

Methodology

Learning Development Service

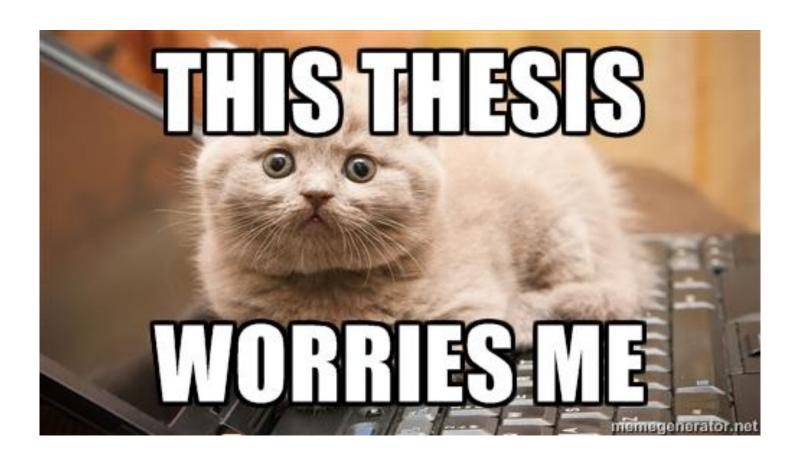
Leonie Maria Tanczer, MSc.



Why



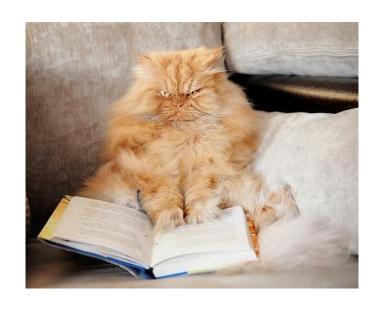
...because most students end up like this:





Who are you?

- Schools / Subjects
- Concerns
- Expectations
- Stage



Development



Workshop Structure

- 1. The purpose of a method section
- 2. What is methodology vs. method
- How to find the appropriate method for your research: Epistemology
- 4. Methods you may use
 - Qualitative research
 - Quantitative research
- 5. How to write up your methodology



Dissertation



What is a dissertation?

Oxford English Dictionary

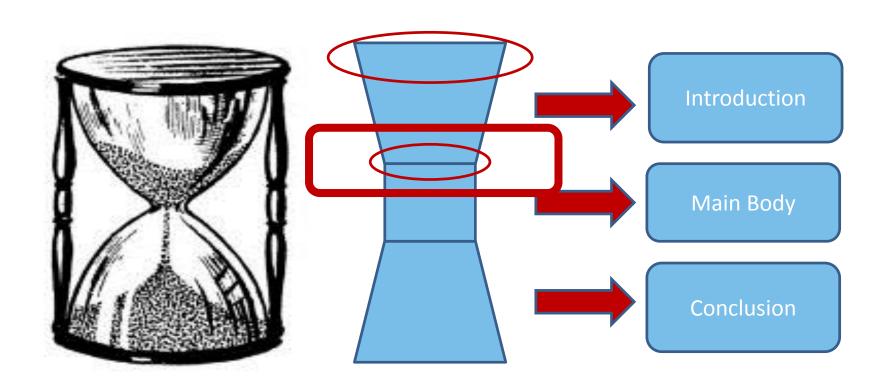
 "An extended scholarly essay, [usually] based upon original research, submitted for a degree or other academic qualification."

More generally:

- A focused 'essay', typically about 10,000-20,000 words in length;
- An independent piece of work that demonstrates the candidate's ability as a competent researcher with advanced knowledge on a specific topic.



Hourglass





Purpose



What is the aim?

A complete description of the methods used enables the reader:

- To evaluate the appropriateness of your methods
- To evaluate the validity of your results
- To evaluate the reliability of your results
- To permit the replication of your research
- To enable a comparison of your research



Not sure what this means?

(Gardiner & Kearns, 2010)

Literature Review

Methodology

Result

Discussion



What I read

What I did

What I found

What I reckon



Methodology vs. Method



Definition

Method

- Describes in detail how the research was conducted
- Refers to the various ways, techniques or processes in which data is collected and analysed

Methodology

- Different types of studies will rely on different methodologies
- Refers to the general approach taken to the research process
- It is the discipline, or body of knowledge, that utilizes these methods



Example

Methodology

 Ethnography: considers a bounded population and inquires into how they go about their day-to-day lives, and the meaning they attribute to these experiences

Method

- collecting artefacts
- writing field notes
- conducting interactive interviews



Epistemology



Premises: Paradigm

(Halperin & Heath, 2012)

Ontology	Epistemology	Methodology
What exists?	What sort of	What strategies can
	knowledge of it is	we use to gain that
What is the nature	possible?	knowledge?
of the social world ?		
	How can we know	
	about it?	



Epistemology

- Epistēmē: knowledge
- Logos: study of
- Is the study / philosophy of knowledge
- The basis of your methods and the assumptions about reality underlying your analysis
- The theory of knowledge, especially with regard to its methods, validity, and scope, and the distinction between justified belief and opinion





Questions Asked in Epistemology

- What can we know?
- How can we know it?
- Why do we know some things, but not others?
- How do we acquire knowledge?
- Is knowledge possible?
- Can knowledge be certain?
- How can we differentiate truth from falsehood?
- Why do we believe certain claims and not others?



Whether you consider data as...

- Factual account of events (e.g., description of actual events)
- Description of participant's subjective experience (e.g., emotions)
- Piece of situated language (e.g., how people are using language)

•



Epistemology



- Empiricism (such as Hume, Locke): knowledge is obtained through experience
- Rationalism (such as Descartes, Leibniz, and Spinoza): knowledge can be acquired through the use of reason
- Constructivism (such as Vico, Piaget): knowledge is a compilation of human-made constructions

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Epistemological Continuum



On the basis of this you choose your theory and methods



Activity

- Fill in the hand-out
 - What are you planning to do?

LDS Postgraduate Taught Dissertation Writing Series: Methodology

What is the aim of your research?

What are you planning to do to achieve this aim (e.g., data collection method, data analysis method etc.)?

How could the aim of your research be achieved otherwise (i.e., consider other methodologies)?



You may use...

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Subject-Specific Methods



Ethics!

- Need ethical approval by your school when working with humans or animals
- Think of ethical or legal dilemmas which can arise from your research i.e., confidentiality, anonymity, informed consent
 - Eight Steps in Making Ethical Decisions
- Research / participant relationships
 - Care for participants e.g., vulnerable participants
 - Care for researchers



Qualitative Methods



Qualitative Data Collection Methods

Interviews



- Dairies
- Focus Groups
- Participant Observation
- Field Notes

- Photos
- Murals
- Policy Documents
- Twitter Feeds
- Newspapers
- Blogs
- Speeches
- ...



Qualitative Data Analysis Methods

- Thematic Analysis
- Content Analysis
- Grounded Theory
- Narrative Analysis
- Discourse Analysis
 - Critical Discourse Analysis
- Interpretative Phenomenological Analysis (IPA)



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Thematic Analysis

- Method for identifying, analysing and reporting patterns within data
- No epistemological restrictions
- Very loose and flexible
- Identify themes inductively or deductively or mixed
- Themes: semantic (what: surface) or interpretative (interpretation: depth) or mixed
- Specific form: Thematic network analysis



Phases of Thematic Analysis - Process:

- 1. Familiarising with the data
 - Transcribing, reading, taking down ideas
- 2. Generating initial codes
 - Coding features i.e., identifying patterns
- 3. Searching for themes
 - Turn codes into potential themes i.e., higher order; less descriptive
- 4. Reviewing themes
 - Check if themes work with coded extracts
- 5. Defining and naming themes
 - Refine the specifics of each theme i.e., say about your whole data set
- 6. Writing report
 - Select exemplifying extracts which back up argument



Thematic Analysis

(Miltner, 2011)

Data Extract	Coded for
JT: I, I have two Twitter accounts, one	Talks about privacy
that's locked and private where I swear,	
and I really say, that's me; the other one	
is my public face, because I have quite a	Two faces and two identities
high-profile Job I need to maintain that,	
so I have to use techniques like that, I	
won't really say, "I'm having a really shit	Techniques to deal with pressure
day" on that account, I have to do it, sort	
of through subtext. (p. 72)	

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Thematic Analysis

- Attride-Stirling, J. (2001). Thematic networks: An analytic tool for qualitative research. *Qualitative Research*, 1(3), 385-405.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology,* 3(2), 77-101.
- Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. Thousand Oaks, Calif.; London: Sage.

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Qualitative Content Analysis

- Method to analyse textual information systematically – concerned with the latent content
- Expose meaning, motives, opinions and purposes embeded within the text (rather realist)
- Establishes categories (inductive, deductive) to examine the material (can involve counting!)
- Categories have to be sufficiently precise to enable different coders to arrive to a similar result with the same body of material



Phases of Content Analysis - Process:

(Halperin & Heath, 2012)

- Select particular texts relevant to your research question
 - Sample texts if there are too many to analyse completely
- 2. Construct/define a coding frame / categories that fit(s) both the theoretical considerations and the material
 - Topics of interests that you will search for in the material
- Choose a recording unit (unit of content)
 - A single word or symbol, a sentence or paragraph, theme, character, item
- 4. Create a (a) coding protocol, (b) code for each variable/theme/topic,(c) mark the text with codes
 - Pilot and revise the coding frame and explicitly define the coding rules
- 5. Examine the data for patterns and insights relevant to key research issues
 - Data is analysed either to describe target variable(s) or identify themes and relationships



Qualitative Content Analysis

(Mayring, 2000)

Category	Definition	Example	Coding Rule
C2: middle self confidence	Only partly or fluctuating conviction to have successfully coped with the situational demands	"Quite often I found it hard to manoeuvre through the problems, but finally I made it." (13, 45) "Time by time everything got better, but I couldn't tell if it was me or the circumstances." (77, 20)	If not all aspects of definition point to "High" or "low"



Qualitative Content Analysis

- Berelson, B. (1952). *Content analysis in communication research*. New York: Free Press.
- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis.
 Qualitative Health Research, 15(9), 1277-1288.
- Krippendorff, K. (2004). Content analysis: An introduction to its methodology (2nd ed.). London: Sage.
- Neuendorf, K. A. (2002). *The content analysis guidebook*. London: Sage.



Grounded Theory

- Concerned with how meaning is constructed in talk
- Is a method (process) and a product (theory is grounded in your data): positivist & inductive
 - Bottom-up
- Wants to move beyond particular cases to make broader generalisations about social processes
- Aims to construct formal theories
- Emphasises processes and action



Phases of Grounded Theory - Process:

1. Research Question

 determine what you are interested in; general topic of interest you don't need to do all the reading to completely know everything about the topic

2. Data collection and coding

- Usually (but not necessarily) qualitative data; data driven coding method
- Coding has 2 stages: Open Coding (break up data into bits) and Focused Coding (go away from the descriptive to a more analytical, abstract level)
- Memo writing

3. Theoretical Sampling

 Based on categories emerged from analysis we go back to the data and look for specific samples (going back and forth) // Axial and Theoretical Coding

4. Saturation

- You keep collecting data until the analysis settles down; when you reach a point where nothing can be added anymore
- Saturation = idea of stopping point rather than a pre-determined sample size



Grounded Theory

(Sbaraini, Carter, Evans, & Blinkhorn, 2011)

Transcript	Open Coding	Focused Coding	Theoretical Coding
Q: What did you take into account when you decided to buy this new technology? R: What did we we looked at cost, we looked at reliability and we sort of, we compared a few different types, talked to some people that had them. Q: When you say you talked to some people who were they? R: Some dental colleagues. There's a couple of internet sites that we talked to some people people had tried out some that didn't work very well. Q: So in terms of materials either preventive materials or restorative materials; what do you take in ac account when you decide which one to adopt?	Deciding to buy based on cost, reliability Talking to dental colleagues on internet sites Comparing their experiences Looking at literature Doing my own little research	Seeking out evidence Gathering and comparing peers' evidence to reach a conclusion	The process of making sense of evidence and construction of knowledge



Grounded Theory

- Charmaz, K. (2006). Constructing grounded theory. A practical guide through qualitative analysis. London: Sage.
- Galser, B.G. & Strauss, A. L. (2006). The discovery of grounded theory. Strategies for qualitative research. London: Aldine Transaction.



Narrative Analysis

- Is a way to describe the structure of stories through the analysis of particlar narrative segments e.g., form and function / what and how
- Is concerned with action and examines the activities that are performed when people talk with one another and how these stories make use of a cultural context and accounting practices
- Is concerned with the local context of narrative e.g., why a patient and doctor shape their remarks to the context/setting/position of a medical setting
- Constructivist: Language not understood as directly mirroring an underlying reality but rather as a social tool
- Specific Form: Biographic Narrative Analysis



Narrative Analysis

(Silverman, 2011)

- Key Questions a researcher should ask about narratives:
 - What is the content of the story you are examining?
 - Who are the principal agents?
 - How is the story told (structure and sequence)?
 - In what kind of story does a narrrator place him/herself?
 - How does she/he position her/himself to the audience and vice versa?
 - How does she/he position characters in relation to one another, and in relation to her/himself?
 - How does he/she position him/herself to him/herself, that is, make identity claims?
 - What purpose does the story serve (functions)?
 - In what place or setting is the story told (context)?
 - Does the story have a clear culmination with a moral, as in a fairy taile, or does it follow a different pattern (issues of genre)?



Narrative Analysis

- Lieblich, A., Tuval-Mashiach, R., & Zilber, T. (1998).
 Narrative research: Reading, analysis and interpretation. Thousand Oaks, CA; London: Sage Publications.
- Miller, R. L. (2005). *Biographical research methods*. London: Sage.
- Mishler, E. G. (1995). Models of narrative analysis: a typology. *Journal of Narrative & Life History*, 5(2), 87-123.



Critical Discourse Analysis

- CDA has a very "linguistic" outlook (which prevents incorporating linguistic and nonlinguistic dimension)
 - Talk is a social action therefore we analyse their talk, not the person
- Seeks to expose connections between language, power, inequality, and ideology and how they manifest
 - Discursive power control over a discourse by e.g., a powerful group
 is crucial for this method
- Explore the relationship between discourse and reality in a particular context
- Discourse is socially constitutive as well as socially conditioned (constructivism)



Critical Discourse Analysis

- Preferred Topics (Blommaert & Bulcaen, 2000)
 - Political discourse
 - Ideology
 - Racism
 - Economic Discourse
 - Media language
 - Gender
 - Education
 - Literacy



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Phases of CDA – Process:

(Halperin & Heath, 2012)

- Establish a covarition or association between discourse and context
 - Historical and social context i.e., local/micro (task, situation, source, message, channel and intended audience of communication) vs
 broad/macro (cultural norms, assumptions, knowledge, believes, values) context
 - E.g., Text: Newspapers, Discursive Practice: Pressures on journalists,
 Context: Existence of racism (= Social, political, economic context)
- 2. Provide details of the process through which the power of a discourse has demonstrable effects
 - Articulation (process through which meaning is produced) and interpellation (acceptance of subject position)

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Critical Discourse Analysis

Linguistic Features	Examples	Micro / Meso / Macro
Active or Passive voice	Hacktivists attacked the US government.	Micro: use collective nouns and passive voice
Naming	Jeremy Hammond, a member of LulzSec	Meso: Article was from the New
Pre-modifiers	The Chinese hackers The Russian attackers	York Times. Macro:
Indirect quotes	Hackers must be stopped, said the Obama administration.	Securitisation of hacking and hacktivism



Critical Discourse Analysis

- Blommaert, J., & Bulcaen, C. (2000). Critical discourse analysis. Annual review of Anthropology, 29, 447-466.
- Fairclough, N. (1995). *Critical discourse analysis: The critical study of language*. Longman: London.
- Van Dijk, T. A. (1993). Principles of critical discourse analysis. Discourse & Society, 4(2), 249-283.
- Willig, C. (2008). *Introducing qualitative research in psychology: Adventures in theory and method* (2nd ed.). Maidenhead: McGraw-Hill Open University Press.
- Edwards, D. & Potter, J. (1992). *Discursive psychology*. London: Sage.



Interpretative Phenomenological Analysis (IPA)

- To explore in detail participant's lived experiences and examine how participants make sense of their personal and social world
 - What is the point of view of the participant?
 - What is the person trying to achieve?
- Often used when people are transitioning or dealing with problems e.g., motherhood, sexuality, identity
- Research question informs interview schedule
- Critical realist epistemology (between positivst and constructivist)

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Phases of IPA – Process:

- Read and re-read your data, make notes of initial observations and thoughts (left hand margin)
- Identify and label characterising text sections (right hand margin)
- 3. List thems and see how and if they relate to each other
 - Eliminate and/or combine themes (magnet metaphor)
 - Label clusters
 - Produce a narrative account of the interplay between researcher's interpretation and participant's accounts
- 4. Create a table of themes
 - Do not aim for homogenity. Negative case analysis adds richness



Interpretative Phenomenological Analysis (IPA)

(Mulveen & Hepworth, 2006)

Notes	Extract	Label	Theme
Comparison	I am going to try to	Support	Social support
Equal	match that starting with my weigh-in tomorrow. We are the same height, but you have far more restricting mojo than I. I		
Sharing	was 106.6 this morning.		
Help Reassurance	Share everything you do with me!!! Don't worry, this is not a 'challenge'. (p. 292)		



Interpretative Phenomenological Analysis (IPA)

- Smith, J. A., Flowers, P., & Larkin, M. (2009). Interpretative phenomenological analysis. Theory, method and research. London: Sage.
- Smith, J. A. (2004). Reflecting on the development of interpretative phenomenological analysis and its contribution to qualitative research in psychology. *Qualitative Research in Psychology*, 1(1), 39-54.



Supporting Software

- NVivo
- Atlas.ti
- Nudist
- Dedoose
- Transana
- Textometrica
- ...

be an essential companion researcher. Using a numb methods. Software provide practical in-depth researce Qualitative Research prov a step-by-step guide. **Assisted Qualitative Data** (CAQDAS). Christina Silver & Ann Lewins. An essent practice and principles of to the second edition.



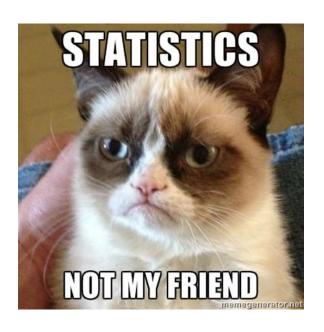
Quantitative Methods

Rene Verheeson, MSc.



Quantitative Data Collection Methods

- You may use the same qualitative data as outlined earlier, but you would quantify it
- Can be extended to:
 - Surveys
 - Experiments
 - Clinical trials
 - Networks etc. Online Networks





What is Quantitative Research?

 Quantitative research refers to the systematic empirical investigation of social phenomena via statistical, mathematical or numerical data or computational techniques (Given, 2008)

It is using statistics to test your hypothesis



Some Quantitative Analysis Methods

- Chi Square
- Correlational design
- Factor Analysis
- Analysis of Variance
- Linear Regression
- •



Development



Statistical Design

- Null Hypothesis vs Alternative Hypothesis
- H0 (Null Hypothesis): There are no differences
- Ha (Alternative Hypothesis): There is a significant difference
- Testing the likelihood of finding your data (or more extreme data) given that HO is true. If this probability is low enough, we can conclude that it was no coincidence that these results were obtained and we reject HO, usually at p<0.05

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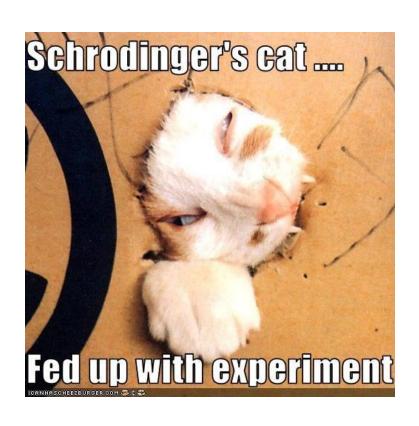
Research Design

- Research question (Hypothesis)
- Research design (Methodology)
- Can a statistical method answer this question?
- Think about which design to use BEFORE collecting your data.
- Power analysis!



Research Design

- Quasi-experiment
- Experiment
- Longitudinal Design
- Counterbalancing
- Fatigue effects
- Floor- and Ceiling effects
- Use a pilot study!





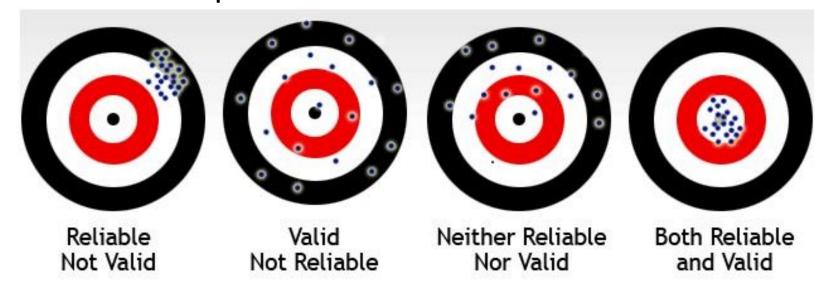
Using a Questionnaire

- Creating a new one or using an existing survey
- Look at measurement levels levels, this will decide which statistics you can use (parametric vs nonparametric).
- Nominal, Ordinal, Scale
- 7-point Likert-scales
- Multiple responses
- Age; Ordinal or Scale?



Validity and Reliability

- Validity: Are you measuring what you intended to measure?
- Reliability: Are your results reproducible? To what extent can I predict future results?





Sampling

- Generalizability:
 - The college sophomore problem
- Selection bias:
 - Make sure to use a representable sample



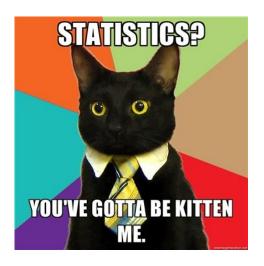
We will find the average height of Americans based on a sample of NBA players.

Selection Bias?



Supporting Software

- IBM SPSS Statistics
- LISREL
- Stata
- R
- Gephi
- •





Write Up



Identify subsections

- Conventional and expedient to divide the method section into labelled subsections
- Include in these subsections the information essential to comprehend and replicate your research
- Be very specific and rigorous insufficient detail leaves the reader with questions
- However, too much detail burdens the reader with irrelevant information
- Consider using appendices for more detail



Possible sections: Qualitative

- Participant / Subject Characteristics
 - Sampling Procedures
- Research Design
- Data Collection Procedure
- Paradigm
- Data Analysis
- Data Analysis Procedure

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Possible sections: Quantitative

- Participant / Subject
 Characteristics
 - Sampling Procedures
 - Sample Size, Power, and Precision
- Measures and Covariates
- Research Design
- Experimental Manipulation or Interventions





Building on the SIA (Reicher et al., 2010), the discourse of politically motivated hackers as part of their own perception and self-categorisation as hacktivists is analysed. A social psychological perspective is adapted to analyse how male and female hacktivists approach this stereotype in their talk and sense-making. Especially the self-categorisation of females towards the social and political hacktivist-identity, despite its male-only stereotype, is going to be evaluated. Based on this theoretical underpinning and the social psychological research on online collective action and stereotypes, the research aims to demonstrate (a) that societal gender stereotypes about hacktivists are existent within the community, (b) how hacktivists relate to this dominant representation, and (c) whether societal stereotypes about the male-only perception of hacktivists affect their own talk and sense-making.

Method

Participants and Sampling

A gender-equal, self-selected sample of N=10 hacktivists (n=5 females, n=5 males), all of whom self-identified as hacktivists, were interviewed. The researcher enlisted participants through a recruitment email that was sent to (a) IT-related mailing lists known by the researcher, (b) Web 2.0 presence of hacktivists and hacktivist collectives, and (c) personal contacts of the researcher or contacts identified through media and/or online coverage. Thereafter, participants were recruited using snowball sampling (Biernacki & Waldorf, 1981). The researcher had no personal connection to any of the participants before the interview.

All participants used term *hacktivist* as self-identification, and reported to be a currently (n=8) or previously (n=2) active hacktivist. The sample was distributed in n=7 participants from the United States of America, one of whom is now living in the Netherlands, n=2 participants from the United Kingdom, n=1 participant from Israel, who is no longer living there. Further demographic information is not given due to the discourse analytic point of view which abstains from constructing identities through the provision of such information (Willig, 2008), and the vulnerability and identity protection of this group.

Research Design

The research is a qualitative study using semi-structured interviews. The guidelines for the interview agenda given by Willig (2008) were considered to structure the interview. A mixture of descriptive, structural, contrast and evaluative questions was used (Spradley, 1979). The interview comprised nine open questions with prompts and lasted approximately one hour. The interviews were audio-recorded and thereafter transcribed verbatim, including linguistic (e.g., speech errors, pauses, interruptions) and non-linguistic features (e.g., audible intake of breath, delay, hesitations). The interview transcripts are not included in the appendix to insure protection of anonymity.







Service

Activity

- Fill in the hand-out (qualitative; quantitative)
 - Which issues should be mentioned when and why (i.e., order)?

LDS Postgraduate Taught Dissertation Writing Series: Methodology

1. Central Research Question(s) / Arguments?

2. Participants / Material used i.e., documents etc.?

3. Sampling Procedure i.e., random, self-selection?



Top Tip! Find a Model Paper.

- Look for literature in your area of interest / your discipline
- Read them to get a sense of the types of methods you might want to apply in your own research or ways to organize your method section
- If you are unsatisfied with the existing literature e.g., due to methodological gap, you might want to explore research in other disciplines



Things to consider

- Epistemology
- Method
- Data
- Ethical concerns



- Scope of the study (time, money, accessibility)
- Your funder / supervisor
- Your future (research interest)



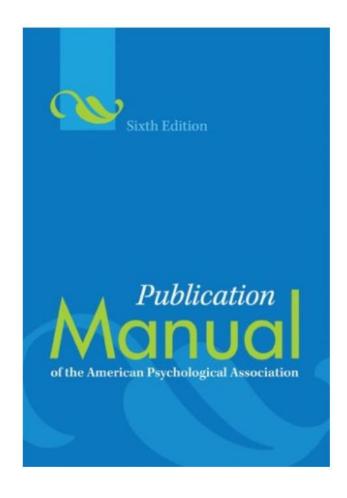
For further reading

- International Journal of Social Research Methodology
- International Journal of Qualitative Methods
- Journal of Mixed Methods Research
- ... & subject-specific [method] journals





Writing Style "Bible"





Questions?

Service



We can help you develop your academic skills.

Workshops / Resources

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