How to Conduct a State-of-the-Art Literature Review

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This article provides a brief introduction to critical steps needed for conducting a high-quality *State-of-the-Art (SotA) literature review*, one that will add to our understanding of the phenomenon under study. This introduction complements another article in this issue, which discusses the purposes, underlying foundations, strengths, and weakness of SotA reviews in more detail.[1]

The fundamental purpose of SotA literature reviews is to create a 3-part argument about the state of knowledge for a specific phenomenon: *This is where we are now. This is how we got here. This is where we could go next* (TABLE 1). Below is a 6-stage process for conducting a SotA literature review.[2] To support this process, questions for guiding each of the 6 stages are provided in TABLE 2.

Before Starting: Build Your Team

It is important to identify individuals who will be a part of the research team. While a SotA review can be conducted by a single author, most SotA reviews harness the perspectives of an interdisciplinary team to generate rich interpretations of the literature. The team should also include a medical librarian to help with developing the search strategy.

Stage 1: Determine Initial Research Question and Field of Inquiry

In Stage 1, the research team determines the initial research question that incorporates the phenomenon to be addressed in the SotA literature review. It is important to clearly define the field of knowledge and/or practice that will be targeted.

Stage 2: Determine Time Frame

Stage 2 determines the time frame that will define "state-of-the-art" for the research question defined in Stage 1. In Stage 2, the research team should engage in a broad overview of the literature to develop an understanding of the phenomenon's historical development (ie, seminal articles). This process will shape the research team's focus vis-à-vis the pivotal moments in history when the thinking about the phenomenon changed and the time frame for contemporary thinking (ie, the date marking the beginning of *this is where we are now* thinking). At the end of Stage 2, the research team should be able to justify why a specific year (ie, turning point in history) is chosen to mark the beginning of state-of-the-art thinking around the phenomenon.

Stage 3: Finalize Research Question(s) to Reflect Time Frame

Based on the developments from Stages 1 and 2, the research team will revise and finalize the research question(s) to determine what needs to be included in the search strategy and analyses. The revised research question(s) and justification for the timeline must be reported in the article.

Stage 4: Develop Search Strategy to Find Relevant Articles

Next, a search strategy is developed, enabling the research team to construct the corpus of literature to be included in the SotA review. This involves determining which database(s) to search and when to set the start date for the review. Since the review needs to describe *this is how we got here*, it must include literature that predates the *this is where we are now* time frame determined in Stage 2. Stage 4 is an iterative process of testing and revising the search strategy to capture pertinent literature required to meet the purpose of the SotA review. It is important to note that the search goal is not to review all pertinent literature in the SotA review; instead, the goal is to include relevant literature to describe a historical evolution in the field's thinking about a topic. The final search strategy must be included in the manuscript. If possible, a librarian should be consulted when developing the search strategy. A software program such as Covidence may be useful to help organize and share all articles with the research team.

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TABLE 1
Example of a Medical Education State-of-the-Art (SotA) Literature Review

Review	Article's Adherence to SotA Process
Schuwirth LWT, van der Vleuten CPM. A history of assessment in medical education. *Adv Health Sci Educ Theory Pract*. 2020;25(5):1045-1056. doi:10.1007/s10459-020-10003-0	This article is not labeled as a SotA review, but it offers the 3-part argument expected of SotA reviews: *This is where we are now. This is how we got here. This is where we could go next*. Information for Stages 1 to 3 and partly for Stage 6 are provided.

Stage 5: Analyses

Analysis of the included literature is an inductive process where the research team reads and reflects on the articles and constructs an interpretation of the historical development of how the specific phenomenon is understood in the field. The research team should begin by reading each included article to become familiar with this literature and be able to identify similarities among the articles, ways of thinking that have shaped current understandings, assumptions underpinning changes in understandings over time, and gaps and assumptions in the current knowledge.

Next, the research team can generate the premises that fit the purpose of a SotA review (ie, creating an understanding of the topic, constructing a history of knowledge development that gave rise to this modern thinking, and developing suggestions for future research). In this stage, the research team should highlight specific articles that either support or contradict its premises.

The final step in Stage 5 is to verify the thoroughness and strength of the research team's interpretations. This can be done by selecting different articles and examining if they are congruent with the team's interpretations. The research team may also seek out additional literature that offers alternative interpretations to convey that their summary successfully refutes conflicting interpretations. The goal of this verification work is not to engage in a triangulation process for objectivity or for external confirmation; instead, this process is to help the research team ensure that they have successfully explained their interpretations in a way that supports or refutes the interpretations offered by others.

TABLE 2
Six-Stage Approach to Conducting a State-of-the-Art Review With Guiding Questions

Stages	Questions
Stage 1: Determine initial research question and field of inquiry	▪ What is the research question(s) to be addressed? ▪ What field of knowledge and/or practice will the search address?
Stage 2: Determine time frame	▪ Engage in a broad scope overview around the topic to be addressed. ▪ What historical markers help demarcate the time frame of now? ▪ What time frame can be justified to mark the beginning of the review?
Stage 3: Finalize research question(s) to reflect time frame	▪ How do the broad scope overview and historical markers align with your research question(s)? ▪ What is the impact of this newly acquired information? ▪ Will it require you to change or adjust your research question(s)?
Stage 4: Develop search strategy to find relevant articles	▪ How far back in your time frame do you need to go to report *This is how we got here*? ▪ Search strategy must be included in your manuscript.
Stage 5: Analyses	▪ Read the articles to become familiar with the literature. ▪ What are similarities across articles? ▪ What are the assumptions underpinning changes in understanding the topic over time? ▪ What are gaps and assumptions in the current knowledge? ▪ What is the history that gave rise to the modern thinking? ▪ What are the future directions for research? ▪ Which articles support/contradict your thinking? ▪ Do certain authors dominate the literature? ▪ Are there any marginalized points of view that should be considered? ▪ What theories have shaped insights and understandings? ▪ Does the literature reflect the premise you set out to study?
Stage 6: Reflexivity	▪ Provide a reflexivity description for the review team.

Stage 6: Reflexivity

The SotA manuscript should offer insights into the subjectivity of the research team by describing members who comprise the team, applications of their expertise, and how these informed their interpretations of the data. This reflexivity description will help readers understand the perspectives that informed the interpretation offered by the research team.

References

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