

Secondary Study

Presenting the SBC Reviews template 2025 - Version for papers in English

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Abstract. This text, formatted as a scientific article, aims to present the new SBC paper template, describing its main features and explaining how it should be used. This version, more specifically, should be used exclusively for articles written in Portuguese that will be published in any event proceeding series at SBC OpenLib. The abstract in Portuguese, as you can see in this example, must be before the abstract in English and must have between 500 and 750 words.

Keywords: Proceedings, Template, SBC OpenLib, Indexing

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1 Introduction

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Table 1. This is an example of table caption.

Dimension	Classification accuracy
1	0.6232
2	0.9635
3	0.9724
4	0.9690
5	0.9840
6	0.9842
7	0.9873
8	0.9884
9	0.9873
10	0.9898
11	0.9914

You may also use the `tabularray` package.

2 Systematic Reviews

Systematic Reviews.

Table 2. This is an example of table caption.

Dimension	Classification accuracy
1	0.6
2	0.963
3	0.97
4	0.9690
5	0.9840
6	0.98423
7	0.9873
8	0.9884
9	0.9873
10	0.9898
11	0.991

2.1 What Is Eligibility Criteria In A Systematic Review?

Source: <https://www.distillersr.com/resources/systematic-literature-reviews/eligibility-criteria-in-a-systematic-review>

Eligibility criteria is a pre-specified, unambiguous basis that determines the scope of studies to be synthesized in a systematic review. The eligibility criteria can be developed newly by the authors, or it can be adopted from another review. In the second scenario, the original authors must be referenced. It guides the selection of literature during the search in databases or other sources. During title, abstract or full-text reading, or potential articles, the criteria dictates what must be included (inclusion criteria), and excluded (exclusion criteria) in the review. These are a fundamental prerequisite of all systematic review methods and are often recorded as a paragraph, or table within the methodology section of the final report.

Eligibility criteria are defined after setting the research question, and study objective(s), and before data collection. However, scoping searches may be performed beforehand to better establish them.

3 Example of Head Level 1

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3.1 This is an example of head level 2

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3.1.1 This is an example of head level 3

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This is an example of head level 4. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum. Let

$$x = (x_1, \dots, x_n) \in R^n$$

be an n -dimensional vector. The sparse PCA problem can be written as

$$\max_x \{x^T A x - \rho \|x\|_0 : x^T x = 1\}, \tag{1}$$

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equation (1).

$$\max_x \{x^T A x : x^T x = 1\}.$$

If A is a symmetric matrix, then the above equation is equivalent to finding the maximum eigenvalue of A . This is a well-known problem in linear algebra, and it can be solved using various numerical methods.

Equation (1) is a special case of the following sparse generalized eigenvector problem (GEV):

$$\max_x \{x^T A x - \rho \|x\|_0 : x^T B x \leq 1\}, \quad (2)$$

where ρ is a scalar parameter. This problem is more general than Equation (1) because it allows for a sparse solution x (i.e., $\|x\|_0 < n$). The problem can be solved using various optimization techniques, including gradient descent and interior-point methods.

Table 3 shows the results of solving Equation (2) for different values of ρ . The table indicates that the maximum eigenvalue decreases as ρ increases, which is expected since the constraint $\|x\|_0 < n$ becomes more restrictive.

4 Example of Head Level 1

This section provides a detailed example of how to solve Equation (2) for a specific matrix A and vector b . The matrix A is a 10×10 symmetric matrix, and the vector b is a 10×1 vector. The results of the optimization are shown in Table 4, which compares the maximum eigenvalue for different values of ρ .

Table 4 shows that the maximum eigenvalue decreases as ρ increases, which is consistent with the theoretical results. The table also shows the sparsity of the solution x , which increases as ρ increases.

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Table 5 shows the results of solving Equation (2) for different values of ρ . The table indicates that the maximum eigenvalue decreases as ρ increases, which is expected since the constraint $\|x\|_0 < n$ becomes more restrictive.

1. This is a longer numbered list. It consists of two paragraphs of text, neither of which are particularly interesting.
2. This is a short numbered list. It consists of two paragraphs of text.

Table 6 shows the results of solving Equation (2) for different values of ρ . The table indicates that the maximum eigenvalue decreases as ρ increases, which is expected since the constraint $\|x\|_0 < n$ becomes more restrictive.

Table 7 shows the results of solving Equation (2) for different values of ρ . The table indicates that the maximum eigenvalue decreases as ρ increases, which is expected since the constraint $\|x\|_0 < n$ becomes more restrictive.

Table 3. It is rather for us to be here dedicated to the great $\alpha^{(1)}$ and $\alpha^{(2)}$ task remaining before us that from these honoured dead we take increased devotion to that cause for which they here gave the last.

Layer number	V_{P0} (km/s)	V_{S0} (km/s)	$\epsilon^{(1)}$	$\epsilon^{(2)}$	$\delta^{(1)}$	$\delta^{(2)}$	$\delta^{(3)}$	$\gamma^{(1)}$	$\gamma^{(2)}$	$\alpha^{(1)}$ ($^{\circ}$)	$\alpha^{(2)}$ ($^{\circ}$)
1	3.5	2.0	0.20	-0.05	0.00	-0.20	-0.05	0.20	0.05	20	10
2	2.5	1.5	0.10	-0.15	0.05	-0.15	0.00	0.10	-0.05	20	40
3	3.0	1.8	0.20	-0.05	0.25	0.05	0.20	0.15	0.00	20	70 ^a

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4.1 This is an example of head level 2

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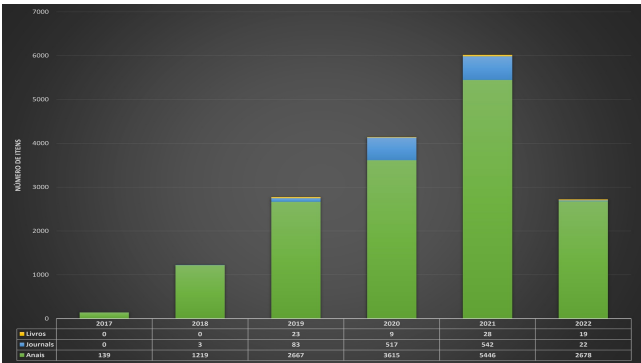


Figure 1. This is an example of figure caption.

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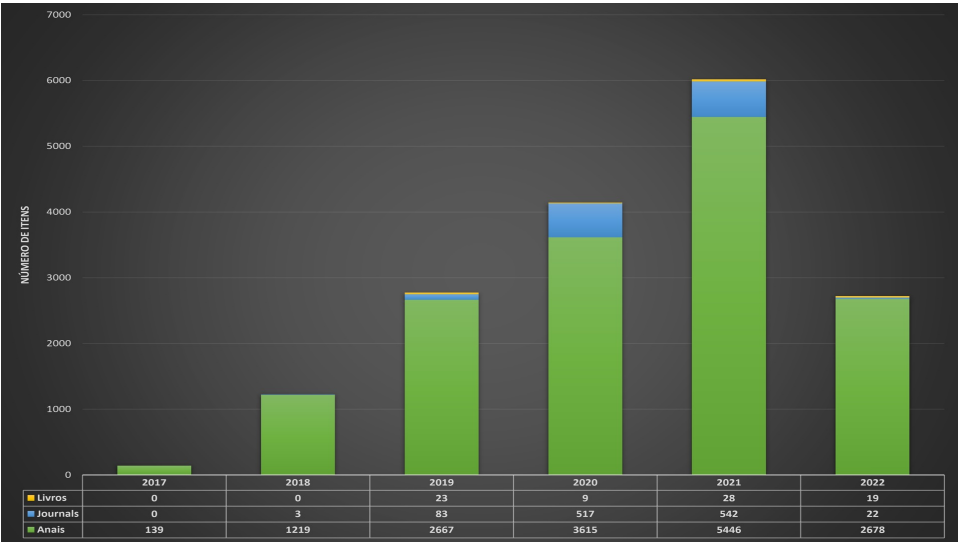


Figure 2. This is an example of figure caption.

Declarations

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Funding

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Authors' Contributions

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Further relevant information

Manuscripts must explicitly indicate how the ethical issues of the research were addressed and managed, including the research approval by an ethics committee when applicable.

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