusion: The reliability of the Colin 2007 questionnaire presents a good degree of internal consistency with α value = .922 and margin of error of 5% within the range for social research.

On the other hand, to evaluate the contribution of the articles, each of the items was related to the dimensions proposed for the instrument and contributions were identified, as shown in Figure 1.

Figure 1. Contribution of the articles according to the dimensions of the questionnaire.



As seen in the image, 6 of the dimensions have values above the average, which is equivalent to 12.5 %; while 2 of the dimensions show a lower value. In general, a balanced contribution by dimensions of the 30 articles under review is presented.

Likewise, to identify possible biases in the selection of articles, they were evaluated a second time using a different instrument, the results of which are shown in Table 8.

Table 8. Second evaluation of articles under review. EACSH

Articles	Rating by indicators. Likert scale.																			Scores
	1	3	4	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1	3	4	4	3	3	3	4	4	4	3	5	4	3	3	3	5	0	4	5	67
2	3	5	4	5	5	5	5	5	5	5	0	5	5	5	5	5	0	5	5	81
3	3	4	4	5	5	5	5	5	5	5	0	5	5	5	5	5	0	5	4	79
4	3	3	3	5	5	5	5	5	5	5	0	5	5	5	5	5	0	5	5	78
5	4	5	4	4	5	5	5	5	5	5	5	5	5	5	4	5	0	5	5	84
6	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	87
7	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	88
8	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	88
9	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	89
10	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	4	88
11	4	4	5	5	5	5	5	5	5	5	5	5	5	5	4	5	0	5	4	86
12	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	0	4	3	84
13	4	5	5	4	5	5	5	5	5	4	5	4	5	5	5	4	0	5	4	82
14	3	4	5	4	5	5	5	5	5	5	5	5	5	5	5	4	0	5	5	84
15	3	5	4	5	5	5	5	5	5	5	5	5	5	5	5	4	0	5	3	82
16	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	1	5	5	89
17	3	5	5	3	5	5	5	4	5	5	3	0	5	4	5	5	1	5	5	77
18	3	4	5	5	5	5	5	5	5	5	0	5	5	5	5	4	0	5	4	78
19	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	0	5	5	87
20	3	5	4	5	5	5	5	5	5	5	0	5	5	5	5	4	2	5	4	81
21	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	4	0	5	3	84
22	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	2	5	5	90
23	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	89
24	3	4	4	5	5	5	5	5	5	5	3	4	5	5	5	4	0	5	5	81
25	5	4	4	5	5	5	5	5	5	5	5	5	5	5	5	4	2	5	5	88
26	4	5	5	5	5	5	5	5	5	5	2	5	4	5	4	5	0	5	5	83
27	3	4	5	5	5	5	5	5	5	5	3	5	5	5	5	3	1	4	3	80
28	2	3	5	4	5	4	4	5	5	5	5	0	5	5	5	4	0	5	5	75
29	3	4	4	4	5	5	5	5	5	5	3	5	5	5	5	4	0	5	5	80
30	3	5	5	4	5	5	5	5	5	5	3	5	5	5	5	4	0	5	5	83

Source: Own elaboration

The average obtained by the 30 articles under review was 83 points, according to the EACSH, with a reliability of 0.937, according to Cronbach's alpha coefficient. This score is in the range of 77 to 95 (considered high), which agrees with the evaluation obtained in the same instrument, which was 87.36%.

Evaluation of the published article

The EACH tool proposed by López-López et al. was used. (2019). Table 8 shows the summarized data matrix and Table 9 shows its complement to evaluate

Table 8. Evaluation of the published article according to the EACSH tool

Dimension	Item	Indicators	Worth
Summary	1	Title valuation. Present at least 16 words. Terms with more than four letters begin with a capital letter. Centered.	3.0
	3	Summary in Spanish and English, defines objectives, methodology, results, and conclusions. Meets editorial criteria. Up to 250 terms.	4.33
	4	Presents 4 to 8 keywords, extracted from a Thesaurus. Follows the guidelines of the selected editorial publication.	4.00
Introduction	6	Critical review of the studies used. Citation quality.	5.00
	7	Clarity, relevance, and academic writing of objectives.	5.00
Methodology	8	Describes type and scope of study, analysis logic and time.	5.00
	9	Description of participants, sample, inclusion, and exclusion criteria.	5.00
	10	Description of instruments used or data collection technique. Specifies authors, reliability, and validity of the methodology.	4.67
	11	Describes techniques for data analysis and presents ethical criteria.	5.00
Results	12	From the general to the, in a systematic, organized, and synthesized way presenting relevant and original aspects.	5.00
	13	Assertive use of tables and figures.	5.00
	14	Data analysis according to the type of study.	5.00
Discussion	15	Each study purpose is concluded in detail with similar studies in support or controversy.	5.00
	16	Description of notable contributions to the study, research limitations and practical contributions of the study.	5.00
	17	Recommendations for future studies considering trends in the work area are presented in an argued manner.	4.00
References	18	Citation attachment according to the latest edition APA style.	4.00
Appendices	19	They are presented at the end of the article or digital access links; If not, assess why the appendices have not been published.	0.00
Style and format	20	The article complies with current Apa standards or the guidelines of the journal where it will be published. Rigorous academic writing.	5.00
	21	Complies with publication standards for scientific journals. There is no information in the text that allows identifying the authors.	5.00

Source: Own elaboration based on the EACSH designed by López-López *et al*. (2019)

Table 9. Evaluation references according to the EACSH

Score obtained	1 - 19	20 -38	39 - 57	58 – 76	77 - 95
Level	Very low	Low	Half	Medium High	High

Source: Own elaboration based on López-López *et al*. (2019)

Conclusion: The general score obtained by the published article, object of the meta-analysis and evaluated using the EACSH instrument, with a reliability of 0.937 according to Cronbach's alpha coefficient, was 84 points. This score is in the range of 77 to 95, which corresponds to a high level of evaluation, comparable to 88.42%.

Operationalization of variables

To address the general research hypothesis, which establishes that the average of the grades obtained by the articles under review is correlated with the average of grades achieved by the published article, the information was systematized, as shown in table 10.

Table 10. Average grade obtained using the EACSH

Variables	Grades obtained by items																		
	1	3	4	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
V1	3	4	4	5	5	5	5	5	5	5	4	5	5	5	5	4	0	5	4
V2	3	4	4	5	5	5	5	5	5	5	5	5	5	5	4	4	0	5	5

Source: Own elaboration

Work hypothesis

Ho = There is no correlation between the average of the grades obtained by the articles under review and the average of the grades obtained by the published article.

H_i = There is a correlation between the average of the grades obtained by the articles under review and the average of the grades obtained by the published article.

Validation rule

Ho = The sample has a normal distribution.

H_i = The sample has a non-normal distribution.

Where / Criteria / Decision rules:

Confidence level = 95%

$p < .05$; Ho is rejected, and it is accepted that the sample has a non-normal distribution.

$p \geq .05$; Ho is accepted, accepting that the sample has a normal distribution.

Next, normality tests were applied using the scores obtained with the application of the EACSH to the 19 items of the instrument, as seen in Table 11.

Table 11. Normality tests.

	Kolmogorov-Smirnova [a]			Shapiro Wilk		
	Statistical	gl	Next.	Statistical	gl	Next.
V1	.331	19	,000	.575	19	,000
V2	.316	19	,000	.549	19	,000
[to.] Lilliefors significance correction						

Source: Own elaboration

Conclusion: After applying the Shapiro-Wilk test, it was observed that both variables have a sample size of less than 30, and the degree of significance between them was 0.000. According to the conventional rule of $p < 0.05$, the null hypothesis (Ho) is rejected, and it is accepted that the samples do not follow a normal distribution.

Consequently, non-parametric tests were used for data analysis. In particular, it was considered appropriate to use Spearman's Rho test. The results are summarized in table 12 and its complement in table 13.

Table 12. Test of correlations according to scores obtained in 8 dimensions

Spearman's Rho test		V1. Articles under review	V2. Article published
V1. Articles in Review	Correlation coefficient	1,000	.667 **
	Sig. (bilateral)	.	.002
	N	19	19
V2. Article Published	Correlation coefficient	.667**	1,000
	Sig. (bilateral)	.002	.
	N	19	19
**. The correlation is significant at the 0.01 level (two-sided).			

Source: Own elaboration

Table 13. Values according to Spearman's Rho correlation coefficient

Rho Value	Meaning of correlation		Rho Value	Meaning of correlation
1	Big and perfect positive		-1	Big and perfect negative
.90 to .99	Very high positive		-.90 to -.99	Very high negative
.70 to .89	High positive		-.70 to -.89	High negative
.40 to .69	Moderate positive		-.40 to -.69	Moderate negative
.20 to .39	Low positive		-.20 to -.39	Low negative
.01 to .19	Very low positive		-.01 to -.19	Very low negative
0	Null correlation		0	Null correlation

Source: Own elaboration

Conclusion: The Spearman correlation coefficient (Rho) obtained was 0.667 bilateral, which indicates a moderate positive correlation between variable 1 (articles under review) and variable 2 (article published), with a significance level of 0.002.

Subsequently, the possible existence of correlation between the scores reported in Table 5, corresponding to the first selection of articles, and the scores obtained in the second evaluation, as presented in Table 8, was investigated. To do this, tests were first carried out. of normality, as can be seen in table 14.

Table 14. Tests of normality to scores of reviewed articles

	Kolmogorov-Smirnova [a]			Shapiro Wilk		
	Statistical	gl	Next.	Statistical	gl	Next.
1st Evaluation	.205	30	.002	.862	30	.001
2nd Evaluation	.113	30	.200 *	.921	30	.028
[to.] Lilliefors significance correction						

Source: Own elaboration

Conclusion: According to the Shapiro-Wilk test, both variables have a sample size greater than 30. The highest degree of significance between them corresponds to the second application, which is equivalent to 0.028. According to the conventional rule of $p < 0.05$, the null hypothesis (Ho) is rejected, and it is accepted that the samples do not follow a normal distribution.

Given the type of non-normal distribution, Spearman's Rho test was applied to analyze the correlation between the variables. The results are summarized in table 15.

Table 15. Correlation test between scores obtained by selected articles

Spearman's Rho test		1st evaluation	2nd evaluation
1st evaluation	Correlation coefficient	1,000	.549 **
	Sig. (bilateral)	.	.002
	N	30	30
2nd evaluation	Correlation coefficient	.549 **	1,000
	Sig. (bilateral)	.002	.
	N	30	30
**. The correlation is significant at the 0.01 level (two-sided).			

Source: Own elaboration

Conclusion: With a bilateral Spearman correlation coefficient (Rho) of 0.549, a moderate positive correlation is confirmed between the scores obtained in the first evaluation and those reported in the second. This suggests that as the values reported by the Colin 2007 questionnaire increase, so do those obtain by the EACSH, and vice versa.

Discussion

The results of the meta-analysis represent a crucial reference point for documenting and improving the research process. These findings are closely related to the techniques used in data management and the decisions made by the researcher to minimize bias. In this sense, the suggestions of Chambergo- Michilot were considered. *et al*. (2021) and Camilli Trujillo *et al*. (2020), who identify areas of opportunity in the face of the new paradigms of systematic reviews (SR) and meta-analysis, and the importance of their treatment in Latin America and in the educational field.

Now, in phase 1, which focused on search and data collection strategies, the technique proposed by the authors was reviewed, that is, qualitative documentary screening, which seeks to strengthen the data systematization process. along with the Prisma 2020 document search and selection graph. In this regard, it can be indicated that an area of opportunity was identified to justify it theoretically, carry out new pilots, promote review by experts and make it available to the academic community. As pointed out by Riva *et al*. (2024), an instrument validated for a particular group may present random errors due to various reasons, such as the magnitude of the observed differences, the sample size, and both individual and interindividual variability. Consequently, the validation process must be continuous and permanent.

On the other hand, the analysis of the metrics and statistics of each of the journals where the articles that were part of the manuscript were published allowed us to determine that the quality of the selected documents is in the good-excellent range. Likewise, one source with classification D and three were incorporated without considering the year of publication in detachment from the inclusion criterion but justifying its incorporation during the process and complying with subsequent validations.

However, two journals with a B classification were not included in the references of the manuscript because they did not meet the required rating in the screening stage, according to the evaluation obtained in the Colin instrument. This situation may imply cognitive biases, as Villarruel-Fuentes (2019) points out, including limiting criteria of the researchers that could introduce implicit biases in the instruments and methodology, or that the quality of the

articles does not correspond to that of the journals where They are housed. These questions, therefore, require specific investigations in future work.

Regarding the analysis of the journal metrics, this made it possible to identify a lack of homogeneity in the specialized platforms for the classification of publications. This situation has an impact on the management of time and resources, since it is essential to carry out a series of equivalences to compare sources, which is often fruitless. This poses an academic challenge that is being addressed with advances by the CIRC digital support, considered ideal for this systematic review (SR), although it is worth noting that many unclassified publications are not indexed on this platform.

Likewise, the analysis was advanced by exploring multiple facets of the origin review, according to the 27-item Prisma 2020 checklist, using its findings to strengthen the systematization of the process, but not to evaluate it. This aspect could be complemented using the EACSH tool, which has the potential to be more appropriate to the Latin American context.

In particular, it was found that the article addressed 27 of the 42 aspects according to the checklist, all related to the systematization of a SR. The aspects not addressed are linked to the identification and validation of bias factors, analysis of the robustness of results and integration of complementary documentation, fundamental elements in a meta-analysis. Furthermore, it was verified that the documentary support is not hosted in any publicly accessible digital repository nor is the possibility of free access for other researchers mentioned in the published article.

One dimension evaluated by the EACSH is the inclusion of appendices as part of the scientific article, which were not included in the reference documentary SR nor are they available for digital consultation by the public. Although the process was shared among colleagues and feedback was received, this practice does not fully comply with the methodological rigor proposed by the Prisma 2020 methodology for SR and meta-analysis. Even so, this report provides additional data on the genesis, process, and construction of the documentary SR under study to remedy this situation.

It is important to highlight that the registration of protocols for carrying out SR is a necessary and valued practice in the field of clinical research. However, in SR in social sciences, this process represents a challenge for each of the stages of SR to be available on free access digital platforms with academic strength, as mentioned by Pizarro *et al*. (2020).

Regarding the treatment of phase 2 (statistical tests), the operationalization of variables was carried out following the proposal of Arias González (2021) with the relevant adjustments. For the use of instruments, the Colin questionnaire was used with adaptations to the methodology that proposes a final selection by quartiles, so that it was replaced by a fine screen based on an exhaustive analysis of the metrics of the publications available on the specialized CIRC platform.

Regarding the adjustment made in the selection of documents, it seems that it did not have a significant negative impact, given that the results of the analysis of the contributions by dimensions of the questionnaire are generally balanced and homogeneous. However, as highlighted by Riva *et al*. (2024), elements such as reliability, content, and construct validity, as well as concurrent validity are essential when evaluating contemporary scientific literature.

On the other hand, the analysis of web searches dedicated to the Colin questionnaire did not yield results on its reliability, even though it is cited in various master's and doctoral theses, as in the case of Poblano (2019). Therefore, to evaluate its reliability, evaluations were carried out on 30 articles under review, which resulted in a Cronbach's alpha correlation coefficient of .922 for the complete questionnaire, a value that reflects excellent reliability, with a range of 95% confidence.

It is important to highlight that, despite criticism, Cronbach's Alpha coefficient continues to be the most used statistic today to measure the level of internal consistency of an instrument. In fact, the discussion among experts is still open to determine the minimum acceptable value for this coefficient, although it is maintained as the minimum acceptable value from .70 (Cascaes da Silva *et al*., 2015, 2023; Riva *et al*., 2014; Tuapanta Dacto *et al*., 2017).

Likewise, it was considered pertinent to carry out a second evaluation of the selection of documents using the EACSH, and the average obtained in the review was 83 points, which is in the range of 77 to 95 (high), in correspondence with the evaluation obtained in the same instrument of 87.36%. Taking this reference and according to the population studied, it is concluded that the evaluation reported by the Colin questionnaire in the first application is 88.8%, slightly lower than its recently validated counterpart.

Therefore, it is concluded that Colin's questionnaire, with a Cronbach's alpha correlation value of .922 derived from the scrutiny of 30 articles under review, is within an acceptable range for research purposes. This means that the constitutive questions of the instrument are internally consistent for the reference matrix, although the need to validate its reliability with larger studies is recognized to refine the statistics involved, as recommended by Riva *et al* . (2024).

In accordance with what was stated by Arias Gonzáles (2021) and in accordance with the purpose of addressing the operationalization of variables, a rigorous analysis of the questionnaire indicators allowed it to be organized into 8 dimensions, which constitutes a balanced contribution by dimension to the manuscript. However, it should be noted that different organizations of the indicators could provide different statistical information, which represents a latent challenge for broader research in this sense in order to strengthen the reliability of the instrument.

In short, the application of the EACSH tool made it easier to compare the scores obtained between both variables. Furthermore, the challenge of linking scientific publications with digital appendices and the need to have complementary lists for the evaluation of indicators according to the nature of the documents was especially identified. On this matter, it is important to keep in mind that the inherent characteristics of the publications may be divergent in core aspects. For example, the structures of a thesis, an essay or a SR share aspects to be evaluated, although they differ in others. Therefore, it is essential to have validated instruments that allow evaluating the specific contribution of documentary sources to a published article.

An important strength of this meta-analysis is the origin of the articles under review, as they came from reliable sources of verified quality. This could be reflected in the correlation values obtained by contrasting the scores reported by both the Colin questionnaire and the scale in the first and second assessment of the documentary sources, since a bilateral

Spearman's Rho coefficient of .549 was obtained, which confirms a moderate positive correlation.

However, some limitations should also be noted, such as the lack of validated instruments to evaluate systematic reviews in social sciences. Although there are supports such as checklists, they do not discriminate between the diversity of documents that can be evaluated and whose characteristics may be heterogeneous.

Furthermore, it is recommended that instruments such as the Colin questionnaire be assessed periodically to calibrate their elements as digital culture advances and research practices evolve. As Orozco and Lamberto (2022) point out, it is essential to collect evidence that guarantees the validity of the inferences originated in the analysis of scores to respect the scientific, legal and ethical agreements inherent to the research process.

Finally, keep in mind that the data from the statistical tests presented correspond to small samples, with a reliability margin within the acceptable range for social research. Additionally, biases have been detected through exhaustive analysis of the available information, and challenges encountered in the process have been reported.

Conclusions

The deepening review of the search, selection and information management process has made it possible to identify significant challenges for systematic reviews in the social sciences. One of them is the necessary registration of the research protocol on free access and proven quality platforms, which would contribute to the transparency and replicability of the studies.

Likewise, it can be stated that the use of the Prisma checklist has facilitated the comparison of the stages applied, the contrast of data sources and the identification of areas of opportunity, such as the need to report on the consistency of the instruments and techniques used, as well as identifying possible publication biases. Furthermore, a lack of homogeneity has been observed between specialized platforms in terms of the dissemination of editorial metrics, which represents another challenge for researchers.

When considering the data collected through the Colin questionnaire and the EACSH, the researcher's hypothesis was confirmed, which stated the existence of a correlation between the average of the grades obtained by the articles under review and the average of the grades obtained by the published article. With a bilateral Spearman's Rho coefficient of .667 and a significance level of .002, a moderate positive correlation has been found between these variables.

In summary, by using the meta-analysis methodology, documentary SR is advanced, considering the scientific, ethical and legal importance of reporting on the internal consistency of the data collected and the methodology used in the preparation of scientific articles. In this sense, it is crucial to recognize that these values may vary in different populations, according to the objectives set and the context in which they are obtained, which highlights the need for a careful and contextualized evaluation of the results.

Future lines of research

In the present study, areas of opportunity marked by the situation of generating publications in social sciences that address new types of SR were identified: those of scope, umbrella and synthesis with a focus on map review. Consequently, it can be assured that the design of free access and verified quality techniques and instruments that evaluate the concrete contribution of documents to the publication of a SR constitutes a permanent challenge for the academic community. Likewise, the dissemination of studies in this discipline requires transcending institutional venues to rely on open access platforms with academic strength, so as to facilitate public access to research protocols and the products resulting from the investigative process.

Conflicts of interest

The authors state that this research was not motivated by people, associations or institutions, nor is there any political interest in its dissemination; Likewise, registration was not carried out on any electronic platform nor was sponsorship of any kind received.

Appendices

Access to the article in meta-analysis: https://doi.org/10.46502/issn.1856-7576/2023.17.02.1
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