网络信息资源：小窗口，大世界

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10 Information Utilization

10.1 文献信息的利用

10.2 综述文章的写作

10.1 文献信息的利用

- **文献信息利用，**是指文献信息用户对文献信息吸收和运用的活动与过程。
- 文献信息利用呈现如下层次性：

（1）浅层利用：是指用户只从表层粗浅地接触文献信息，不求深入地掌握其内容实质，用户可以获得某些表面的、零散的知识和信息。

例如，为了解国际、国内的新闻和时事而阅读报刊。

（2）中层利用：是指用户较深入地利用文献信息，力求掌握其内容实质，用户可以获得比较实际的、系统的知识。例如，为解决某些具体问题而到参考工具中寻找答案，为提高业务技能利用书刊进行自我学习。

（3）深层利用：是指用户创造性地利用文献信息，不但深入掌握内容实质而且对其进行分析和研究，用户不但利用已知而且创造新知识探索未知。

例如，为了课题攻关，技术革新、发明研制而利用文献，为撰写学术论文而利用原始文献。

科学研究中的文献信息利用

- 获取和利用文献信息是科研工作的重要组成部分 ， 也是科研人员的基本功之一。
- 一般估计科研人员获取文献信息的时间约占整个科研工作的1/2左右，而利用文献信息则贯穿科研工作的始终。
- 在科研工作的不同阶段（如科研选题阶段、计划制订阶段、课题进行阶段、课题结束阶段），文献信息利用的特点各不相同。

（1）科研选题阶段

- 科研人员需要通过深入地利用文献信息来对课题的可行性和新颖性进行论证。

（2）计划制订阶段

- 科研人员需要时刻掌握和了解课题相关领域的进展和最新成果，以便确定能否把最新科技成果用在自己的研究项目中。

（3）课题进行阶段

- 科研人员必须不断深入研究前人文献，并在前人研究基础上进一步明确课题研究问题、调整研究计划、更新研究方法

（4）课题结束阶段

- 针对成果鉴定和课题总结的要求获取和利用相关的背景材料。

科研工作利用文献的特点

- 科学性强：所利用文献要求数据准确、事实正确、理论严密、技术可行；
- 创造性强：要求利用文献信息中的新思想、新材料、新数据，以激发科研人员创造出新理论、新产品、新结论；
- 专深性强：利用的文献信息范围较窄，对文献信息内容的研究、理解、吸收的程度非常透彻；
- 阶段性强：在课题的选定、计划、进行、鉴定等不同阶段，利用文献信息的目的和形式不同；
- 多样性强：科研工作所利用的文献信息品种多样，且获取渠道多样。

10.2 综述文章的写作

10.2.1 Overall

10.2.2 Process

10.2.3 Structure

10.2.4 Examples

10.2.1 Overall

- A review article, also called a literature review, is an article that summarizes the current state of understanding on a topic.
- Review articles's main emphasis is on knitting together theories and results from a number of studies to describe the "big picture" of a field research. Some review papers also evaluate methods and results.
- Review articles are not original articles with new data but secondary sources representing a well-balanced summary of a timely subject with reference to the literature.

Goals

- Synthesize and evaluate the recent primary literature on topic.
- Summarize the current state of knowledge on a topic.
- Address controversies.
- Provide a comprehensive list of citations.

Types of review articles

- Non-systematic review
  - Sometimes called narrative review
  - May not be comprehensive
  - Qualitative review
- Systematic review
  - Attempts to find and summarize all relevant studies.
  - Follows a rigorous search strategy using pre-defined exclusion and inclusion criteria.
  - Evaluates the quality of each study using rigorous, pre-defined criteria.
- Meta-analysis
  - A systematic review that additionally uses statistical techniques to pool data from independent studies.

10.2.2 Process

(1) Process of a non-systematic review article (1/4)

Step One: Identify a topic

- It is wise to choose a topic of current interest and to pick a research topic about which articles are continuing to be published.
- Typically, topics should be focused and timely. Topics that have been addressed in the past or that are too broad should be avoided.
- To find out what is “hot”, it is often helpful to read a couple of review articles as well as read editorials and letters to the editor.
- There are two main approaches to choose an area of research to write about in a review article. One approach is to choose a point that you want to make and then select your primary studies based on this area of interest. Another approach is to read all the relevant studies and organize them in a meaningful way.

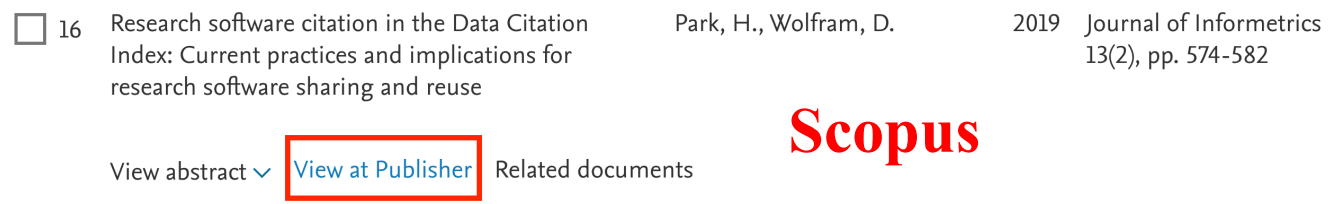
(1)Process of a non-systematic review article (2/4)

Step Two: Find the relevant research

- **Method 1: University online library**
- **Method 2: Google Scholar scrubbing**
- **Method 3: Snowballing**
  - ***Tip: Keep an eye on article age***
- **Method 4: Review related dissertations**
  - ***Tip: Don't make assumptions***

Method 1: University online library

- International journal databases:
  - Web of Science
  - Scopus
  - ……



- Chinese journal databases:
  - 中国知网
  - 万方
  - 维普
  - ……

Method 2: Google Scholar scrubbing

About 47% of the global journal papers are open access

Google 学术搜索 | software citation

文章 找到约 2,890,000 条结果 （用时0.03秒）

时间不限
2021以来
2020以来
2017以来
自定义范围...

按相关性排序
按日期排序

不限语言
中文网页
简体中文网页

类型不限
☐ 包括专利
☑ 包含引用

评论性文章

[HTML] Software citation principles — [HTML] peerj.com
AM Smith, DS Katz, KE Niemeyer - PeerJ Computer Science, 2016 - peerj.com
Software is a critical part of modern research and yet there is little support across the scholarly ecosystem for its acknowledgement and citation. Inspired by the activities of the FORCE11 working group focused on data citation, this document summarizes the …
☆ 99 被引用次数：183 相关文章 所有 22 个版本 »

Software citation in theory and practice — [PDF] arxiv.org
DS Katz, NPC Hong - International Congress on Mathematical Software, 2018 - Springer
In most fields, computational models and data analysis have become a significant part of how research is performed, in addition to the more traditional theory and experiment. Mathematics is no exception to this trend. While the system of publication and credit for …
☆ 99 被引用次数：14 相关文章 所有 7 个版本

[PDF] Software vs. data in the context of citation — [PDF] peerj.com
DS Katz, KE Niemeyer, AM Smith, WL Anderson… - PeerJ Preprints, 2016 - peerj.com
Software is data, but it is not just data. While" data" in computing and information science can refer to anything that can be processed by a computer, software is a special kind of data that can be a creative, executable tool that operates on data. However, software and data …
☆ 99 被引用次数：20 相关文章 所有 15 个版本 »

Method 3: Snowballing

- Forward Snowball

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Edwards, P.N., Jackson, S.J., Chalmers, M.K., Bowker, G.C., Borgman, C.L., Ribes, D., . . . Calvert, S. (2013). Knowledge infrastructures: Intellectual frameworks and research challenges. doi: 2027.42/97552

- Backward Snowball

Software in the scientific literature: Problems with seeing, finding, and using software mentioned in the biology literature

J Howison, J Bullard - Journal of the Association for Information …, 2016 - Wiley Online Library

Software is increasingly crucial to scholarship, yet the visibility and usefulness of software in the scientific record are in question. Just as with data, the visibility of software in publications is related to incentives to share software in reusable ways, and so promote efficient science …

☆ 99 被引用次数：122 相关文章 所有 6 个版本

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Software in the scientific literature: Problems with seeing, finding, and using software

在引用文章中搜索

Datamonkey 2.0: a modern web application for characterizing selective and other evolutionary processes

S Weaver, SD Shank, SJ Spielman, M Li… - Molecular biology …, 2018 - academic.oup.com

Inference of how evolutionary forces have shaped extant genetic diversity is a cornerstone of modern comparative sequence analysis. Advances in sequence generation and increased statistical sophistication of relevant methods now allow researchers to extract ever more …

☆ 99 被引用次数：316 相关文章 所有 9 个版本

[HTML] Software citation principles

AM Smith, DS Katz, KE Niemeyer - PeerJ Computer Science, 2016 - peerj.com

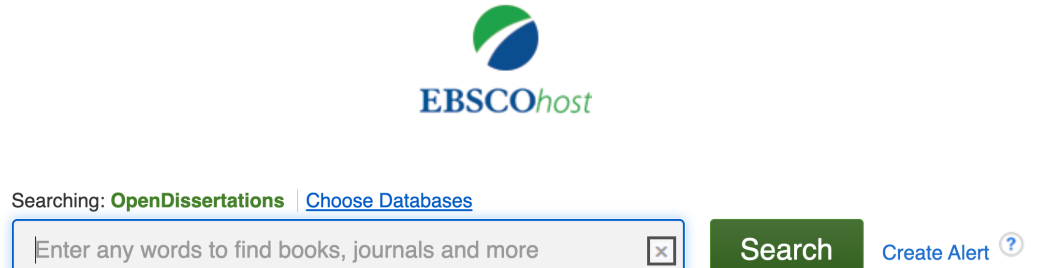
Software is a critical part of modern research and yet there is little support across the scholarly ecosystem for its acknowledgement and citation. Inspired by the activities of the FORCE11 working group focused on data citation, this document summarizes the …

☆ 99 被引用次数：183 相关文章 所有 22 个版本 »

Method 4: Review related dissertations

- **Dissertations of China**
  - Nanjing University Archives
  - 万方-中国学位论文全文数据库
  - 中国知网-学位论文库

- **Dissertations from other countries**
  - PQDT
  - EBSCO Open Dissertations
  - ……



(1)Process of a non-systematic review article (3/4)

Step Three: Log, catalogue and synthesise

- **Log the reference information**
  - ***Tip: Use reference management software such as Endnote, etc.***
  - ***Tip: Log every article as you read it.***
- **Catalogue all relevant articles**
  - ***Tip: Building a literature catalog in Excel (see example).***
  - ***Tip: Create separate columns for any potentially filter-worthly fields.***
- **Digest and synthesises**
  - ***Ask yourself:***
    - ✓ ***How does the research answer my questions?***
    - ✓ ***How does it all fit together (or not)?***
    - ✓ ***Who is aggreeing and disagreeing about what?***
  - ***Tip: Don't rush into writing. Digest.***

A literature catalog template

B	C	D	E	F	G	H
Author	**Year**	**Title**	**Category 1**	**Category 2**	**Category 3**	**Document type**
Example author	2016	The drivers of ABC	Trust antecedents	Competence	Propensity to trust	Audio Recording

J	K	L	M	N	O
Knowledge type	**Key argument(s)**	**Context**	**Methodology**	**Key quotes**	**My notes**
Empirical	E.g. said that X impacts Y by influencing Z.	US psychology students	Qualitative	"Trust is driven by..."	This aligns v

Source: GRADCOACH, https://www.youtube.com/watch?v=lw8HPXJP1VA

	Author	SNS use measures	Recruitment and sampling	Type of SNS	Well-being measures	Data collection	Data analysis	Applied theories
1	Valkenburg et al. (2006)	Frequency of use Intensity of use	881 adolescents (10–19 years old) Participants were recruited via links posted to CU2	CU2 (Dutch social network site)	Life Satisfaction	Online survey	Correlational analyses	Self-esteem theories
2	Valenzuela et al. (2009)	Intensity of use	2603 college students (18–29) years old Participants were recruited randomly through	Facebook	Life satisfaction	Online survey	Regression Analysis	None

Source: Erfani, S. S., & Abedin, B. (2018). Impacts of the use of social network sites on users' psychological well-being: A systematic review. Journal of the Association for Information Science and Technology, 69(7), 900-912.

(1)Process of a non-systematic review article (4/4)

Step Four: Outlining and writing up

- **Draw up your outline**
  - ***Structural options:***
    - ✓ ***Chronologically (in data order)***
    - ✓ ***Thematically (grouped by theme)***
    - ✓ ***Methodologically (grouped by method)***

- **Write it up**
  - ***Tip: Don't aim for perfection. Do is better than perfect.***
  - ***Tip: First draft is for getting it all your onto paper.***
  - ***Tip: The second draft is for tightening up and improving flow.***
  - ***Tip: Ask a friend to read and explain back.***
  - ***Tip: Listen very carefully to supervisor's feedback.***

(2)Process of a systematic review article

- **Formulating the Research Question(s)**
- **Identification of Research**
- **Study Selection**
- **Data Extraction**
- **Data Synthesis**
- **Reporting the Review**

Source: Keele, S. (2007). Guidelines for performing systematic literature reviews in software engineering (Vol. 5). Technical report, Ver. 2.3. EBSE.

10.2.3 Structure

(1) Abstract—not always required

(2) Introduction

(3) The body of a review article

(4) Conclusion and future directions

(5) References

(1) Abstract

- If an abstract is required, use an indicative abstract.
- Structure the indicative abstract as follows:
  - Background (optional)
  - Problem statement (optional)
  - Purpose/topic of review
  - Overview of content

(2) Introduction

- Organize the Introduction
  - Background
  - Unknown or problem
  - Purpose/topic of review
  - Overview of content
- Do not make the introduction longer than $\frac{1}{5}$ of the review article.

(3) The body of a review article

- Organize the body section logically into subsection either
  - chronologically
  - thematically
  - Methodologically

- Logically organize information within the body subsections (similarities, contrasts, gaps in knowledge, etc.).

(4) Conclusion and future directions

- Summarize your topic, generalize any interpretations, and provide some significance.
- What recommendations can you make?
- What gaps remain in the literature?
- What future studies would help fill these gaps?

(5) References

- Cite primary and secondary sources where you need.
- The type of information you choose should relate directly to the review’s focus.

10.2.4 Examples (1/3)

- Example 1: Scholarly Use of Social Media and Altmetrics: A Review of the Literature
- Logical structure:
  - Abstract
  - Introduction
  - Social Media Use in Academic
    - *Scholarly Use by Researchers*
    - *Scholarly Use by Institutions and Organizations*
    - *Factors Affecting Social Media Use*
  - Social Media and Research Evaluation
    - *Conceptualization and Classification of Altmetrics*
    - *Data Collection and Methodological Limitations*
    - *Social Media Metrics*
  - Conclusion and Outlook
  - References

10.2.4 Examples (2/3)

- Example 2: Recent named entity recognition and classification techniques: a systematic review

10.2.4 Examples (3/3)

- Example 3: Impacts of the Use of Social Network Sites on Users' Psychological Well-being: A Systematic Review (1/2)
  - Introduction
  - Context
    - *Social Network Sites*
    - *Psychological Well-Being*
  - Methods
    - *Eligibility Criteria*
    - *Search Strategy*
    - *Study Selection*
    - *Data Extraction and Data Synthesis*

- Example 3: Impacts of the Use of Social Network Sites on Users' Psychological Well-being: A Systematic Review (2/2)
  - Results
    - *Demographics*
    - *Which Variables Have Been Used to Measure the Use of SNSs and Users' Psychological Well-Being?*
    - *How Does the Use of SNSs Impact Users' Psychological Well-Being?*
      - *Positive impacts of SNS use on users' psychological well-being.*
      - *Negative aspects of the use of SNSs on users' psychological well-being.*
  - Recommendations for Future Studies
  - Concluding Remarks
  - References

Tips for review articles

- Start with a more broad search, and then narrow it.
- Clearly define your thesis or theme.
- Invest time getting organized.
- Divide the review into sections with separate headings.
- Consider putting information in tables, figures, and/or sidebars.
- Write for a broad audience.

Common Problems of Review Articles

- Lack of analysis and commentary—Writing the review as a simple list of facts and dates without interpretation and inference
- Not stating the unknown or problem—this leaves the reader hanging and wondering why the review is of interest
- Lack of logical organization of subtopics
- Review article is not objective—does not show conflicts between research “camps”
- Referencing errors

Main References (1/2)

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Q and A

Thank you for your attention