**Dimensions of Research
Characterizing Research, Research Designs, and Research Studies
A Comprehensive Faceted Classification**

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**Introductory note on scope and limitations**

* The classification is focused on social and behavioral sciences, but the principles are general.
* It is a resource for students in a one-semester course in research methods (for many the only course in research methods they will take), so it is selective rather than encyclopedic.
* It started out as a guide through Wildemuth 2017 *Application of social research methods to questions in Information and Library Science* t. So the selection of topics included in parts 3 - 5 largely follows Wildemuth; the topic sequence is different.
* There are many definitions, explanations, and/or examples, some from me ({DS}), others assembled from many sources given in {} (see list at the end); source tracking is not complete. Annotations represent different perspectives with some disagreement and some repetition.
* While independence of dimensions is desirable, reality is not so simple. Two dimensions may look at the same conceptual distinction from different perspectives or overlap in other ways.
* Distinction are rarely dichotomous but rather the two ends of a continuum.
* *Research, research design,* and (*research) study* are used somewhat interchangeably, with word choice depending on context.

Wildemuth chapters are indicated by ● , e.g., ●Quasi-experimental Studies. W-Ch. 11, p. 91 – 102

**Tip:** To find a concept number, search for the number followed by a space

**1 Why research? Use of results, research purposes, types of results / knowledge discovered. Research topic.**

**1a- 1e Dimensions related to study purpose and use of study result**s

 1a The basic research ꟷ applied research continuum

 1b General purposes / applications / uses of research results

 1c Specific purposes of research

 1d Idiographic vs. nomothetic research

 1e Exploratory vs. confirmatory research

**1f - 1i What is being studied**

 1f Study by topic

 1g Unit of analysis in the study

 1h Developing a research topic / research problem and research question

 1i Study by regulatory requirements (depend on topic, unit of analysis, and research question)

**1j - 1k Dimensions related to the creation and distribution of knowledge**

 1j Degree to which the study adds to the general stock of knowledge

 1k Scope of distribution and use of study results

**2 General ways of gaining knowledge**

 2a Underlying basic assumptions guiding the conduct of research

 2b Research design by basic approach to gaining insight / type of knowledge produced

 2c Approaches to empirical research

 2d How close to original data or thought? Direct vs. indirect research

 2e Degree of flexibility of research protocol

 2f Stage of research study (just one example)

 2g Research by organizational arrangement

**Parts 3 - 5. Specific research methods in the social sciences**

**3 Research design by scope, participants, context, and overall protocol**

 3a Research Design by scope of study and sampling

 3b Studies by population studied

 3c Study by how phenomena are followed over time

 3d Research by context / environment

 3e Research design by role of participant

 3f Research design by getting individual opinion vs getting consensus opinion

 3g Research design by degree of advance specification

 3h Research design by strictness of adherence to protocol

**4 Sources of data and methods for data collection**

 4a Existing documents as data sources

 4b Observation (of individual participants, groups, events, . . .)

 4c Eliciting free-form, mostly spoken, answers to open-ended questions

 4d Eliciting ✓ or scale value answers to closed questions. Structured questionnaires and interviews

 4e Specific types of variables

**5 Methods for data analysis**

 5a Methods for qualitative analysis

 5b Methods for qualitative and structural analysis (qualitative or quantitative)

 5c Methods for quantitative analysis. Statistical Analysis

. 5d Machine learning

**1 Why research? Use of results, research purposes, types of results / knowledge discovered.
Research topic**.

**1a- 1e Dimensions related to study purpose and use of study results**

. **1a The basic research ꟷ applied research continuum**

. . **1a1** Basic research

. . **1a2** Applied research

. . . **1a2.1** Research and Development (R&D)

. . . . **1a2.1.1** Participatory design

. . . . **1a2.1.2** Human-centered design

. . . . **1a2.1.3** Usability study

. . . **1a2.2** Action research

. . . **1a2.3** Evaluation and assessment research

. . . . **1a2.3.1** Formative vs summative evaluation

. . . . . **1a2.3.1,1** Formative evaluation

. . . . . **1a2.3.1,2** Summative evaluation

. . . . **1a2.3.2** Impact assessment research

. **1b General purposes / applications / uses of research results**

. . **1b1** Inform action. Evidence-supported practice

. . **1b2** Provide tools for practice

. . . **1b2.1** Support Design / produce a product / artefact / mentefact

. . **1b3** Environmental scanning and prediction

. . **1b4** Evaluation / assessment to support accountability

. . **1b5** Uses of research in the information field

. **1c Specific purposes of research**

. **1d Idiographic vs. nomothetic research**

. . **1d1** Idiographic research

. . **1d2** Nomothetic research

. **1e Exploratory vs. confirmatory research**

. . **1e1** Exploratory research

. . **1e2** Confirmatory research

**1f - 1g What is being studied**

. **1f Topic of the study**

. . **1f0** Methodological vs. subject matter contribution of the study

. . . **1f0.1** Emphasis on developing or testing/validating method**s**

. . . **1f0.2** Emphasis on shedding light on phenomena

. . **1f1** Subject matter of the study

. . . **1f1.1** Example: Communication research

. . . . **1f1.1.1** Control analysis (source)

. . . . **1f1.1.2** Content analysis (message)

. . . . **1f1.1.3** Media analysis (channel)

. . . . **1f1.1.4** Audience analysis (receiver).

. . . . **1f1.1.5** Impact analysis (effects)

. . **1f2** Time scope of the study

. . . **1f2.1** Relative time of the study

. . . . **1f2.1.1** Study of the past

. . . . **1f2.1.2** Study of the present

. . . . **1f2.1.3** Study of the future

. . . **1f2.1** Chronological time of the study

. . **1f3** Spatial scope of the study

. **1g Unit of analysis in the study**

. . **1g1** Study deals with mentefacts

. . **1g2** Study deals with natural or designed processes, techniques

. . **1g3** Study deals with non-living natural or man-made material objects

. . **1g4** Study deals with places

. . **1g5** Study deals with living organisms and groups thereof

. . **1g6** Study deals with people or groups of people

. . . **1g6.1** Study deals with individual people

. . . **1g6.2** Study deals with groups of people

. . . **1g6.3** Study deals with organizations

. . . **1g6.4** Study deals with social artifacts

. . . **1g6.5** Comprehensive example

. **1h Developing a research topic / research problem and research questions**

. . **1h1** Motivation for a research questions

. . . **1h1.1** ●Developing a Research Question. **W-Ch. 2**, p. 11 - 20

. . . **1h1.2** ●Research question originating from theory or researcher curiosity. **W-Ch. 6**, p. 41 – 48.

. . . **1h1.3** ●Research question originating from practice. **W-Ch. 3**, p. 21 - 27

. . **1h2** Research question by type of study

. . . **1h2.1** Research questions for descriptive studies.

. . . . **1h2.1.1** ●Descriptions of Phenomena or Settings**.** **W-Ch. 4,** p. 28–33

. . . **1h2.2** Research questions for explanatory / causal / analytical studies

**. . . . 1h2.2.1** ●Research questions answered by testing hypotheses. **W-Ch. 5**, p. 34 – 40

. **1i Study by regulatory requirements (depend on topic, unit of analysis, and research question)**

. . **1i1** Study does not require IRB review

. . **1i2** Study requires IRB review but is exempt

. . **1i3** Study requires IRB review and IRB approval

. . **1i4** Study requires other agency review and approval

**1j - 1k Dimensions related to the creation and distribution of knowledge**

. **1j Degree to which the study adds to the general stock of knowledge**

. . **1j1** Study assembles and organizes what is generally known already

. . **1j2** Study assembles and organizes and reframes existing knowledge

. . **1j3** Study changes belief in existing knowledge

. . **1j4** Study produces new knowledge

. . **1j5** *ab ovo* study vs. replication study

. . . **1j5.1** *ab ovo* study

. . . **1j5.2** Replication study

. **1k Scope of distribution and use of study results**

. . **1k1** Wide distribution and use of study results, public

. . **1k2** Distribution only to one or few persons / organizations / groups

. . . **1k2.1** Proprietary research

**2 General ways of gaining knowledge**

. **2a Underlying basic assumptions guiding the conduct of research**

. . **2a1** Philosophical stance or paradigm

. . . **2a1.1** Positivism

. . . **2a1.2** Postpositivism

. . . . **2a1.2.1** Research focusing on overt behavior

. . . **2a1.3** Post-structuralist

. . . **2a1.4** Phenomenological research

. . . **2a1.5** Interpretivist

. . . **2a1.6** Constructivism

. . . **2a1.7** Transformative

. . . **2a1.8** Pragmatism

. . **2a2 Analytic (as opposed to holistic) vs. holistic approach**

. . . **2a2.1** Analytic (as opposed to holistic) approach

. . . **2a2.2** Holistic approach

. . **2a3 Political stance. Neutral / impartial vs. engaged / partisan**

. . . **2a3.1** Political stance neutral / impartial

. . . **2a3.2** Political stance engaged / partisan

. **2b Research design by basic approach to gaining insight / type of knowledge produced**

**2b1 - 2b3 Focus on empirical research**

. . **2b1** Descriptive studies

. . . **2b1.1** Descriptive study by format

. . . . **2b1.1.1** Case report

. . . . **2b1.1.2** Case series

. . . **2b1.2** Descriptive study by purpose

. . . . **2b1.2.1** Descriptive studies for description

. . . . . **2b1.2.1,1** Comparison, comparative study

. . . . . **2b1.2.1,2** Categorization

. . . . **2b1.2.2** Descriptive studies for monitoring and evaluation

. . . . . **2b1.2.2,1** Surveillance studies

. . **2b2** Relational studies

. . **2b3** Explanatory / causal / analytical studies

. . . **2b3.1** Explanatory / causal / analytical studies by degree of manipulative control

. . . . **2b3.1.1** Explanatory / causal / analytical studies through qualitative analysis

. . . . **2b3.1.2** Explanatory / causal / analytical studies through statistical analysis of data about

people, organizations, cities, etc.

. . . . **2b3.1.3** Quasi-experimental and experimental studies.

. . . . . **2b3.1.3,1** ●Quasi-experimental Studies. W-Ch. 11, p. 91 – 102

. . . . . **2b3.1.3,2** ●Experimental Studies. W-Ch. 12, p. 103 – 113

. . . **2b3.2** Explanatory / causal / analytical studies by function

. . . . **2b3.2.1** Explanatory / causal / analytical studies for explanation

. . . . **2b3.2.2** Explanatory / causal / analytical studies for prediction

. . . . **2b3.2.3** Explanatory / causal / analytical studies for prescription and planning (decision-making)

. . . **2b3.3** Modeling and simulation

**2b4 - 2bx Focus on general methods and thought research**

. . **2b4** Critical reflection

. **2c** Approaches to empirical research

. . **2c1** The qualitative ꟷ quantitative research continuum

. . . **2c1.1** Qualitative research

. . . **2c1.2** Quantitative research

. . . **2c1.3** ●Mixed Methods. W-Ch. 13, p. 114 – 122

. . **2c2** Relationship data collector - data analyst

 Primary vs. secondary data analysis

. . . **2c2.1** Primary analysis (analyst = collector)

. . . **2c2.2** Secondary analysis (analyst ≠ collector)

. . . . **2c2.2.1** Meta-analysis

. **2d How close to original data or thought? Direct vs. indirect research**

. . **2d1** Direct research

. . . **2d1.1** Empirical vs non-empirical research

. . . . **2d1.1.1** Empirical research (see 2c)

. . . . **2d1.1.2**Non-empirical research, thought research

. . **2d2** Indirect research

. . . **2d2.1** Literature review. State-of-the-art report

. . . . **2d2.1.1** Systematic literature review

. **2e** **Degree of flexibility of the research protocol**

. . **2e1** Origin of the protocol. Control of the protocol

. . . **2e1.1** Official or widely accepted standard

. . . **2e1.2** Protocol used by another research team

. . . **2e1.3** Protocol used in another study by the same research team

. . . **2e1.4** Protocol developed specifically for the study

. . **2e2** Research protocol by degree of advance specification

. . . **2e2.1** Detailed advance specification

. . . **2e2.2** Develop the protocol as you go

. . **2e3 Research design by strictness of adherence to protocol**

. . . **2e3.1** Research process with strict adherence to protocol

. . . **2e3.2** Protocol adaptation following exact rules specified in the protocol

. . . **2e3.3** Protocol adaptation by researcher judgment

. . . **2e3.4** Local protocol adaptation

. **2f Stage of research stud**y (just one example)

. . **2f1** Stages of Human-Centred Design {6}

. . . **2f1.1** Immerse mode

. . . **2f1.2** Inspire mode

. . . **2f1.3** Imagine mode

. . . **2f1.4** Invent mode

. **2g Research by organizational arrangement**

. . **2g1** Research by number of disciplines involved

. . . **2g1.1** Monodisciplinary research

. . . **2g1.2** Interdisciplinary research

. . **2g2** Research by number of researchers involved

. . . **2g2.1** Small research group, one principal investigator

. . . **2g2.2** Team research. Team science. Collaborative research

. . . **2g2.3** Big science

**Parts 3 - 5. Specific research methods in the social sciences**

**3 Research design by scope, participants, context, and overall protocol**

. **3a Research Design by scope of study and sampling**

. . **3a1** Studies of limited scope or extent

. . . **3a1.1** ●Case Studies. W-Ch. 7, p. 51 – 59

. . . **3a1.2** ●Sampling for Intensive Studies. W-Ch. 15, p. 136 – 144

. . **3a2** Studies of larger Scope. Extensive Studies

. . . **3a2.1** ●Sampling for Extensive Studies. W-Ch. 14, p. 123 – 135

. **3b Studies by population studied**

. . **3b1** ●Studying Special Populations. W-Ch. 16, p. 145 – 151

. . **3b2** Cohort studies

. **3c Studies by how phenomena are followed over time**

. . **3c1** Cross-sectional studies

. . **3c2** Before-and-after studies, one-time outcome measurement

. . **3c3** ●Longitudinal Studies. W-Ch. 9, p. 71 – 80

. . . **3c3.1** Longitudinal studies by retrospective vs prospective

. . . . **3c3.1.1** Retrospective longitudinal studies

. . . . . **3c3.1.1,1** Case-control study

. . . . **3c3.1.2** Prospective longitudinal studies

. . . . **3c3.1.3** Ambidirectional longitudinal studies

. . . **3c3.2** Longitudinal studies by changing sample vs. following sample

. . . . **3c3.2.1** Repeated cross-sectional study

. . . . **3c3.2.2** Panel study

. **3d Research by context / environment**

. . **3d1** Laboratory research

. . **3d2** Clinical research - in hospitals, prison, classroom

. . **3d3** Research in open nature or society

. . . **3d3.1** Field research

. . . **3d3.2** ●Naturalistic Research. W-Ch. 8, p. 60 - 70

. . **3d4** In silico, in vitro, in vivo research

. . . **3d4.1** In silico research

. . . **3d4.2** In vitro research

. . . **3d4.3** In vivo research

. **3e Research design by role of participant**

. . **3e1** Participants as subjects being studied

. . **3e2** Participants as experts / informants

. . . **3e2.1** ●Delphi Studies. W-Ch. 10, p. 81 - 90

. **3f Research design by getting individual opinion vs getting consensus opinion**

. . **3f1** Research design for getting individual opinion

. . **3f2** Research design for getting mutually informed individual opinion

. . **3f3** Research design for getting consensus opinion

. . . **3f3.1** Focus group

. . . **3f3.2** Delphi-like design

**4 Sources of data and methods for data collection**

. **4a Existing documents as data sources**

. . **4a1** Existing texts and databases as data source**s**

. . . **4a1.1** ●Historical Research. **W-Ch. 17**, p. 155 – 164

. . . **4a1.2** ●Existing Documents and Artifacts as Data. **W-Ch. 1**8, p. 165 - 172

. . . **4a1.3** ●Transaction Logs (pre-existing or created for research). **W-Ch. 20**, p. 185 – 197

. . **4a2** Existing audio recordings as sources of data

. . **4a3** Existing images as sources of data

. **4b Observation** (of individual participants, groups, events, . . .)

. . **4b1** ●Direct Observation. **W-Ch. 22**, p. 209 – 218

. . **4b2** ●Participant Observation. **W-Ch. 23**, p. 219 – 227

. **4c** **Eliciting free-form, mostly spoken, answers to open-ended questions**

. . **4c1** ●Think-aloud Protocols. **W-Ch. 21**, p. 198 – 208

. . **4c2** ●Research Diaries**. W-Ch. 24**, p. 228 – 238

. . **4c3** ●Unstructured Interviews. **W-Ch. 25**, p. 239 – 247

. . **4c4** ●Semistructured Interviews**. W-Ch. 2**6, p. 248 – 257

. . **4c5** ●Focus Groups**. W-Ch. 2**7, p. 258 – 271

. . **4c6** ●Visual Data Collection Methods**. W-Ch. 1**9, p. 173 – 184

. **4d Eliciting ✓ or scale value answers to closed questions. Structured questionnaires and interviews**

. . **4d1** ●Survey Research**. W-Ch. 28**, p. 272 – 283

. **4e Specific types of variables**

. . **4e1** ●Measuring Cognitive and Affective Variable**s. W-Ch. 29**, p. 284 – 290

. . **4e2** ●Developing New Measures**. W-Ch. 30**, p. 291 – 304

**5 Methods for data analysis** (rudimentary list)

. **5a Methods for qualitative analysis**

. **5b Methods for qualitative and structural analysis (qualitative or quantitative)**

. . **5b1** ●Content Analysis. **W-Ch. 31**, p. 307 – 317

. . **5b2** ●Qualitative Analysis of Content. **W-Ch. 32**, p. 318 - 329

. . **5b3** ●Discourse Analysi**s**. W-**Ch. 33**, p. 330 - 338 Optional

. . **5b4** ●Social Network Analysis**.** **W-Ch. 34**, p. 339 – 350

. **5c Methods for quantitative analysis. Statistical Analysis**

. . **5c1** ●Descriptive Statistics. **W-Ch. 35**, p. 351 – 360

. . **5c2** ●Frequencies, Cross-tabulation, and the Chi-square Statistic. **W-Ch. 36**, p. 361 – 372

. . **5c3** ●Analyzing Sequences of Events. **W-Ch. 37**, p. 373 - 386

. . **5c4** ●Correlation**.** W-**Ch. 38**, p. 387 – 394

. . **5c5** ●Comparing Means: t Tests and Analysis of Variance**.** **W-Ch. 39**, p. 395 – 404

. **5d Machine learning**