Research Writing Workshop

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Part 1

Research

Research:

Etymology: Middle French recerche, from recercher to go about seeking, from Old French recerchier, from re- + cerchier to search – more at SEARCH
Date: 1577 …

1: careful or diligent search

2: studious inquiry or examination; especially: investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws

3: the collecting of information about a particular subject.

(Merriam-Webster's 2015: unpaged)

Research: verb Date: 1593 transitive senses 1: to search or investigate exhaustively <research a problem> 2: to do research for <research a book>

intransitive senses: to engage in research.

(Merriam-Webster's 2015: unpaged)

Research: "Methodical search for knowledge. Original research tackles new problems or checks previous findings. Rigorous research is the mark of science, technology, and the 'living' branches of the humanities."

“It [research] is typically absent from pseudoscience and ideology.”

Synonyms: exploration, investigation, inquiry.

(Bunge 1999: 251)

Do not confuse research with knowledge creation. They are not the same. Not all knowledge creation is research.

There are many legitimate ways to create knowledge – not all are research. Learning creates knowledge. Learning how to do something creates knowledge for the learner.

Practice creates skill and knowledge for the practitioner. Practicing a skill creates applicable knowledge. For example, -- Research creates knowledge for the larger community of human beings beyond the internal mental or physical world of the individual researcher.

Practice creates skill and knowledge for the practitioner. Practicing a skill creates applicable knowledge. For example, practicing a surgical technique creates knowledge for a surgeon that will benefit patients. When football teams practice their passing technique, the team becomes stronger and more skilled.

When a medical researcher describes the surgical technique and shows other surgeons how to use it, this creates knowledge for all surgeons. When they learn and apply the technique, it leads to medical progress. When football teams practice their passing technique, the team becomes stronger and more skilled.

When a researcher in athletics examines and develops the strategy of passing techniques, this changes the culture and repertoire of a sport.

This is why we describe research as "a contribution to the knowledge of the field."

Research produces knowledge for all members of a research field, a discipline, or a profession.

One criterion of the PhD as a research doctorate involves making "an original contribution to the knowledge of the field" – sometimes described in shorter form as "an original contribution to knowledge."

I draw an epistemological distinction between information and knowledge. We cannot share knowledge directly, mind to mind. We can only share information about what we know.

When we engage in research, we learn something that becomes our knowledge. We share information by writing reports, papers, articles, and books, or presenting these less formally in talks.

One of the confusing issues in discussions of research is that many of the same initial steps that lead to learning also lead to research.

One key difference between learning and research is that what we learn may be new to us while it is not new to others.

Another key difference between learning and research is that research involves information that is new to others that we share with them, enabling them to learn in turn from our questions, our methods, and our conclusions.

Research creates knowledge for researchers and information for the field.

When other members of the field integrate this information into their knowledge, it becomes the knowledge of the field.

While all legitimate modes of knowledge creation are important, not all forms of knowledge creation constitute research.

To constitute research, knowledge creation must involve 1) investigation or experiment to discover and interpret facts, 2) investigation or experiment to revise accepted theories or laws in the light of new facts, or 3) investigation or experiment to apply new or revised theories or laws.

Knowledge creation to develop or master skills that are new to the individual without being original or new to the world at large is learning rather than research.

Learning often involves original discovery for the individual that is neither original or new to the world. This may be research for the individual in the same sense as "collecting of information about a particular subject." This kind of research does not warrant publication.

(Merriam-Webster's 2015: unpaged)

Preliminary Research

Preliminary research explores the area within which a research question may exist.

Typical questions in preliminary research include:

”What kinds of issues do I wish to explore?”

“What do I want to know?”

”What kinds of questions do I want to ask?”

Typical tasks of preliminary research:

Survey an area.

Map issues.

Understand the field of inquiry.

Exploratory Research

Once preliminary research narrows the field of inquiry, exploratory research focuses on and explores the research question.

Typical questions in exploratory research include:

”What kinds of questions should I ask?”

”What kinds of methods may I choose among to ask these questions?”

”What specific methods should I use to answer the questions I ask?”

Typical tasks in exploratory research include:

Developing research questions.

Selecting research methods.

Three Research Frames

Basic Research

Applied Research

Clinical Research

Basic research involves a search for general principles.

Abstract and general principles cover a variety of situations and cases.

Basic research generates theory on several levels. This may involve macro-level theories covering wide areas or fields, mid-level theories covering specific ranges of issues, or micro-level theories focusing on narrow questions.

General principles often have broad application beyond their original field of inquiry.

The generative nature of principles sometimes gives them surprising predictive power.

Applied research adapts the findings of basic research to classes of problems.

Applied research may involve developing and testing theories for classes of problems.

While applied research tends to be mid-level or micro-level research, applied research may develop or generate questions that become the subject of basic research.

Clinical research involves specific cases, applying the findings of basic research and applied research to specific situations.

Clinical research may generate and test new questions, or it may test the findings of basic and applied research in a clinical situation.

Clinical research may also develop or generate questions that become the subject of basic research or applied research.

Clinical research is often labeled diagnosis when it involves examining specific problems, questions, or issues for an individual client or organization.

Any of the three research frames may generate questions for the other frames.

Each may test the theories and findings of other kinds of research.

Clinical research generally involves professional engagement. In the rush of daily practice, most research is clinical. There isn't time for anything else.

Most professional practice requires diagnosis. Diagnosis is a major form of clinical research.

Skilled professional practice often requires practitioners to choose among the results and findings of applied research for specific clinical or diagnostic solutions.

Understanding basic research establishes the frame for wise choices and deepens the skills needed for effective diagnosis and professional practice.

(Friedman 2003: 510-512)

Many Kinds of Research

Theoretical
Empirical
Conceptual

Qualitative
Quantitative
Descriptive
Interpretive

Mathematical
Logical
Philosophical

Historical
Textual
Exegetical
Hermeneutic

Positive
Normative

Phenomenological

(These five approaches are subject to open questions and ongoing debate.)

Practice-led
Practice-based
Generative
Expressive
Artistic

There are several key questions in the current debates on approaches to research. We can name things that do not exist – for example, dragons or wizards. If things do exist, we should be able to describe and define their properties. This is also true of fictional entities. We can describe dragons and wizards and define their properties, even though they do not exist. There is significant semantic slippage and confusion concerning the contested research approaches.

Even though learning and knowledge creation share common properties with research, these common properties do not mean that all forms of learning and knowledge creation are research. John Langrish (2000) explains the issue nicely by explaining that two things may share a common property among several properties without being the same thing.

“Imagine you heard someone say, ‘my fork is a battleship.’ You might be curious and ask them what they meant. Suppose the reply went like this, ‘Battleships are made of steel. My fork is made of steel. Therefore my fork is a battleship.’ You would probably hurry away. It is obviously a very silly argument. Yet a similar false logic can be heard whenever two or three get together to discuss research in art and design.”

“Try this. ‘PhDs are given for research. I am an artist and I engage in research during my artistic practice. Therefore my art should get a PhD’. This doesn’t sound quite so silly but, in fact, it is. Many many things are called research just like many many things are made of steel. Two different things - battleships and forks- are not made the same just because they are made of steel and two different kinds of research - that done by an artist and that done by a PhD student are not made the same just because they are called research.” (Langrish : 297)

A workshop on research writing does not afford the time to explain thoroughly the problems surrounding the contested approaches to research labeled "practice-led research," "practice-based research," "generative research," "expressive research," and "artistic research." There are problems nevertheless. Think deeply on Bunge's (1999: 251) criteria in writing and presenting research.

Research Methods

Methods
Methodology
Methodics

Research methods are how we do research.

Methodology is the comparative study of methods.

Methodics is the comprehensive repertoire of methods in a field.

Methodological awareness and methodological sensitivity involve our ability to understand research methods and use them effectively to answer questions.

Methodological awareness involves such questions as choice of method, understanding appropriate methods for examining kinds of questions, and awareness of theoretical presuppositions.

Methodological awareness also involves such issues as problem finding, problem selection, choice of research object, levels of analysis, units of analysis, and the other questions central to any research project.

Part 2

Writing

“There are only two kinds of research: perfect research and published research …

“Perfect research is never published and published research is never perfect.”

Johan Olaisen

Research is a shared activity. While proprietary research is not published, it is shared within the community of those who own it. In contrast, we must publish research to build scientific and scholarly disciplines and professional fields.

The act of writing often helps the author to complete the research.

“Research results seem to be incomplete until they are written up, and in the writing come new insights into the work that you didn’t have when you were performing it.

“Language structures thought through rhetorical conventions which stimulate additional thought.

“Research activity proceeds in a fairly linear fashion, whereas language poses problems of explanatory necessity to complete its statements.

“You can often DO something immediately following a prior action, but you often cannot SAY something following a previous statement without setting the background for its understanding.

“I suppose the missing component is that when writing, you understand that you cannot assume the reader had your same state of mind, whereas as the actor DOING things, you knew your state of mind.”

(Amsler 2007)

How to Write

First Steps

Introduce terms.

Define terms.

Answer these questions

What does this term mean?

How does this article use the term?

What meaning and function does the term have in the context of this inquiry?

Use Authoritative Sources

Excellent sources for definitions and language in English:

Merriam-Webster's Collegiate Dictionary

Oxford English Dictionary

Shorter Oxford English Dictionary

Use Appropriate Style

Write carefully.

Build good sentences.

Link related sentences in clear paragraphs.

Work toward an overall structure.

Strunk & White

“Elementary Principles of Composition

Choose a suitable design and hold to it.

Make the paragraph the unit of composition.

Use the active voice.

“Put statements in a positive form.

Use specific, definite, concrete language.

Omit needless words.

Avoid a succession of loose sentences.

“Express coordinate ideas in similar form.

Keep related words together.

In summaries, keep to one tense.

Place the emphatic words of a sentence at the end.”

(Strunk and White. 2000: vi)

“An Approach to Style
(With a list of reminders)

Place yourself in the background.

Write in a way that comes naturally.

Work from a suitable design.

“Write with nouns and verbs.

Revise and rewrite.

“Do not overwrite.

Do not overstate.

Avoid the use of qualifiers.

Do not affect a breezy manner.

Use orthodox spelling.

“Do not explain too much.

Do not construct awkward adverbs.

Make sure the reader knows who is speaking.

Avoid fancy words.

“Do not use dialect unless your ear is good.

Be clear.

Do not inject opinion.

Use figures of speech sparingly.

Do not take shortcuts at the cost of clarity.

“Avoid foreign languages.

Prefer the standard to the offbeat.”

(Strunk and White. 2000: vi)

The Elements of Style **is the best short writing guide in English today.**

Other guides are good, but none is shorter, more elegant, or easier to use.

Buy *The Elements of Style*.

Read it.

Use it.

Those who wish to read more deeply into writing for academic journals should read *Stylish Academic Writing* by Helen Sword (2012).

Additional writing resources and books are available as a free .pdf document titled *Research Writing Resources* at URL:

<http://swinburne.academia.edu/KenFriedman> .

Ten Principles of Reference and Citation

(Friedman 2017, 2014)

1 Use citations constructively to substantiate the argument of an article.

2 Use citations creatively to advance the argument.

3 Argue the case of the article in the narrative. External sources support the argument. External support cannot replace the author's argument. Do not confuse the two.

4 Use precise, fine-grained references. These permit the reader to locate cited materials at their exact place in the source document. Fine-grained references allow the reader to examine, question, challenge, and learn from cited sources.

5 Treat direct quotations, indirect quotations, and paraphrases the same way. Give explicit references to the exact page or section in the cited sources for all quotations and paraphrases. This serves readers while building and supporting the knowledge of the field.

6 Review cited passages in the original sources to ensure exact quotes and accurate paraphrasing. Reviewing sources helps the author to use source text well. It allows the author to reflect on the quoted material for added depth and development.

7 Never use second-hand references from other articles or books. Always check cited sources first hand.

8 Never use loose or vague references. Be precise.

9 Every source document cited in the text must appear in the reference list.

Every item in the reference list must appear in the text.

10 Each source in the text requires an appropriate citation in the text and a full entry in the reference list. All sources must be cited using a standard style, including digital sources. Every document has an author – one person or several, a collective author, or an institutional author.

10 Every document has a title. Documents such a journal articles or book chapters require journal or book titles and pages within the journal or book. Every document has a publisher, and the citation requires publisher location and publisher name.

10 Within the document, a direct quote or an indirect quote (paraphrase) needs a precise page location unless the document has no page numbers.

10 Digital sources require a complete reference. A URL or a doi is not sufficient. The World Wide Web is a global library. Many web sites are like bookshelves or file drawers – the URL or doi tells readers where on the shelf it in the file to find a document. The citation provides the details.

10 Every entry in the reference list must be complete. All citations and all references must use the same style. All citations and references must be complete and consistent to be correct.

IMPORTANT

Cite direct quotations carefully and explicitly.

Cite indirect quotations and paraphrased quotations carefully and explicitly.

VITAL

Offer evidence.

Provide sources for the evidence in original work or earlier work.

These are the foundation of research and the warrant for research claims.

Reference and Citation

References are a conceptual tool for the writer *and* for the reader.

Skilled authors recognize the stylistic and intellectual issues involved in referencing.

Reference and Citation

Outstanding authors practice and master the art of referencing.

These authors build a conversation across the field and bring readers into the conversation.

Beware of These Common Problems

It is generally best not to use footnotes for substantive content.

Place substantive issues in the body of the article or cut them.

Don’t use footnotes or endnotes for references if the publisher requires another style.

Footnotes and endnotes often lead to substantive problems such as missing notes, missing details, inconsistencies, poorly formatted entries, and confused styles.

Part 3

Advice and Warnings

First Person Writing

When writing as the author of an article, write in the first person using active verbs.

Take responsibility for opinions and findings.

Use the first person when necessary and only when necessary.

Necessity

An author is a necessary actor who *should* write in the first person in four specific cases:

1

To narrate events that he or she witnessed in person,

2

To narrate personal experience,

3

To take responsibility for findings and results, or

4

To state an expert or professional opinion.

An author should not enter the narrative without good reason.

An author should not narrate personal involvement unless he or she is a necessary actor.

NEVER **complain about the difficulty of a research project. State the challenges and problems. Be clear, then stop.**

NEVER **emphasize the work of writing with such phrases as "I asked myself," or "To prepare, I read many books and articles."**

Don't use clichés.

Don't use stock phrases.

Don’t use jargon. Use clear terms in common language.

If it is necessary to use a technical term, explain it in common language or define it.

An author should not use professional, technical, or scientific terms that he cannot explain or define.

Don’t use “words” in quotation marks to indicate that these words have a special meaning. Readers may not know how these “words” differ to ordinary words. An author should not assume that readers will share the “special” meaning that the author intends to indicate.

Don't place a word in quotation marks to suggest an "ironic" meaning. Unless readers share the author's ideas and assumptions, they may not understand intended ironic meaning – or they may recognize the author's intent without understanding the meaning.

Don't use fancy words in an attempt to seem scholarly or scientific. If an author does not understand a word, it is likely that the reader won't understand it, either.

Warning!

If an author misuses a word that he or she does not understand when the reader *does* understand it, the reader may think of the author as a fraud.

Write to make meaning clear, understandable, and explicit. To the greatest degree possible, write well. If clarity requires an occasional difficult passage, prefer clarity. Seek advice to see whether it is possible to write a difficult passage in simpler language.

Read and write.

Revise, rewrite, and polish.

Get advice often.

Development

Develop rhetoric carefully and systemically.

Ensure continuity.

State the promise of the paper and keep the promise.

Development

Define terms.

State assumptions. Explain, clarify, and limit them.

Develop the paper with a sense of narrative dramaturgy.

Development

Clarify issues.

Explain key issues.

Answer *what*, *why*, *how*, and *when*.

Use appropriate forms of demonstration: narrative, testimony, evidence, and models.

Development

Present and address contrary evidence.

Development

Work carefully with tense, time, and narrative sequence.

Pay careful attention to process.

Make every process description clear.

Development

Use active verbs.

Establish agency.

Represent time flow.

Be clear.

Start writing!

What to do and how to do it.

A robust manuscript should meet several criteria. These criteria vary by discipline, field, and method.

Use this checklist as a basic frame. Adjust the checklist to suit the discipline, journal, or conference. Book chapters may be different while meeting comparable requirements.

An author should:

1 State the theme of the article.

2 Introduce the subject.

3 Promise a contribution.

4 State the goals of the article.

5 Identify the issues of the article.

6 Give appropriate background information.

7 Describe the approach and method.

8 Describe the circumstances in which he or she did the work.

9 Describe the research process.

10 State the structure of the argument and state how the article will develop it.

11 Provide evidence for the argument.

12 Show how the evidence and the argument lead to a contribution.

Evidence may include empirical work and material from the literature of the field.

13 Describe the findings or conclusions and how they fulfill the goals of the article.

14 State what the author learned or accomplished.

15 Suggest future work to answer remaining questions and unresolved issues.

16 Provide a reference list containing all sources cited in the text.

Writing is a window!

Effective scholarly or scientific writing enables to reader to see what the author sees, to understand what the author knows, and to make a reasoned judgment on the author's conclusions.

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About Ken Friedman

Ken Friedman is Chair Professor of Design Innovation Studies at Tongji University College of Design and Innovation.

Friedman is Editor-in-Chief of *She Ji. The Journal of Design, Economics, and Innovation* published by Tongji University in cooperation with Elsevier. He is co-editor of the book series *Design Thinking, Design Theory* for The MIT Press.

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Thank you

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