

The QuaSARS method for conducting useful literature surveys in social media research: a step-by-step approach

Israel Mbekezeli Dabengwa

National University of Science & Technology, Private Bag AC 939, Ascot, Bulawayo, Zimbabwe

Email: Israel.dabengwa@nust.ac.zw

ORCID iD: <https://orcid.org/0000-0003-1160-8276>

Objectives

- Methods of carrying out literature surveys in social media research.
- The components of a good literature survey in social media research.
- Types of literature survey for research in a social media era.

Abstract

The literature survey captures influential authors or works, developments, discourses, key concepts, controversies, or comparisons and trends on any social media research topic. This tutorial provides a step-by-step approach to conduct a literature survey on social media research and the critical quality issues needed. The section discusses: (a) why a literature survey is necessary for social media research, (b) recognizes various types of literature reviews and how they differ from the literature survey, (c) introduces the QuASARS conceptual framework (*Question, Approach, Search, Administer, Report, Synthesis, and Share*) as a method for literature surveys, (d) identifies literature sources on social media research and, (e) guides readers on techniques to synthesize the literature. A hypothetical study concerning the recent spate of fake news circulating on social media during the novel COVID-19 (coronavirus) is used to illustrate the concepts in the tutorial. This theoretical study shows how to focus the literature survey questions, techniques for managing the relevant literature. For example, how to build and apply literature matrix tables, concept maps, and the use of electronic reference managers. This work makes a detailed discussion on frameworks for gap-spotting and problematizing the literature to tease themes from the symbiotic relationship between the research questions and the argument. The tutorial applies some common social media research questions to illustrate the gap-spotting and problematization modes. Finally, a discussion is given on how to synthesize the literature review, i.e., the application of complex reasoning (different mapping and comparative thinking) to create a dialectic argument. The steps in this literature survey research design may not be followed rigidly as some steps may overlap with others or depend on another level or conducted before others.

Why is a literature survey needed?

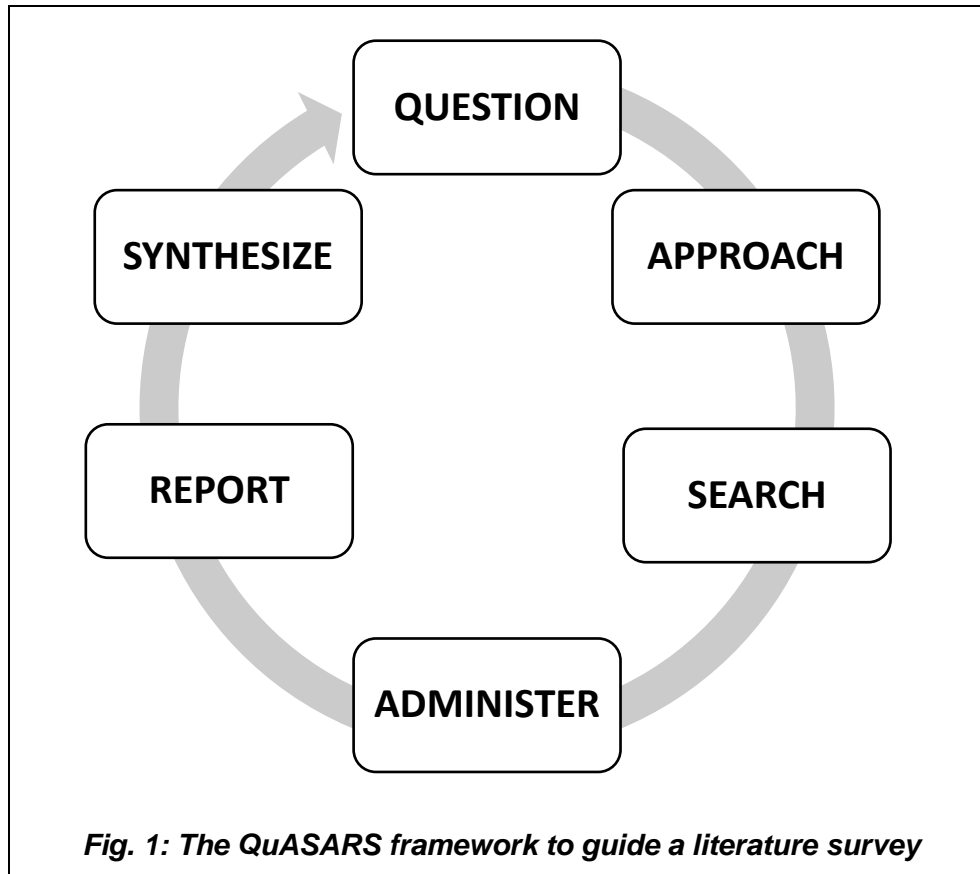
Writing a literature survey is not the same as putting together all that ever has been written about a research topic. It is best to clarify this so that readers are not engaged in an academic roller coaster ride. A literature survey should capture the breadth and depth of a chosen topic of interest. The literature survey is the same as a literature review. They both perform the same role of *logically arguing cases, vis-à-vis a comprehensive understanding of the current state of knowledge* about a topic to produce a *convincing thesis* (Machi & McEvoy, 2016). Thus, the literature survey will not only present the current state of knowledge but positions a researchers' topic into the ongoing debates.

The usage of italics on the definition of the literature review is intentional. Think of the literature review using an analogy about a boat that is headed to a specific destination. The target destination of the boat is the purpose of the study. The purpose of the study should define the direction for the topic to stay on course. Comprehensiveness implies breadth. It is achieved by presenting similar cases written by others while noting influential authors or works, developments, discourses, key concepts, controversies, or comparability and trends (Oliver, 2012). The research topic and the complete literature rest on logic, which acts as an anchor (the actual depth). Logic becomes a parameter of how broad a writer can go to reach the destination. That means, the more complex a social media research topic is, the more comprehensive it would be to convince readers about a particular position.

Each social media research topic is unique, and the nature of the problem influences the level of breadth and depth, availability of the literature (sources), time available, the search strategies, format for presentation (for example, in a journal or thesis), argument techniques used and – the researcher. While this tutorial cannot exhaust all the aspects that can influence the breadth and depth of the topic, it presents the tools to navigate the waters on which the subject may lie. The techniques in this tutorial tie together all the sources for an issue without omitting key references and, at the same time, writing a logical argument for others to follow.

Step-by-step guidelines of the QuASARS framework

The QuASARS conceptual framework (Question, Approach, Search, Administer, Report, and Synthesize) is introduced as an interactive research design to fulfill the literature survey (**see Fig. 1**).



There may be several other frameworks/research designs for literature surveys. However, the QuASARS framework may work best for literature surveys in social media research. The QuASARS approach is:

- a) **QUESTION** – Developing a good research question that captures the social media research interest, so it is not too broad;
- b) **APPROACH** – Developing a search strategy;
- c) **SEARCH** – Searching the literature;
- d) **ADMINISTER**–Managing the literature gathered;
- e) **REPORT** – Reporting the findings of the literature survey; and,
- f) **SYNTHESIZE** – Summarizing the findings into a concise form

QuASARS is cyclic to show the iterative processes in writing a literature review. The steps may not be followed rigidly as some overlap into others, or depend on previous ones, or may be conducted before others. For example, the cycle shows that the literature survey may be used to inform the questions or the process of research or to document the importance of the research problem. Therefore, these steps are also an understanding that the review is not complete until it

is to the satisfaction of the writer or review panel that assesses its quality (for example, a dissertation committee or a journal editor).

Fitting QuASARS into different reviews

Three dominant types of reviews may be encountered:

1. **A narrative review** aims to summarize the critical arguments of contemporary information about a particular subject. It can be achieved systematically, but it does not mean that this is a systematic review. This is because the narrative review bases the output on the writer's opinion of what must be excluded or included. Also, the personal interest of the author can seep into the process and the conclusions;
2. **A scoping review** provides exploratory research question aimed at mapping the critical thoughts, categories of evidence and gaps in research; and,
3. **A systematic review** is a research article that identifies relevant studies, assesses their quality, and recaps the results using a scientific method. Systematic reviews may offer recommendations that are not based on the author's interests or opinions of the expert but are based on balanced inferences generated from the collated evidence.

QuASARS may also be applied where the goal is to contextualize the research problem (for instance, justifying a need to conduct research), or when writing a narrative and scoping review. QuASARS can also be applied when the structure of the stand-alone literature review is recursive or is a dedicated paper, as in a dissertation or thesis.

Where the literature review goal is to summarize the current literature on a particular topic using a sizeable amount of research, a systematic review would be ideal as it requires its specific set of methods. A literature survey would be the first step towards a systematic review where the reviewer aims to understand the topic and build the survey's results into a more comprehensive literature review (Booth, Papaioannou and Sutton, 2016).

Thus, the subsequent sections go through each step of the QuASARS framework outlining the methods to achieve each component.

Question – the starting point

This tutorial will not spend efforts on the steps needed to develop a research topic. It is assumed that the researcher already has a research topic in mind. The tutorial directs the construction of the literature review's research question(s) as this is the most decisive step. The starting point of any research is a question that guides the entire process. In the analogy made earlier on, the research question may be likened to the destination that the literature survey ought to go. Novice

researchers may confidently start a literature survey with several questions already in hand without even considering asking: “*what is the major research question of the thesis or project?*” Hence, novice researchers may spend most of their time searching and do not understand whether they have got answers that build a thesis. Most of us can recall reading a work, where the authors' literature review hardly answers the problem under study. It is precisely the issue that this tutorial addresses. As a result, the literature survey should have one logical research question which can be broken down into sub-questions later on.

Take, for instance, if a researcher is writing a literature survey about the recent spate of fake news appearing in social media. This is a broad topic that can take several turns. For instance, one might look at fake news regarding athletes and sportspeople. One might look into the reaction of the audience towards fake news during an election year. Also, another researcher may question what is fake news and who may decide whether it is factual or fake news? Let's say the researcher studies the distribution of fake news through social media during the recent COVID-19 epidemic.

The recent coronavirus (COVID-19/SARS-CoV-2) pandemic has led to an increase in the dissemination of fake news such as myths and conspiracy theories. Various media channels (both formal and informal) have been utilized to disseminate fake news with the probable goals of discriminating against some social groups, misinforming the public, shifting statistics, manipulating public opinions, and health-seeking behaviours about the virus. Consequently, the COVID-19 pandemic is also an “*infodemic*” – this means that there is a massive spread of information about the infection resulting in difficulties in censoring relevant and reliable data (Sentell, Vamos, & Okan, 2020).

From this example, it is now clear that if a researcher does not focus on the research question, the literature survey would have taken several turns, some of which may bore potential readers. So, the idea is to keep focused, but how? Narrowing the research question into its specifics is like travelling in well-known waters, where the writer and audience know what to expect and how to react when the unexpected occurs. Booth, Papaioannou, and Sutton (2016) state that when the research question is narrowed, the researcher can determine the resources that are needed to fulfill the study. To narrow the research question, Ibrahim (2008: 100) recommends a framework that breaks down the problem into *Who*, *What*, and *How* (*WWH*) facets so it is clear what is being searched. I elaborate on this framework using the hypothetical example:

1. **WHO is the subject of the research question?**—there must be a definite study group to direct the research question. For instance, in the example this may be fake news concerning COVID-19;

2. **WHAT is the subject domain (s) that must answer the question?**—in our example, the researcher must appreciate the information sources that would lie across one or more subject fields. Hence, from the onset, when developing a research question, start mapping out where to look for information. The given an example the information sources would come from information science and political science among others; and
3. **HOW will the study impact the study group or what is known in the study?**—this lays the groundwork so that the writer is reminded that the literature survey is not written for the sake of writing one, but to answer a question. For instance, at the end of the study, an author must be able to introspect whether fake news affects the interpretation of current events, treatments and if there are any gaps or controversies in the literature.

Using Ibrahim's framework to the hypothetical case, the research question may be phrased in this specific manner: *“fakes COVID-19 news (WHO) sent through social media (WHAT) affect how we interpret current events (HOW)?”* Therefore, whatever the research question may be, readers should try to use these steps to specify the overall research question.

Gap-spotting and problematizing the research questions

To tease the themes to come out of a literature survey, social media researchers may focus on the direction in which the literature regards methodological, practical, and theoretical underpinnings. Literature surveys should not only focus on the proposed study's research question. However, it must also be in the body's context of knowledge. Just like the analogy of sailing in a boat, the sailor needs not only to know the destination, and the directions were taken, but whether there are any unfamiliar landscapes discovered or changes in the existing ones. Hence, to find out the impact of the literature survey on the study group or the body of knowledge, social media researchers may adapt the framework developed by Sandberg and Alvesson (2011) for gap-spotting and problematizing the literature. Although this framework was developed for organizational studies, it has some practical implications for social media research. For relevant examples to illustrate the frame, this tutorial relies on McCay-Peet and Quan-Haase's (2017) conceptualization of types of common social media research questions.

Gap-spotting is not confined to one mode. Hence, Sandberg and Alvesson (2011) advise that a combination of gap-spotting strategies may be applied in one study. For example, the excerpt from the literature review conducted by Tucker et al. (2018) below shows the right combination of the above gap-spotting modes (own italics):

“However, we do not fully understand all these factors (*social media, political polarization, and political disinformation*) or their relationships with each other (*under-researched area*)...Further

complicating matters, even if we can identify the right questions to ask (*confusion spotting*). Most times, we lack the data required for rigorous scientific analyses of these questions (*lack of empirical support*). Sometimes, the data has not yet been collected (lack of empirical support), but in other cases, the data are costly or held by for-profit companies who do not make it available for scholarly research (*application spotting*).”

Gap-spotting varies from extending an established theory to identifying more significant gaps in the existing literature (**see Table 1 with examples**). Hence, when reporting the discrepancies found in a study, always go back to the research question to find out which issues the literature has captured adequately.

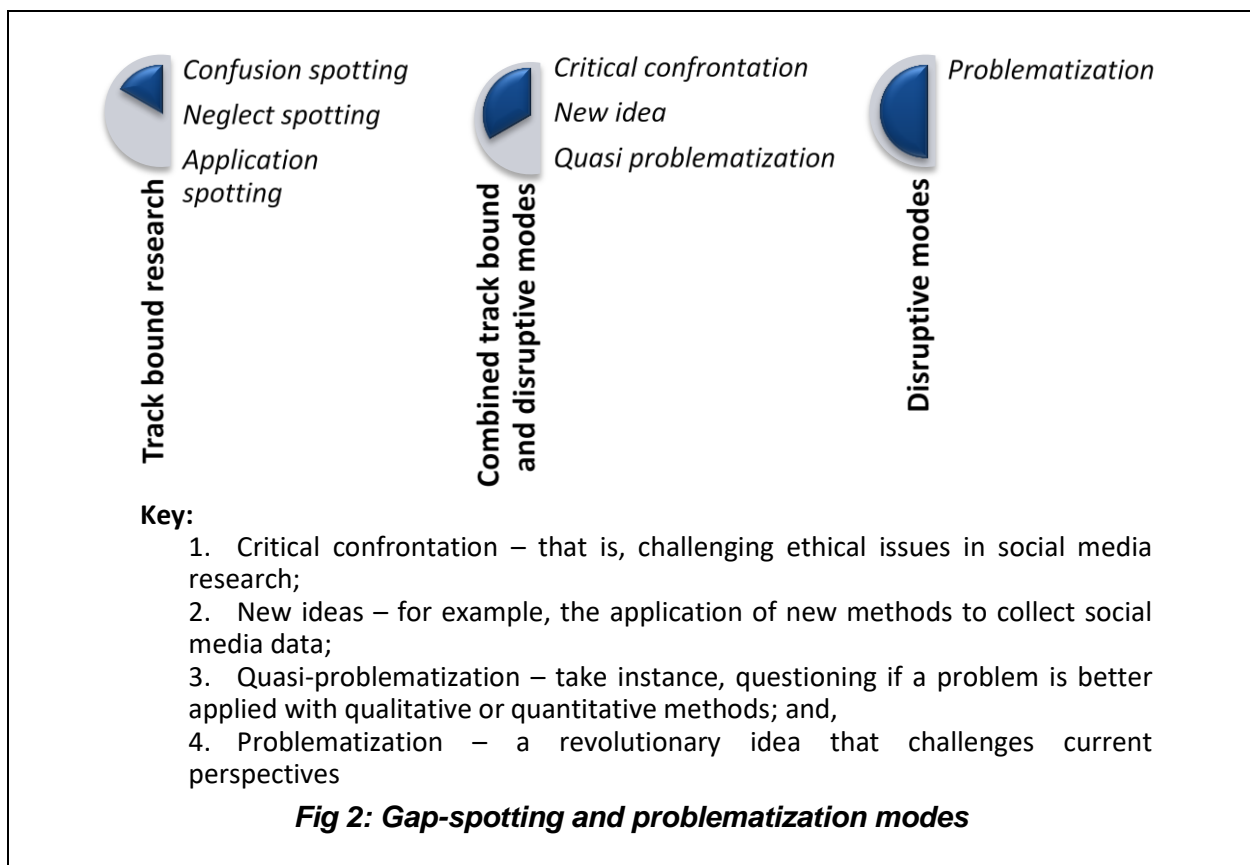
Table 1: Gap-spotting strategies for research questions

GAP-SPOTTING STRATEGY	RATIONALE OF THE GAP-SPOTTING STRATEGY	OUTPUT OF THE REVIEW	Examples
<i>Confusion spotting</i>	Is there contradictory evidence about this topic?	Reconciling views or taking a side	Differing definitions/conceptions of social media or fake news are applied, creating conflicting results
<i>Neglect spotting</i>	<i>Overlooked areas</i>	There is extensive published literature in this area, what have others failed to notice?	Novel results within a well-established area
	<i>Under researched area</i>	Others have published in this area, what have they left out?	Prove the bias of other authors, then highlight new findings from the literature survey
	<i>Lack of empirical support</i>	Is there evidence to support claims made about this topic?	Empirical evidence to support a view
<i>Application spotting</i>	Can the theory, method, or literature apply to a different context?	Application of theory, method or literature in a new context	Understanding real-world phenomena through social media research

The final classification of gap-spotting and problematization is whether either of the two are track bound and disruptive modes. Sandberg and Alvesson (2011) who distinguish track bound and disruptive methods as follows (own italics):

“Disruptive modes follow procedures and use other work and empirical observations as positive signposts and building blocks to stand on when planning *arguments*. Disruptive research involves critique and problematization and aims at confronting or preventing a particular logic from being outlined. I also incline disruptive modes to specify problems with this research rather than issues that remain to be researched. Only what we refer to as problematization is mainly disruptive.”

Fig.2 is an adaptation from Sandberg and Alvesson (2011). Because of the symbiotic relationship between formulating research questions and writing the literature review (syntheses), social media researchers may think of these modes well in advance. This is not only because they are useful in crafting guidelines for research questions, but may guide the researcher on the sources to include in the literature survey and the level at which the argument is made. Hence, readers of this tutorial are encouraged to go through other social media research works to find out which gap-spotting and problematization strategies applied to develop the research questions, literature searched, and the subsequent argument.



Searching the literature for social research

Developing a search strategy

Before going on to search for any databases, a search strategy has to be prepared to guide the process. A search strategy may be defined as “a category of plans, general approaches, or interactive intentions” to answer the research question(s) (Fidel, 2012, p. 95). To make sure that all critical concepts of the research question are covered adequately, it is recommended to use a conceptual framework (Booth, Papaioannou, and Sutton, 2016: 86). The traditional conceptual framework for identifying key concepts and planning a search strategy is known as PICO that originates from the health and medical sciences. PICO attempts to find a causal link between:

- a) The **Population** (who the literature review is about);
- b) An **intervention** (what is given to the study group);
- c) What it is being **compared** with the response (what the review is about); and,
- d) Desirable and undesirable **outcomes** (possible consequences of intervening in the lives of these people/objects).

Table 2 shows cross-disciplinary conceptual frameworks that may apply to social media-related problems. This tutorial will not discuss the use of each frame. I suggest that readers may refer to Foster and Jewell's (2014) book titled: “*Assembling the pieces of a systematic review: a guide for librarians.*”

Table 2: Conceptual frameworks that can frame a social media search strategy

MNEMONIC	CONCEPTUAL FRAMEWORK	DISCIPLINARY USE
SPICE	Setting, Perspective, Intervention/Interest, Comparison Evaluation	Social science, library and information sciences
PIECE	Population, Intervention Education, Issue, Context, Evidence Level	Education
CLIP	Client group, Location of provided service, Improvement/Information/ Innovation, Professionals (who provides the service?)	Librarianship, management, policy

Picking out the search terms

Now suppose the SPICE framework applies to the hypothetical example. Then all the elements of the research question would be pigeon-holed into each component of the mnemonic, as shown in **Table 3**.

Table 3: SPICE framework applied to the focused research question

SPICE	Setting	International
	Perspective	COVID-19
	Intervention/Interest	fake news
	Comparison	COVID-19 news from official sources
	Evaluation	Interpretation of current events

The nature of the hypothetical question is not specific about the **setting** that may be applied. Hence, an international context is appropriate, and the literature may expose diverse perspectives across countries. In the conceptual framework, the **Perspective** may take into consideration social media users' behaviors and opinions. The **intervention/ interest** of the research question would be the literature about fake political news sent through social media platforms. I would compare this literature with that set on official news sources channelled through social media and other news channels. And finally, an evaluation of the research would be conducted on the outcomes of the literature survey to answer whether fake news affects the interpretation of current events.

After we have identified the key concepts, specialist terms (STs), synonyms, related terms (RTs), truncated words, and wildcards are mapped as in **Table 4**.

Table 4: Developing a search strategy for the hypothetical question

QUESTION PART	QUESTION TERM	STs/SYNONYMS/RTs/ TRUNCATION/WILDCARDS
Setting	International	Global; worldwide; intercontinental; cosmopolitan; multiracial; and so, on
Perspective	Social media users	social network; blogger, follower; influencer; Facebook, Twitter; and so, on
Intervention/Interest	fake COVID-19 news	Fake news; disinformation, hoaxes; false news; misinformation; parody; satire
		COVID-19; coronavirus; novel coronavirus; SARS-CoV-2
Comparison	Political news from official sources	Journalism; publication, fact; information dissemination; and so, on
Evaluation	Interpretation of current events	Breaking news, attitudes, perceptions, and so on

Specialist terms are vital concepts researchers use that in any discipline. Novice researchers should be careful not to confuse buzzwords for specialist words because the latter is usually temporary. The former has a longer lifespan and indexed in several databases (Levy & Ellis, 2006, p. 190). Each discipline has its unique terminology, and social media research is no exception. For example, let's consider a term such as “*viral*.” When applied to social media research, it means that a social media post has rapidly circulated to many readers in a brief space of time. The same term has original applications when applied to other disciplines or in everyday language. That is why search engine optimizers caution that specialist terms should always be placed in double-ended quotation marks for easy recognition in a search. If a specialist term is not set in double-ended quotation marks, the algorithm will treat it as everyday language or textual words (tw).

Synonyms are words that are used to describe another word and have the same meaning as the original word. For example, the name international may have different words that describe it, such as *global* and *worldwide*. **Related terms** are not the same as synonyms, because these are words which may represent the narrow or the broad features of a name or concepts, but closely aligned to it. For example, the related terms to fake political news are *media, journalism, publication, and information dissemination*.

Truncation or root stemming is a strategy that is applied for words that have a conventional stem and a different ending. For example, broadcasts may take different variations, such as *broadcasts and broadcasting*. Truncation is capturing all changes of the word into one overall search, instead

of performing searches for each variety. An asterisk is put on the stem of the terms, take, for instance, *broadcast** to handle all the exceptions. **Wildcards** are like truncation, but the asterisk is not placed at the end of the word, somewhat between where there are differences between British and American English. Take, for instance, the word behaviour (for example, *behavio*r*) where an asterisk is placed to get both spellings.

The application of Boolean logic

We may explain boolean logic as an algorithm that is embedded within databases and search engines to combine search terms or limit them. We see this through the use of the AND, OR, or NOT operators (**see Table 5**). Most databases have a setting to perform “advanced searches” where combinations of terms may be applied. Researchers may come up with as many variations of the search strategy if time is not a factor. And then, where time is a factor use the combinations that are likely to yield the most relevant information.

Table 5: Explaining Boolean Logic in a search

BOOLEAN LOGIC	PURPOSE	EXAMPLE
AND	You are combining two or more terms. Retrieves results with all terms are used.	COVID-19 AND fake news AND social network
OR	Combining two or more terms. Retrieves results will all terms. Therefore, it broadens. We apply it to synonyms and related words.	social network OR blogger OR follower OR influencer OR Facebook OR Twitter
NOT	You are limiting the search by excluding an unwanted term.	COVID-19 AND fake news NOT propaganda
Combinations	Mixing of other search terms into one composite search	COVID-19 AND fake news AND social network NOT propaganda

Information sources for social media literature

There are several guides available as reference sources leading to unique information resources that can create a social media literature survey. Therefore, this tutorial is an information gateway leading to some resources that readers can visit. **Table 6** shows some essential information resources for social media research, which have been categorized according to their potential use for different social media research questions.

Table 6: Prospective information resources for social media research

RESOURCE	DESCRIPTION OF INFORMATION NEED	DATABASES
<i>Journal and subject databases</i>	Health and medical sciences social media research	Cochrane Central Register of Controlled Trials (CENTRAL); MEDLINE; CINAHL; EMBASE; PsycINFO; Cochrane Library; EBSCO Host; PubMed Central
	Education and Information science social media research	Information Social Sciences Citation Index (SSCI); Information Arts and Humanities Citation Index (A&HCI); Information Science Citation Index Expanded (SCI-EXPANDED); ERIC
	Business management social media research	ABI/INFORM Global; EBSCO
	Multidisciplinary social media research	JSTOR; Scopus; Web of Science; ISI Web of Knowledge; EBSCO; WilsonWeb; Elsevier@/ScienceDirect;
<i>Blogs and websites</i>	Official social media handles or social network sites of authors and academic or research institutions	Facebook; Twitter; Wikis; LinkedIn
<i>Secondary data analysis (repositories)</i>	Open access books, datasets, journal articles	OpenDOAR, Mendeley Data; Directory of Open Access Journals; (Any) University institutional repository; World Bank Open Data; Data.gov
<i>Grey literature</i>	Unpublished or published works in non-commercial form, for example, theses and dissertations and reports	Conference proceedings; ProQuest theses and dissertations

Researchers in developing countries whose institutions may not have access to some of these critical databases may consider requesting their institutions to apply for the use of HINARI multidisciplinary resources from the World Health Organization (WHO)/Research4Life organization by visiting this link: <https://www.research4life.org/access/how-to-register/>. HINARI also contains some of the highly ranked social media research and information science journals such as Social Media + Society, Journal of Broadcasting & Electronic Media, Computers in Human Behavior, and Managing Social Media in Libraries, among others.

Backward and forward searches

Fidel (2012: 105) highlights original search strategies that may be applied in any information resource that when the researcher has found the most relevant paper or the likely places where it can be found (**see Table 7**).

Table 7 Search strategies and their definitions

DEFINITION	SEARCH STRATEGY
<i>Browsing</i>	Intuitive scanning following leads by association with little planning
<i>Analytical</i>	Explicit consideration of attributes of the information problem and the search system
<i>Empirical</i>	Based on previous experience, using rules and tactics successful in the past
<i>Known site</i>	Going directly to the place where the information is located
<i>Similarity</i>	Finding information based on a previous example similar to the current need but browse the shelf for additional sources once that book has been located.

These strategies may lead to backward searches (searching references used in work, searching the references of references and previously used keywords) and forward searches (searching for jobs that cite the article or similar articles and practices conducted by the author after that to advance an idea) (Levy & Ellis, 2006, pp. 190–191). Also, some databases and reference managers may already have these features embedded, and readers are encouraged to take advantage of their application.

Testing the quality of the literature

One last issue to touch on when performing a search is the evaluation of the quality of the literature that is included. Unlike the systematic review, which has an established set of guidelines on how to assess its quality, a literature survey relies on some normative laws. However, this does not mean that a form of scrutiny should not be applied. Always read the abstracts, titles, and keywords of literature retrieved to evaluate the relevancy to the research question(s). The following inclusion criteria from Oliver (2012: 59–79) may be applied with some flexibility, that is: how often the article is cited, the nature of publishing source (peer-review, Open Access or closed access or non-peer-reviewed), methodology applied, author(s) writing style, recency, the validity of arguments and objectivity of approach. Also, the aspects of critical assessments may be borrowed from the systematic review methodology. Where necessary, the author may evaluate the weaknesses or flaws of studies included or a body of evidence and gaps that have not been fulfilled.

Administering the literature gathered

Managing the literature that has been gathered may save researchers a great deal of time when writing. In the book titled: *“Keep found things found: the study and practice of personal information management,”* Jones (2008) argues that information is of little good if it is lost or misplaced before it is used. Therefore, the literature survey will become more fruitful if some personal information management principles are leveraged to guarantee that the hard work put in so far does not go to waste. Social media researchers need a strategy on how to store, organize and manage the

literature (handwritten notes, hard-copy texts, digital images, and texts, etc.) for easy retrieval and use at specific points of the write-up. Researchers must keep in mind that it is easy to interact with information that is personally organized rather than if it is held by someone else. That is why it is suggested to utilize digital and cloud-based applications as they offer ease of work.

Consequently, this section will then aid with techniques to keep found things found. For example, how to build a literature survey/analysis matrix tables, mind maps, and automated references, and where to turn to for these resources.

How to build a literature matrix table

The literature matrix table/detailed mapping is a useful tool, as it shows the writer how each source is connected to the next, as well as the research question, therefore ensuring that logical arguments guide the literature survey. Also, Booth, Papaioannou, and Sutton (2016: 92) show that the literature matrix may classify research, track research articles read by the researcher (s), the intended purposes of sources, and identify gaps in the literature (see Table 8).

Table 8: Sample literature survey matrix table

<i>Principal research question</i>			
CITATION	YEAR	PURPOSE	METHODOLOGICAL DESIGN
<i>Author(s), Title, Type of article</i>			

They compose the literature matrix table of rows and columns. Wherefore, we recommend that the rows are used for documents (journal articles, book papers, news articles, blogs, and so on). The columns should be reserved for topics. Thus, Garrard (2011: 107-110) gives the following guidelines (which can be adapted to a research question) for creating a literature matrix:

1. **Arranging the documents** – Arranging the literature obtained in the search into one Document folder. Sorting the materials by recency (oldest to the newest) or into predetermined themes, topics, or methods. Researchers must remember to label each document well to ease navigation;
2. **Selecting the topics** – Creating a table of the matrix in a Word processor or Excel sheet (more effective as it has more spaces), then decide on the labeling to be applied for the literature survey. We may use two important labels: methodological design and content-specific features. For example, theoretical or conceptual issues about fake news would fit into a literature review with a content-specific focus such as suggestions for policy to prosecute persons who peddle fake COVID-19 news, among others. While a methodological design will be handy to compare and contrast different social media research methods that have been applied to any topic; and,

3. **Describing and summarizing the documents** – Carefully reading and reviewing each document one by one through a chronological order (oldest to most recent), then annotating each text according to the topics in the matrix.

Perhaps readers may apply the following questions posed by Hastings (2016) to leverage the matrix table to fit into their research question(s):

1. What have authors written around this topic?
2. Are there any current debates about this topic?
3. Which side of the debate is the present study taking? What are the reasons?
4. Which side of the debate does the present study disagree with? What are the reasons?
5. If there is a shortage of studies within the chosen topic, why is this the case?

When the literature matrix is built with these questions in mind, it becomes easier to write a logical discussion that identifies the gaps in previous studies and highlights concepts that support an author's assumptions or hypotheses.

How to build mind maps/concept maps

Mind Maps/ concept maps/ idea webbing are useful to explain a concept or connections of the research question to the literature in a non-linear way. In tandem, Booth, Papaioannou, and Sutton (2016: 96) state that mind maps may identify additional search words, structure the literature review, and display the relationship between concepts.

A Mind Map resembles the construction of a neuron, displaying a relationship of branches of words and diagrams that burst out in all directions of a page (echoing the course of a thought) (Buzan, 2018). Tools such as eDraw, Microsoft Teams, and Docear may visualize a researchers' conceptualization of the literature. Albeit, this list is not exhaustive, and perhaps readers may visit Ebrahim's (2013) article to view other options, of which some of these apply to the entire QuASARS method. When making a choice on which tools to use, this tutorial advises that readers opt for those that are Open Source tools as opposed to subscribing to pay up options (unless an institutional license exists). One other thing to factor in would be the tool's compatibility with the device's operating systems (does it work on Windows, Mac OS, Ubuntu, Android, and so forth?), and if the mind map can be transferred into a word processor.

To round up, when creating a Mind Map (no matter the software applied), Buzan (2018) suggests that authors should (own italics):

1. Begin with a central idea (such as a graphic to illustrate it). *For example, when using a Mind Map for the research problem in this tutorial, the primary issue: fake COVID-19 news on social media will be placed on the centre;*
2. Draw thick branches bursting out from the central idea. Key issues relating to the central idea will be placed around using a distinct colour. The narrower parts of each vital item will sprout as subsidiary branches (twigs), and so forth until it is reduced to its constituent departments; and,
3. A single key image or word is placed on each branch.

Reference management

As readers write a literature survey, they must remember to keep track of citations for two apparent reasons: (a) personal information management practices and (b) avoiding plagiarism. The latter has been discussed in this tutorial. The former (plagiarism) refers to academic dishonesty, for example, (a) not acknowledging an author (s) works and (b) treating it as one's own and misrepresenting an author (s) idea. Whether the literature survey will cause a formal publication or is set for a class assignment, it is expected to carry in-text citations of the works referred to and a bibliography towards the end.

It is then proper to use electronic reference management tools because of their capability in handling sizeable amounts of metadata, publications, and customizability to various citation styles and the topic's taxonomy. There are different reference managers in the market, as a case in point: Mendeley, Zotero, Endnote, RefWorks, Cite-U-Like, and so forth. Some of these reference managers are available in different operating systems such as Windows, Mac, Linux, and Android. Readers should go through Kratochvíl's (2017) and Basak's (2014) articles comparing the costs, their pros and cons, and various features available from the reference management software. Remember that there is no need to be proficient in all the reference managers but can use the selected one effectively.

Last, when entering references into a reference manager, make sure that all the metadata tags (author, title, publication information, and so on) are registered completely. The old-age saying is that: "garbage in, garbage out." Hence, when references are entered incompletely or inaccurately, no matter how effective the reference manager is, do not expect it to give a correct citation. It is advisable then to revisit the reference manager often to review entries for accuracy, completeness, and consistency with citation styles.

Report the findings of the literature survey

The report of the literature survey should focus attention on the implications of the findings from the literature. This means that authors must weigh the plausibility and quality of the evidence

gathered to answer the research question(s). These critical questions may be applied: What are the strengths and limitations of the literature? Are the findings valid? What do they mean? To what extent are these findings consistent across different demographics? These questions would aid in evaluating the strength and weaknesses of the themes/ discourses so that the literature survey draws out a balanced argument.

Organizing the structure of the literature survey

As researchers write the review, they should think of strategies to present it logically and coherently. This makes it easy for the intended reader to pick out movements in the argument. That is why it is advisable to create a storyboard to sequence the main headings, sub-headings, topics, and documents that go into a particular section. I put it in administering the literature, then this could become a daunting task. Hence, researchers should continuously refer to the matrix table, concept maps, and reference databases they help to build the discussion.

Whether we write the literature survey as a dedicated or discursive paper in a thesis, Oliver (2012) and Ridley (2012) suggest its structure may be subdivided into headings such as:

1. Historical background of the research question;
2. Current research context—questions, issues, debated, and so on;
3. Definition of relevant terminology—adapting or explaining what the concept means in the particular study;
4. Relevant theories and concepts – discuss each sub-question identifying conceptual and methodological underpinnings;
5. Leading studies—identifying research that is widely discussed by others, either for seminal developments, current developments, changing concepts, different methodologies and controversy;
6. Key arguments – identifying the vantage points of concepts, unresolved debates, and changes/ trends of an idea over time or amongst scholars (discourses);
7. Contribution to the body of knowledge – expanding what is known or identifying gaps and problems in the literature; and,
8. Supporting evidence for a practical problem/ issue

These headings are suggestive, and readers may apply adaptations according to the research question at hand. A storyboard will not make the writing dull and mechanical. It would not be a bad idea to read a literature survey with all these elements as they add more value to the work.

Synthesizing the evidence from the literature survey

The result of an excellent social media research literature survey is the synthesis that connects the issues highlighted and then the author's position towards them. Synthesis may be defined as “combining, integrating, modifying, rearranging, designing, composing, and generalizing,” the evidence gathered (Levy & Ellis, 2006). However, novice researchers tend to write annotations of works read without necessarily picking up the argumentation process that is needed to convince prospective readers about the author's assessment of the potential scope, size of available literature, discourses, and methodologies. Also, readers need to hear the voice of the author in the conversation. That is what the author agrees or disagrees with about individual scholars, spotting gaps that were realized, problematizing the literature if possible, and thereby positioning the current study and its conclusions within the body of knowledge.

The synthesis relies on what is called the dialectical method of arguing, which consists of a triad of concepts that include:

- a) **The thesis** (what the author proposes to solve through research question);
- b) **The antithesis** (views that oppose what the author is proposing); and,
- c) **The synthesis** (a more sophisticated level of understanding that integrates the thesis and the antithesis)

When writing the synthesis, consider applying the principles of complex reasoning proposed in Machi and McEvoy (2016). Wherefore, the discussion may be arranged according to different mapping and comparative reasoning. Divergent reasoning is used to support an argument where there is a disagreement between one or more points of view. For example, Tandoc, Lim, and Ling, (2018) present a literature review where the discussion challenges current definitions of fake news. They offer an alternative view that disregards news satires to fall under the definition of fake news, and finally gives reasons why their paper clarifies the concept and informs future studies on fake news. Thus, divergent mapping aims to weigh the body of evidence according to the strength of each side, similar to what happens in a debate. And it must be noted that some debates may have conclusions, while others may remain unresolved.

The literature survey may also be arranged by comparing and contrasting authors. That is, finding what is common in the body of evidence and points of difference (this is called comparative reasoning). Machi and McEvoy (2016) recommend that this type of argument is applied when arguing about theoretical, methodological, or ethical. These issues may appear in whatever the social media research question engaged in.

All these argumentation methods may be used in isolation or put together to present a logical and well-organized literature survey (Machi and McEvoy, 2016). When combining the arguments brought out in the literature survey, social media researchers may apply:

- a) **The funneling method** – moving from the general/ broad issue to the narrow;
- b) **Patchwork/ jig-saw puzzle method** – fitting in each piece of evidence to suit a purpose while making connections with the entire body of evidence;
- c) **Zooming** – taking a comprehensive view and then working towards a medium look, then onto the narrow view; and,
- d) **Finding intersections**—looking for what is comparing and contrasting the literature, authors, or themes to find something in common (Ridley, 2012).

Summary

Writing a literature survey is a task that requires logical cohesion and diligence. I hope that if the QuASARS method is followed step-by-step, it may assist in the entire process. The QuASARS method is not aimed to be an end but an interactive process that may be applied when writing the literature review. The steps in this literature survey research design may not be followed rigidly as some steps may overlap into others, or depend on another level or those conducted before others. Because of the brevity applied to write this tutorial, specific methodological issues were not discussed in-depth to guide the readers. Hence, it is recommended for readers to visit the reading list below and the references cited.

References

- Basak, S. K. (2014). Reference management software: a comparative analysis of JabRef and RefWorks. *International Journal of Psychological and Behavioral Sciences*, 8(11), 1969–1972. <https://doi.org/10.15242/iie.se1114002>
- Booth, A., Papaioannou, D., & Sutton, A. (2016). *Systematic approaches to a successful literature review* (2nd ed.). London: SAGE Publications Inc.
- Buzan, T. (2018). *Mind map mastery: the complete guide to learning and using the most powerful thinking tool in the universe* (Vol. 53). Watkins Publishing. <https://doi.org/10.1017/CBO9781107415324.004>
- Ebrahim, N. A. (2013). Introduction to the Research Tools Mind Map. *Research World*, 10(c), 4–6.
- Fidel, R. (2012). *Human information interaction: an ecological approach to information behavior*.

Cambridge, MA: MIT Press.

Foster, M. J., & Jewell, S. T. (2014). Introduction to systematic reviews. In M. J. Foster & S. T. Jewell (Eds.), *Assembling the pieces of a systematic review: a guide for librarians* (pp. 1–12). Lanham, Md.: Rowman & Littlefield Publishers, Inc.

Garrard, J. (2011). *Health sciences literature review made easy: the matrix method. Matrix*. London: Jones & Bartlett Learning, LLC.

Hastings, C. (2016). Get Lit: the literature review. Retrieved January 17, 2020, from <https://www.youtube.com/watch?v=9la5ytz9MmM&t=815s>

Ibrahim, R. (2008). Setting up a research question for determining the research methodology. *ALAM CIPTA, International Journal on Sustainable Tropical Design Research & Practice*, 3(1), 99–102.

Jones, W. (2008). *Keeping found things found: the study and practice of personal information management*. Amsterdam: Morgan Kaufmann Publishers.

Kratochvíl, J. (2017). Comparison of the Accuracy of Bibliographical References Generated for Medical Citation Styles by EndNote, Mendeley, RefWorks and Zotero. *Journal of Academic Librarianship*, 43(1), 57–66. <https://doi.org/10.1016/j.acalib.2016.09.001>

Levy, Y., & Ellis, T. J. (2006). A systems approach to conduct an effective literature review in support of information systems research. *Informing Science Journal*, 9(9), 182–212. Retrieved from <http://inform.nu/Articles/Vol9/V9p181-212Levy99.pdf>

Machi, L. A., & McEvoy, B. T. (2016). *The literature review: six steps to success* (3rd ed.). Thousand Oaks, California: SAGE Publications Inc.

McCay-Peet, L., & Quan-Haase, A. (2017). What is social media and what questions can social media research help us answer? In L. Sloan & A. Quan-Haase (Eds.), *The SAGE handbook of social media research methods* (pp. 13–26). Los Angeles: SAGE Publications Inc.

Oliver, P. (2012). *Succeeding with your literature review: a handbook for students*. Berkshire: Open University Press/ McGraw-Hill Education McGraw-Hill.

Ridley, D. (2012). *The literature review a step-by-step guide for students* (2nd ed.). Los Angeles: SAGE Publications.

- Sandberg, J., & Alvesson, M. (2011). Ways of constructing research questions: gap-spotting or problematization? *Organization*, 18(1), 23–44. <https://doi.org/10.1177/1350508410372151>
- Sentell, T., Vamos, S., & Okan, O. (2020). Interdisciplinary perspectives on health literacy research around the world: more important than ever in a time of covid-19. *International Journal of Environmental Research and Public Health*, 17(9), 1–13. <https://doi.org/10.3390/ijerph17093010>
- Tandoc, E. C., Lim, Z. W., & Ling, R. (2018). Defining “Fake News ”: a typology of scholarly definitions. *Digital Journalism*, 6(2), 137–153. <https://doi.org/10.1080/21670811.2017.1360143>
- Tucker, J. A., Guess, A., Barberá, P., Vaccari, C., Siegel, A., Sanovich, S., ... Nyhan, B. (2018). Social media, political polarization, and political disinformation: a review of the scientific literature. <https://doi.org//dx.doi.org/10.2139/ssrn.3144139>
- Wordvice. (2018). How to write a literature review. Retrieved January 22, 2020, from https://www.youtube.com/watch?v=-ny_EUJXHHs