

Librarians in the Classroom: Support for Student Information Literacy

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What is the ACRL Framework for Information Literacy?

- Adopted by the Association of College & Research Libraries in 2016
- A set of interconnected core knowledge practices and dispositions related to information literacy
- Highly dependent on metaliteracy
 - Metaliteracy = a set of literacies which "demands behavioral, affective, cognitive, and metacognitive engagement with the information ecosystem"
- NOT standards, but big ideas that students work towards in their understanding as they become information literate

Authority Is Constructed and Contextual

- "Information resources **reflect their creators' expertise** and credibility, and are evaluated **based on the information need and the context** in which the information will be used."
- "Authority is **constructed** in that various communities may recognize different types of authority."
- "It is **contextual** in that the information need may help to determine the level of authority required."
- Example topics: source evaluation, scholarly vs popular sources

Authority Is Constructed and Contextual – Example in the Classroom

- Chaos Creator Game
 - Students pretend to be a bad actor spreading misinformation and, in the process, learn about how others might try to influence them
 - How do people assign authority to information online? What false signs can influence their assessment?

Challenge #2

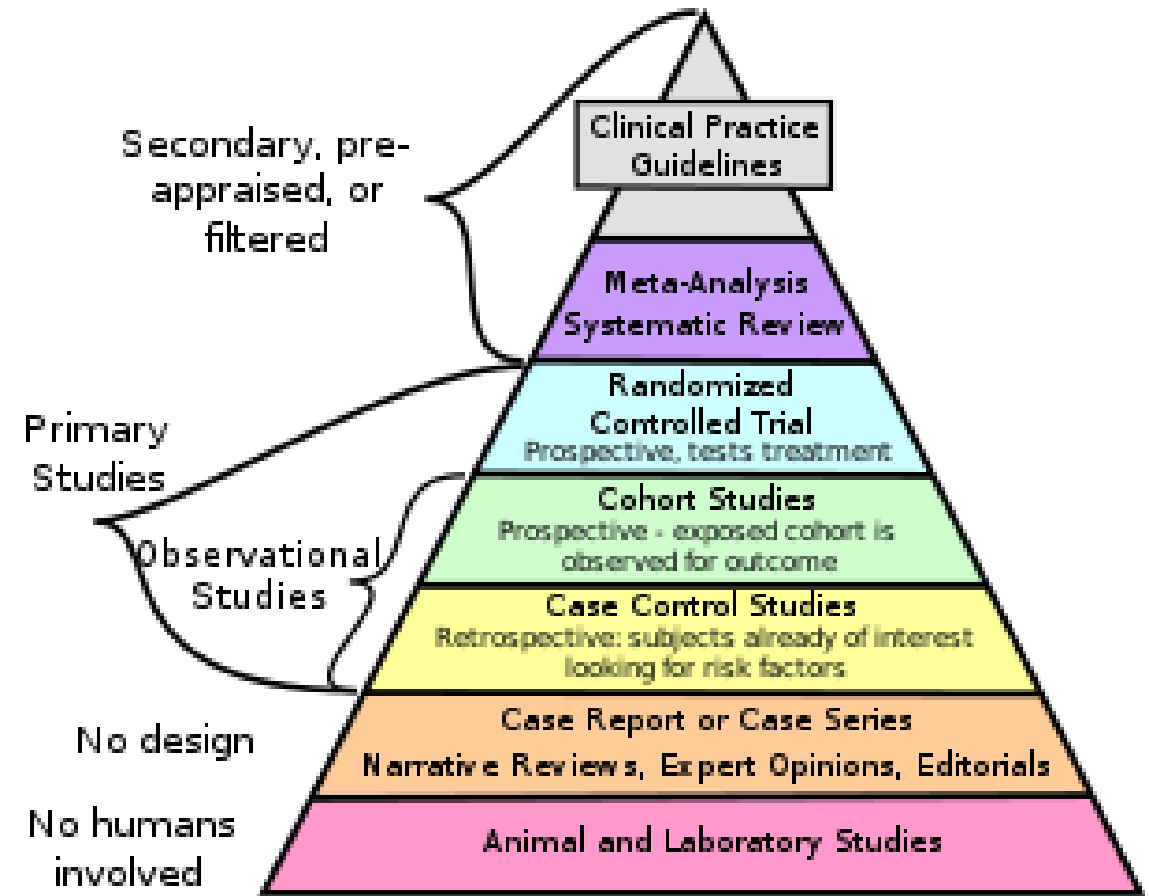
B. Impersonate a celebrity and claim to support a controversial fad



Authority Is Constructed and Contextual – Example in the Classroom

Evidence-Based Practice Research:

- Search comprehensive, discipline-specific databases
- Identify types of research studies
- Critically appraise results
- Cite a variety of sources



Information Creation as a Process

- "Information in any format is produced to **convey a message** and is shared via a **selected delivery method**."
- "The **iterative processes** of researching, creating, revising, and disseminating information vary, and the resulting product reflects these differences."
- Example topics: comparing source types, learning about peer review and other source production processes

Information Creation as a Process – Example in the Classroom

- How are Wikipedia entries created?
- How does that process impact the usefulness of Wikipedia for research?
- What would you use Wikipedia for when conducting research?



WIKIPEDIA
The Free Encyclopedia


Information Creation as a Process - Example in the Classroom

Research & Discuss Health Disparities

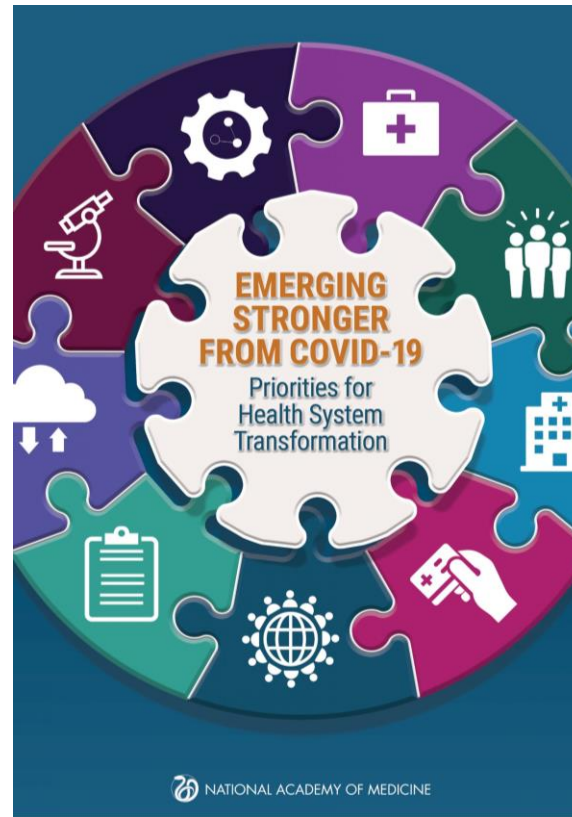

How and why are some populations researched extensively while others are not?

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THE SCIENCE OF HEALTH DISPARITIES RESEARCH



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Check for updates

A roadmap to increase diversity in genomic studies

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Two decades ago, the sequence of the first human genome was published. Since then, advances in genome technologies have resulted in whole-genome sequencing and microarray-based genotyping of millions of human genomes. However, genetic and genomic studies are predominantly based on populations of European ancestry. As a result, the potential benefits of genomic research—including better understanding of disease etiology, early detection and diagnosis, rational drug design and improved clinical care—may elude the many underrepresented populations. Here, we describe factors that have contributed to the imbalance in representation of different populations and, leveraging our experiences in setting up genomic studies in diverse global populations, we propose a roadmap to enhancing inclusion and ensuring equal health benefits of genomic advances. Our Perspective highlights the importance of sincere, concerted global efforts toward genomic equity to ensure the benefits of genomic medicine are accessible to all.

As of June 2021, the vast majority (86%) of genomics studies have been conducted in individuals of European descent, which represents an increase from 81% in 2016. At the same time, the proportion of studies conducted in underrepresented populations have either stagnated or decreased; genetic studies including participants with multiple ancestries have increased but only very slightly, to 4.8% (Fig. 1). This shows that progress toward diversification has been painfully slow. The genomic research community tends to extensively use resources with relatively straightforward access models, such as the UK Biobank, which includes participants of mostly European descent, while other ancestry groups tend to have very few such resources and limited access models. Data from the International HapMap Consortium (IHC), a recently established consortium of international cohort studies, also show considerable ancestral disparities (Fig. 2).

Most of the data from non-European populations captured in the genome-wide association studies (GWAS) catalog and current genomic studies come from individuals in diaspora populations. For example, the 1.1% of participants of African ancestry in the GWAS Catalog are mainly African Americans; the proportion of continental Africans in genomic studies is insignificant with respect to the prevailing genomic research. While there are five major African ethnolinguistic divisions, the African diaspora in the United Kingdom and the United States predominantly consists of just one of these divisions, the Niger-Congo speakers. Africans harbor a far greater amount of genetic and linguistic diversity (for example, over 3,000 indigenous languages) than populations from other continents⁹ and this diversity is largely partitioned by geography. However, more than 90% of these ethnolinguistic groups have no representative genomic data to date. Studying a small number of African diaspora populations (African American and Black participants in the United Kingdom and Europe) and grouping all participants into a broad category of African ancestry will continue to promote imbalance, widen health disparities, and will fail to capture the genetic diversity in Africa. Moreover, large-scale differences in environment and lifestyle could further limit the transferability of genetic insights (such as polygenic risk score models) gained from diaspora populations to continental African populations¹⁰. This calls for immediate measures to address the genomic studies imbalance.

Here, we discuss the factors contributing to the current inequalities in genomic studies. We highlight successful genomic studies in Africa, Asia, Australia and Latin America and reflect on the challenges and opportunities involved in setting up studies such as these. Based on our experience, we chart a roadmap to increase diversity of populations in genomic studies that requires a concerted global effort. We emphasize that any successful roadmap must leverage established research infrastructure, capacity, expertise and leadership within local institutions in those countries.

Lack of diversity in genomics leads to unmet scientific needs and health disparities

Eurocentric biases in genomics studies are not only inequitable, but also result in major missed scientific opportunities. Underrepresentation is driven by inequitable resource allocation, which is an ethical issue, as are potential healthcare disparities stemming from imbalanced research. Here, we focus on the major missed scientific opportunities that arise as a consequence of underrepresentation, opportunities such as identification of new associations with population-enriched variants, pinpointing causal variants for functional follow-up, improving genetic risk prediction accuracy for all populations (particularly underrepresented populations) and understanding shared versus unique genetic and environmental population risk factors that influence health outcomes¹¹.

Certain characteristics of underrepresented populations would undoubtedly benefit international efforts toward discovery of disease-causing variants. For example, African populations have the most genetic diversity, followed by South Asians. This helps the fine-mapping of GWAS signals and identification of target genes, an essential step in gaining mechanistic insights. These populations also have the most loss-of-function variants, which can aid interpretation of genomic function and understanding mutational constraints¹². Endogamy within subgroups and consanguinity in some South Asian populations can enhance the power for discovery of recessive inheritance.

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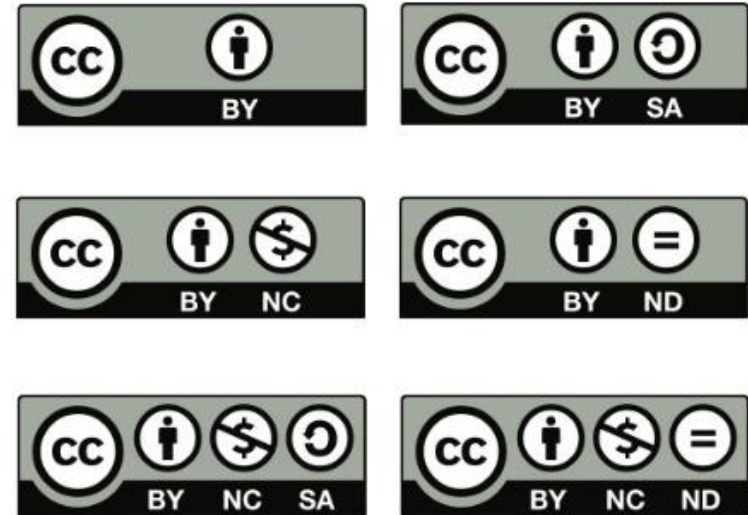
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Information Has Value

- Information possesses several dimensions of value, including as a **commodity**, as a **means of education**, as a **means to influence**, and as a means of **negotiating and understanding the world.**"
- "**Legal and socioeconomic interests** influence information production and dissemination."
- Example topics: academic integrity, copyright, information access disparities

Information Has Value – Example in the Classroom

- Copyright & Creative Commons Licensing
 - Students can create their own content and share it with a public audience
 - We can talk about openly licensing their materials
 - We can discuss the value of their work to others, and what removing copyright barriers means



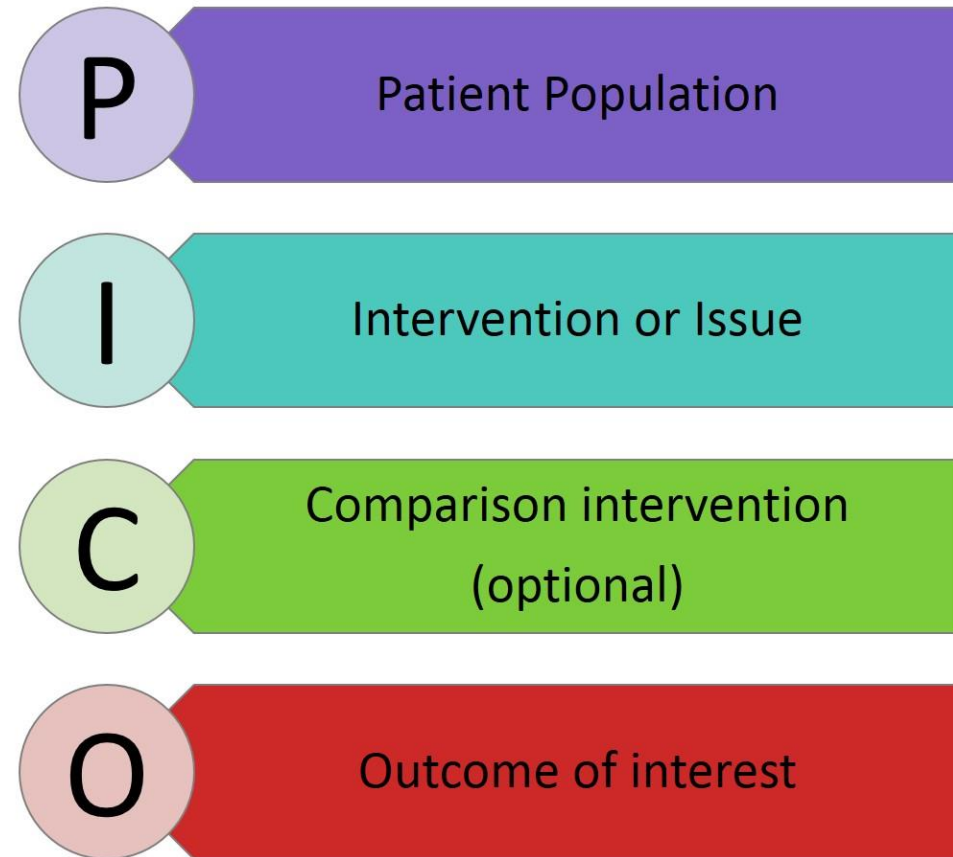
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Research as Inquiry

- "Research is **iterative** and depends upon asking **increasingly complex or new questions** whose answers in turn develop additional questions or lines of inquiry in any field."
- Example topics: topic development, determining thesis of published academic works

Research as Inquiry – Example in the Classroom

In the Health Sciences, use PICO or another clinical question model to generate key words and systematically explore the literature



Research as Inquiry – Example in the Classroom

Library Instruction Session for a Health Sciences Research Assignment

Healthy vs. Unhealthy Research Habits



Spirit of inquiry

- Open mind, curiosity
- What's out there?



Sources affirm what you already know about your topic

- Result = Confirmation bias



Search multiple resources

- Google Scholar
- Library Databases



Good enough is good enough!



Consider the source

- Explore and learn
- Synthesize and write about what you find



“I have everything written... Now I just need to find some sources to cite!”

Scholarship as Conversation

- "Communities of scholars, researchers, or professionals engage in **sustained discourse** with new insights and discoveries occurring over time as a result of **varied perspectives and interpretations.**"
- Example topics: how academic work is produced, track ideas through citations

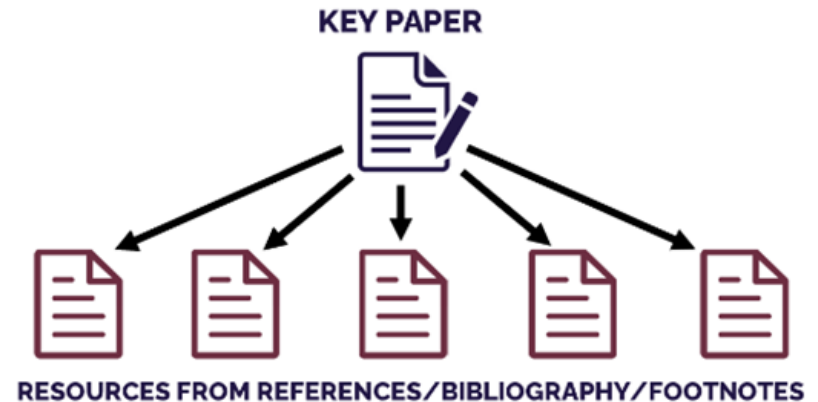
Scholarship as Conversation – Example in the Classroom

Use a systematic review, meta-analysis, or other literature review article as a finding aid (citation tracking)

Types of Citation Tracking

Backward Snowballing (Reference List Searching)

Backward snowballing involves looking backwards in the literature to discover **past** resources. It involves mining the selected relevant article's reference list for other articles that might be relevant to the research topic.



Forward Snowballing (Cited By Searching)

Forward snowballing means looking forward in the literature to articles that were published **after** the selected relevant article to discover newer articles that have cited the original resource.



Searching as Strategic Exploration

- "Searching for information is often **nonlinear and iterative**, requiring the evaluation of a range of information sources and the **mental flexibility** to pursue alternate avenues as new understanding develops."
- Example topics: keyword development, database and catalog use

Searching as Strategic Exploration – Example in the Classroom

Use the literature review description and search diagram from a scholarly article to replicate a search.

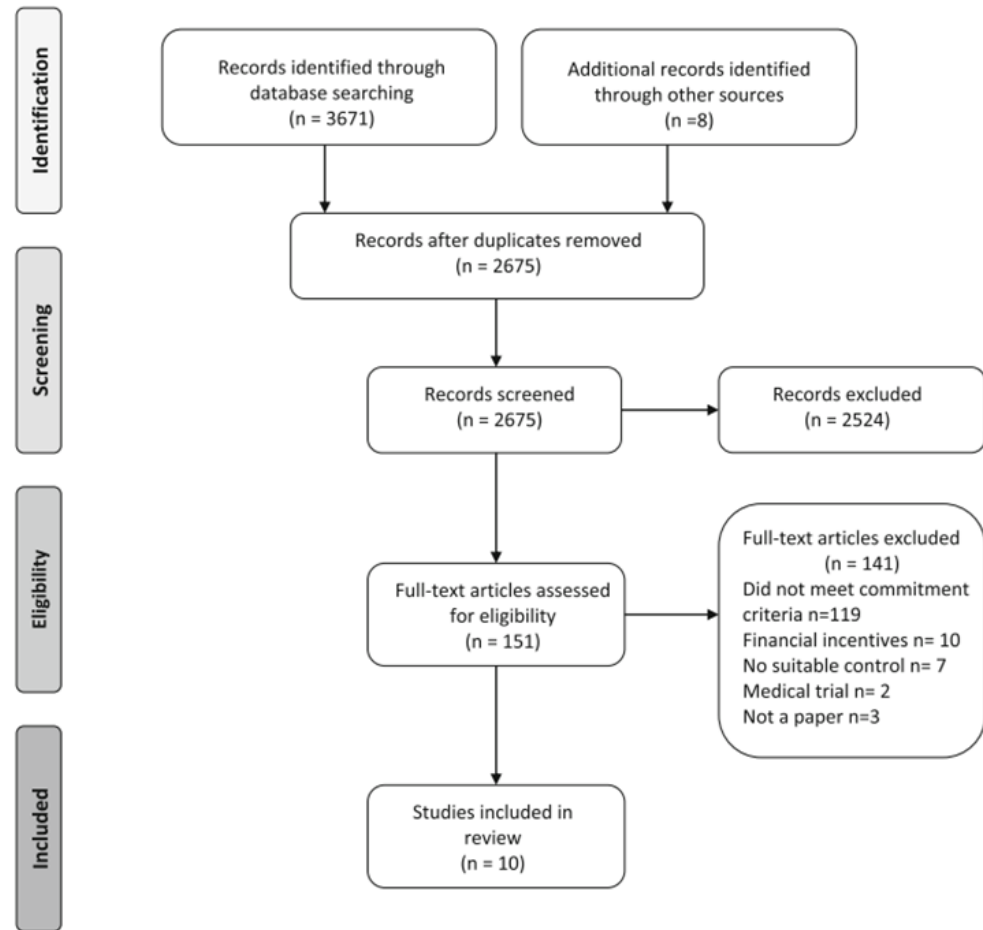
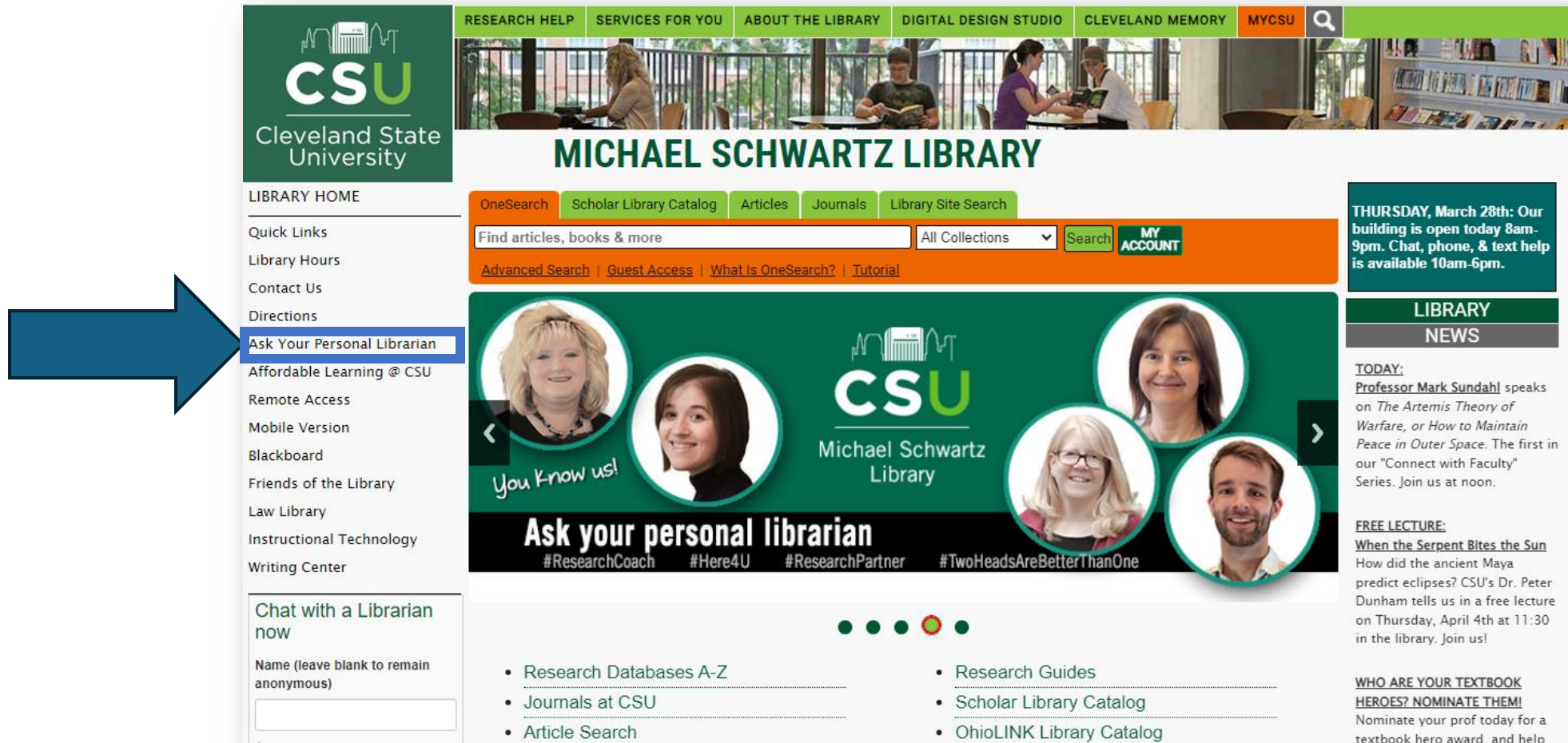


Fig. 1 PRISMA flow diagram of search procedure for narrative review and meta-analysis

Coupe, N., Peters, S., Rhodes, S., & Cotterill, S. (2019). The effect of commitment-making on weight loss and behaviour change in adults with obesity/overweight; a systematic review. *BMC public health*, 19(1), 816. <https://doi.org/10.1186/s12889-019-7185-3>

How to connect with your librarian



The screenshot shows the Michael Schwartz Library website. A blue arrow points to the 'Ask Your Personal Librarian' link in the left sidebar. The website features a navigation bar with links like 'RESEARCH HELP', 'SERVICES FOR YOU', and 'ABOUT THE LIBRARY'. The main content area includes a search bar, a 'LIBRARY NEWS' section with an announcement for Thursday, March 28th, and a 'Chat with a Librarian now' section with a text input field. Below the main content, there are two columns of links: 'Research Databases A-Z', 'Journals at CSU', and 'Article Search' on the left; and 'Research Guides', 'Scholar Library Catalog', and 'OhioLINK Library Catalog' on the right.

LIBRARY HOME

- Quick Links
- Library Hours
- Contact Us
- Directions
- Ask Your Personal Librarian**
- Affordable Learning @ CSU
- Remote Access
- Mobile Version
- Blackboard
- Friends of the Library
- Law Library
- Instructional Technology
- Writing Center

Chat with a Librarian now

Name (leave blank to remain anonymous)

Michael Schwartz Library

Ask your personal librarian

#ResearchCoach #Here4U #ResearchPartner #TwoHeadsAreBetterThanOne

THURSDAY, March 28th: Our building is open today 8am-9pm. Chat, phone, & text help is available 10am-6pm.

LIBRARY NEWS

TODAY: Professor Mark Sundahl speaks on *The Artemis Theory of Warfare, or How to Maintain Peace in Outer Space*. The first in our "Connect with Faculty" Series. Join us at noon.

FREE LECTURE: When the Serpent Bites the Sun How did the ancient Maya predict eclipses? CSU's Dr. Peter Dunham tells us in a free lecture on Thursday, April 4th at 11:30 in the library. Join us!

WHO ARE YOUR TEXTBOOK HEROES? NOMINATE THEM! Nominate your prof today for a textbook hero award, and help

- Research Databases A-Z
- Journals at CSU
- Article Search
- Research Guides
- Scholar Library Catalog
- OhioLINK Library Catalog

Thank you!

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