

QCMap Step by Step – a Software Handbook

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Introduction: Foundations of Qualitative Content Analysis

(from Mayring, Philipp (2019) Qualitative Content Analysis: Demarcation, Varieties, Developments [30 paragraphs]. Forum: Qualitative Social Research, 20(3), Art. 16, <https://dx.doi.org/10.17169/fqs-20.3.3343>).

I want to outline the most salient points in the characterization of the type of content analysis that we have developed (MAYRING, 2015; MAYRING & FENZL, 2019).

- The qualitative content analysis' approach (as with the quantitative content analysis) is category-based, that is its distinguishing feature. Categories refer to aspects within the text, which put the meaning of those aspects in a nutshell. Text evaluation is, therefore, restricted to the selected category system. Text contents that are not addressed by the categories or holistic impressions are not taken into account or would have to be addressed with other text analysis methods.
- The qualitative content analysis procedure is research question oriented. Text analytical questions (possibly several) are derived from the main aims of the research project. These questions should be answered at the end of the analysis. This clearly distinguishes the qualitative content analysis from other completely open, explorative methods such as grounded theory.
- Qualitative content analysis is characterized by strict rule management and systematic. Process models enable the procedure to be described step-by-step, and this has proven itself in countless research processes. The specific rules for each technique are reviewed in a pilot study and should not be changed after that.
- I have described several specific evaluation options as part of the qualitative content analysis. Recently, I proposed and developed eight techniques (MAYRING, 2015):
 1. Summarizing
 2. Inductive category formation
 3. Narrow context analysis
 4. Broad context analysis
 5. Formal structuring
 6. Content structuring
 7. Type-building content analysis
 8. Scaling structuring.

Besides the techniques above, there are also mixed variants. In other places (MAYRING, 2014), I have referred to structuring as an ordinal or categorical deductive category application. Further, I have made reference to type building and content structuring among others as mixed techniques. The decision for a specific content-analytical technique depends on the formulation of the research question. It is possible to use individual techniques alone, but also several techniques can be used simultaneously during one of the iterative steps in the content analysis.

- The content-analytical rules for the individual techniques are not arbitrary but have a solid theoretical foundation in the processes of everyday text analysis. In particular, regarding how these processes have been examined in cognitive psychology and psycholinguistics. For summary and inductive category formation, these are reductive operators (omission, generalization, construction, integration, selection, and bundling; MANDL, 1981), on which the gradual reduction of text segments is based. For explications, it is rather context theories from linguistics. Whereas for deductive category applications, reference is made to the categorization theories from general psychology and language development research (MAYRING, 2014). The result of this was that the exact wording for a human-readable general category requires an explicit definition (definition theory), a cognitive anchoring in typical examples for the category (prototype theory), and rules to demarcate the categories from one another (decision bound theory, MURPHY, 2002). These coding guidelines are the basis for the three-part coding—definitions, anchor examples, and coding rules—applied in the procedure that I recommended (MAYRING, 2015). Thus, when trying to determine content-analytic rules, I try to use strategies that draw on the everyday handling of texts, a method that is common in qualitative research, for example, when linguistic approaches to storytelling in everyday life are employed in the rules for narrative interviews.

Software tools for qualitative text analysis

Within the last 30 years many approaches of computer assisted qualitative text analysis had been developed (see e.g., KUCKARTZ, GUNENBERG & DRESING, 2007; SILVER & LEWINS, 2014). None of those programs is specially adapted for Qualitative Content Analysis. This was because the separate processing steps involved in qualitative content analysis are difficult to implement in conventional and commercial programs. For example, it is not easy to keep the central content-analytical rules (category definitions, levels of abstraction, coding guidelines) constantly visible alongside the analysis. This only works to a limited extent using the memo function in MAXQDA, and that actually belongs to the grounded theory methodology. A table notation, central for summary and coding guidelines, can only be achieved partially. For these reasons, we have developed our own software program QCMap (FENZL & MAYRING, 2017; MAYRING, 2014), which offers the following advantages:

- free use;
- interactively guiding users through the steps of content analysis;
- templates for the individual techniques such as summary, inductive category development, and deductive category application
- templates for the individual analysis units that should be defined as well as content analysis rules;
- ongoing maintenance and further development of the program as a web application;
- interactive possibilities for raters, also for intercoder comparisons;
- a manual (MAYRING, 2014) that can be downloaded free of charge.

The interactive nature of the program ensures that the essential steps of the qualitative content analysis are actually carried out. The program has been used in more than twenty

thousand projects since 2013. A new version with brand new features is planned for 2020. In future versions, we plan to integrate video analysis into the program.

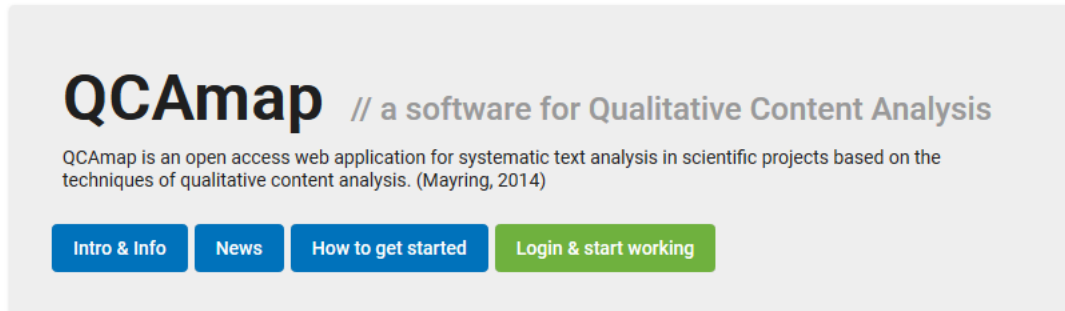
Precisely because of its intermediate position between qualitative and quantitative analysis, qualitative content analysis appears to be an important methodical starting point. On the one hand, it is used for including measurements and numerical data from standardized interviews, questionnaires, observation systems, or test instruments in research projects. On the other hand, it also takes into account data from open surveys and observations in such a way that the resulting texts are analyzed as systematically as possible in an analysis that is guided by the research question as well as being both theory-based and rule-based in its approach.

For the references and for further remarks to the logic of qualitative Content Analysis, as well as a discussion of the differences to other concepts of content analysis see the whole article, in English and in German, free access at:

www.qualitative-research.net/index.php/fqs/article/view/3343

QCMap2020 – Step by Step

When searching for QCMap you will immediately come across the link <https://www.qcmap.org> and its associated homepage:



QCMap can be used within research projects in e.g. Psychology, Sociology, Education, Economics, Linguistic Sciences, **to analyze** small and large amounts of any **text material** and **images** coming from interviews, group discussions, observation protocols, documents, open-ended questionnaire items and others. **Qualitative Content Analysis is a strictly rule-guided procedure containing qualitative steps** (assignment of categories to text passages and images) **and quantitative steps** (analysis of category frequencies).

Literature

- Fenzl, T. & Mayring, P. (2017). QCMap: eine interaktive Webapplikation für Qualitative Inhaltsanalyse. Zeitschrift für Soziologie der Erziehung und Sozialisation ZSE, 37, 333-340.
- Mayring, Ph. (2015). Qualitative Inhaltsanalyse (12. überarbeitete Aufl.). Weinheim: Beltz.
- Mayring, Ph. (2014). Qualitative content analysis. Theoretical foundation, basic procedures and software solution (free download via Social Science Open Access Repository SSOAR, URN: <http://nbn-resolving.de/urn:nbn:de:0168-ssoar-395173>)

Qualitative Content Analysis Programm

© Prof. Dr. Philipp Mayring and Dr. Thomas Fenzl

Application developed by Florian Letz and funded by Verein zur Förderung qualitativer Forschung – Association for Supporting Qualitative Research ASQ, Klagenfurt.

[Privacy and data protection statement](#)

The first blue button (Intro & Info) will take you to our homepage for Qualitative Content Analysis (www.qualitative-content-analysis.org). There, we strive to inform you (in English and German) about the following:

- Latest news,
- The Association for Supporting Qualitative Research ASQ (<https://qualitative-content-analysis.org/en/non-profit-asq/>), a non-profit organisation located in Klagenfurt (Austria) behind the know-how and development of QCMap,
- Our software QCMap, including the new features in the latest version QCMap2020 ([https://qualitative-content-analysis.org/en/software-2/qcmap-](https://qualitative-content-analysis.org/en/software-2/qcmap-2020/)

[2020-2/](#)) and a series of slides (<https://qualitative-content-analysis.org/wp-content/uploads/QCAmap2020Intro.pdf>),

- Publications of our team on Qualitative Content Analysis,
- Possibilities to support our (free open access) work (sponsorship),
- The team (Philipp Mayring, Thomas Fenzl, Stella Lemke)
- Workshops on QCAmap (the annual Austrian summer workshop and external workshops organized by the team).

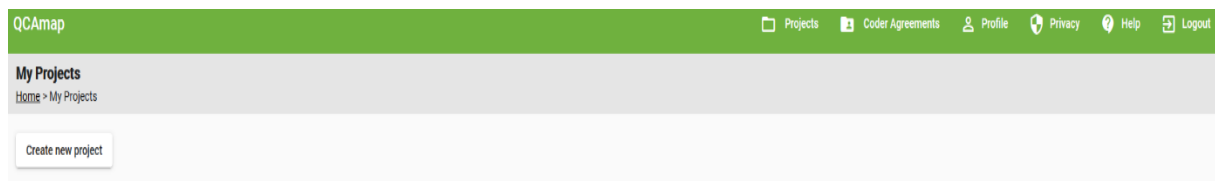
The blue news button leads you to the first bullet point in the list above.

“How to get started” provides a quick introduction about how to start the program.

The green button (“Login & start working”) takes you to the free open access program QCAmap.

To create an account, the first step is to fill in a valid email address and a password. You will receive an email (please check your spam folder as well) that contains a link for you to confirm your email address. Once that is done, you have access (email and password) from anywhere that has the necessary hardware, browser, and internet connection.

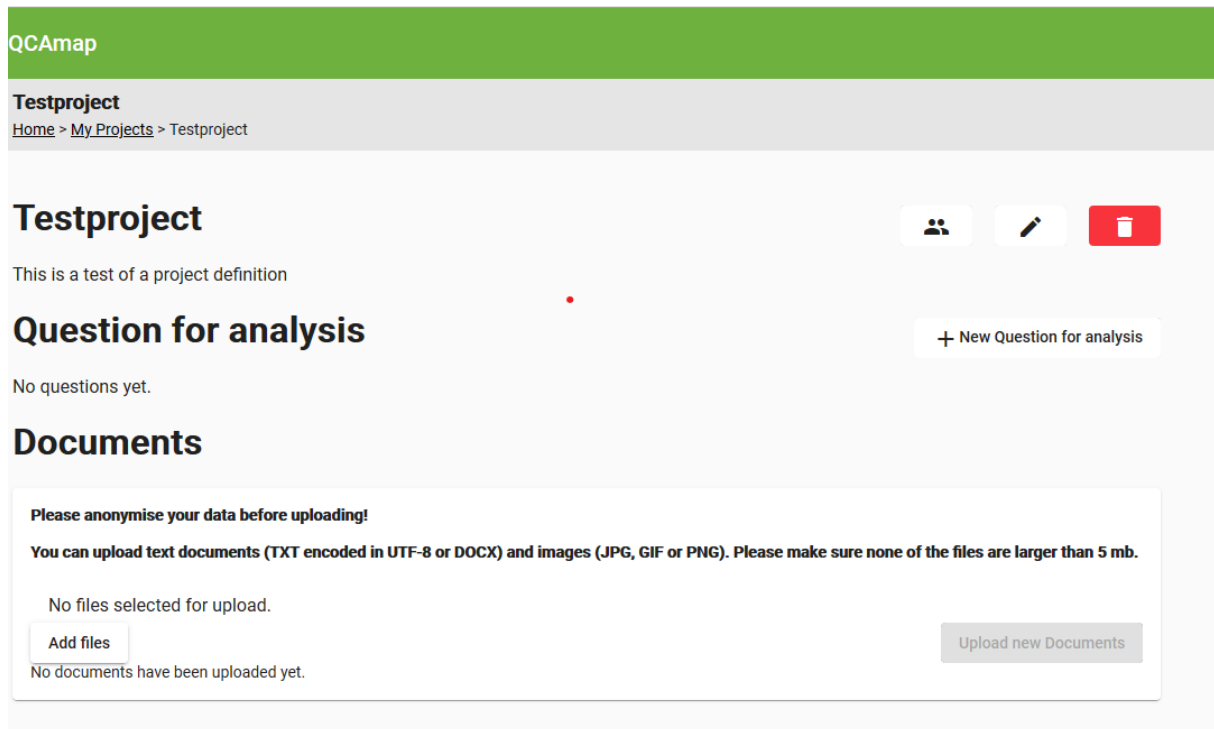
This is the first screen:



You can define a project (“Create new project”) on this screen. A project is a series of documents (texts, pictures) and a main research question that maybe has several sub-questions for analysis. Perhaps you have been invited for an intercoder agreement test from another QCAmap user; this would be displayed in “Coder Agreements”. The green band, is shown on every page in the program, it gives you the possibility to check your profile, to read the data protection statement and to send an email to the support hotline (“Help”). Please do not forget to logout when you have finished your work.

Creating a project

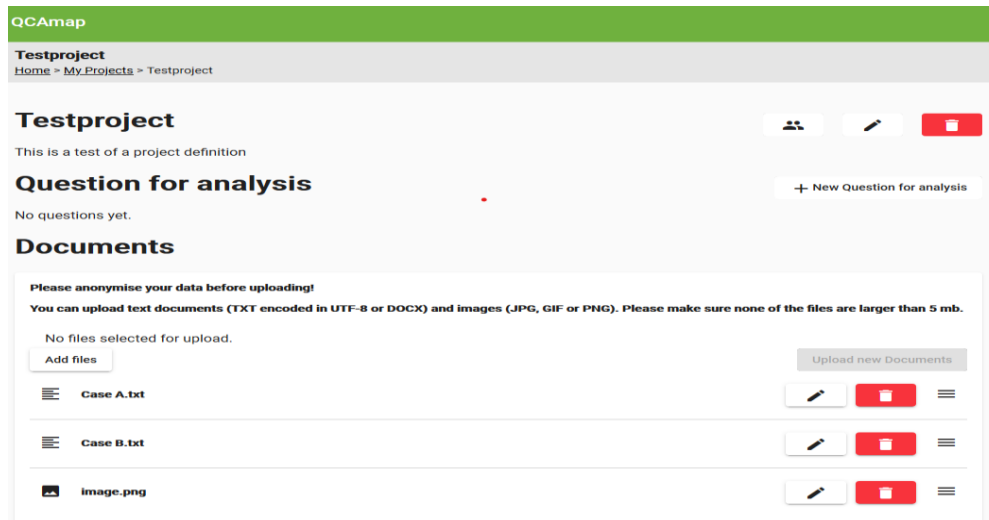
If you create a new project, a new screen will appear in which you can type a title for the project and then a description. You can change those settings afterwards. Once the project is created, the following screen is shown:



The title (Testproject) and description (This is an example project definition) always appear when you open this project. The first line contains three symbols, and the first symbol allows you to share the project with other persons (they must have a QCAmap login, and then you can assign them editing or read-only rights). Project information can be edited (the pen symbol) and the project can be deleted (red bin symbol).

A question for analysis has not been defined yet; however, we can do it afterwards. If you do it straightaway the system would inform you that you have to upload documents before coding. Before uploading documents, please make sure that you have anonymised the data. That means inserting black stipes over people's eyes in pictures; or using abbreviations for personal information (e.g., names, places) in text. The format of text files is indicated by the file extension, for example, as txt or docx files, or JPG, GIF, and PNG files for pictures. Press "Add files", select the files, and press "Upload new Documents".

Below you can see that we have uploaded two texts and one picture:



Doing text analysis by Qualitative Content Analysis, the definition of a research question is fundamental. We do not carry out with a free impressionistic interpretation of the material (which could be appropriate in explorative projects). Instead we will answer research questions connected to the theoretical background of the project. The elaborated formulation of the research question (as a sentence with an interrogation mark at the end!) is crucial because it leads you to the most appropriate content analytical technique:

- What characterizes the field? What is important in ...?
 ➡ Technique of summarizing
- What forms of ... can be found? What do they say about ...?
 ➡ Inductive category formation
- Can I find ... in the material?
 ➡ Deductive category application

We can formulate a general research question and several sub-questions about the same material. In the program, those questions are denominated “Question for analysis”. After starting it, you have to decide on the most suitable technique. A pull-down menu gives you the three possibilities that have been implemented so far.

Inductive category development

Roughly speaking a large part of all questions for analysis within Qualitative Content Analysis are inductive category formations.

QCMap

New question for analysis

[Home](#) > [My Projects](#) > [Testproject](#) > My Research Question

Question for analysis
What stress factors are mentioned in the texts?

Content analytical technique

- Inductive Category Formation
- Deductive Category Assignment
- Summarizing

Save changes **Cancel**

Those choices and inputs have to be saved manually. Afterwards (in coding mode), all actions are saved automatically. Of course, you can change it at the question for analysis level.

If you select one of the three techniques, the corresponding procedure and rules are displayed: for summarizing, the levels of paraphrasing, generalization, and reduction, for inductive category formation, the category definition and level of abstraction, and for deductive category application the categories and coding guideline. In our example, we have formulated the following question for analysis: “Which stress factors are mentioned in the texts?”, which clearly needs an inductive category formation.

QCMap

New question for analysis
[Home](#) > [My Projects](#) > [Testproject](#) > My Research Question

Question for analysis
 What stress factors are mentioned in the texts?

Content analytical technique
 Inductive Category Formation

[Step models & rules](#)

Description

Content analytical units

Coding unit
 Smallest component of material which can be coded (sensitivity).

Context unit

Background for coding decision.
 Recording unit
 All Documents
 Text portion confronted with the category system.

☐ Count multiple codings

Definition of selection criterion

Definition of selection criterion

Level of abstraction

Level of abstraction

In all techniques, the content analytical units (explained on the screen) have to be specified. Furthermore, a step model and corresponding rules can be displayed (the respective link is written in blue) for all techniques. Click the link, and it will open a separate screen.

Three content analytical rules have to be defined (if you forget this, the system warns you and does not allow coding). In inductive category formation the recording unit is fixed as “all documents”. Recording unit means the amount of material that is to be confronted using the category system. New categories can be added from document to document during inductive category formation. The whole list of categories represents all documents at the end of coding, thus this has to be the recording unit (you cannot change it).

A decision has to be made with respect to counting multiple codings. At the end, a list of all categories is presented (as an Excel file) with the frequencies of occurrences of categories. If a category was coded several times within one document, it could make sense to count this, especially when the abstraction level is high: A person describes problems to pay the rent and difficulties to afford a holiday trip as stress factors. Both

of them are coded as financial stress and therefore should be counted twice. If, however, you decided for a very concrete level of abstraction, and the same person repeatedly talks about his problems to pay his rent, this should be counted only one time. In our example, the “Count multiple codings” checkbox is not selected.

Please don't forget to save your inputs and choices, once that is done, you can switch to the coding mode:

You are in coding mode.

Question for analysis

RQ2: Description of stress factors in f... ▼

Content analytical technique

Inductive Category Formation

Definition of selection criterion

Stressful experiences in and around teaching, experiences of harm, loss or challenge which are not automatically coped with (Lazarus)

Abstraction level

Concrete stress factors for the person, connected with negative experiences, no general evaluations of the situation

Content analytical units

Coding unit
Clear semantic elements in the text

Context unit
The whole interview, interviewer protocol and background material

Recording unit
All Documents
Count multiple codings per document

🔍 Search

☰ Hide category system

Finish coding ▶

Case A:

I: Well, it certainly wasn't a strain for me, at least from the, well, the physical side of things. The contrary in fact. I was sort of pretty keen to get down to teaching at last. You're studying, you see, for the teaching certificate and that is your course, the academic part of it, I mean, up to the First State Examination, that is... that has nothing to do with teaching as such, and in my practical - we have to do a sort of practical - and I had the luck to be able to teach a full two weeks- that was the time I was there - at a senior elementary school. Normally all you do during these practicals is sit in on other people's classes - just sit at the back; which is incredibly boring of course just listening to someone else teach for two whole weeks. And it so happened that at that time they were a bit short of teachers and the principal says to me: "Listen, I know what we'll do. You take the 8th and 9th grades in physics and mathematics, then I don't need to do that myself any more; that's extra work for me, you see and if you do it, I'll have more time for my administrative stuff."

Q: So that was still during your undergraduate period?

I: That's that's the same for everyone. The practical has to be done by everyone at a high school, senior elementary or junior elementary school. So I was able to teach two whole weeks there and I had a marvellous time. Senior elementary school is of course relatively simple as far as preparation is concerned, as the content is not so difficult. In 9th grade maths there's Pythagoras, well...

Q: We know!

I: ...which you can do more or less straight off if you're a science student, and to the students you're a magician anyway

All definitions and selections are displayed on the left side to guide you through the coding process. A search function displays all text passages that were coded with a category. You can look at all categories developed up to this point on the right-hand side of the page or hide this. If you have worked through all documents, you can finish coding and enter the analysis tool. Nevertheless, you can reopen coding at any point if necessary.

Marking a text passage (in the example below, line two and three) opens a window containing all categories formulated up to now. You can subsume the text passage to one of those categories or formulate a new category (the last line in the category window). All categories are indexed with the number of the research question (RQ) and a continuous number.

Content analytical technique
Inductive Category Formation

Definition of selection criterion
Stressful experiences in and around teaching, experiences of harm, loss or challenge which are not automatically coped with (Lazarus)

Abstraction level
Concrete stress factors for the person, connected with negative experiences, no general evaluations of the situation

Content analytical units

- Coding unit**
Clear semantic elements in the text
- Context unit**
The whole interview, interviewer protocol and background material
- Recording unit**
All Documents
Count multiple codings per document

Q: S
I: T
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Pytl
Q: V

I: Well, it certainly wasn't a strain for me, at least from the, well, the physical side of things. The contrary in fact. I was sort of pretty keen to get down to teaching at last. You're studying, you see, for the teaching certificate and that is your course, the academic part of it, I mean, up to the First State Examination, that is... that has nothing to do with teaching as such, and in my practical - we have to do a sort of practical -

- ☐ RQ2-1: Disappointments about students
- ☐ RQ2-2: Little time for education
- ☐ RQ2-4: Problems in very large classes
- ☐ RQ2-5: Being forced to authoritarian behaviour
- ☐ RQ2-3: Difficult students
- ☐ RQ2-6: Dependence on seminar instructor
- ☐ RQ2-7: Conflicts with concepts different to the ones in mind of the seminar instructor
- ☐ RQ2-8: Forced by seminar instructor to apply mechanical rules
- ☐ RQ2-9: Critique by seminar instructor impacts negatively on self-esteem
- ☐ RQ2-10: Lack of experiences in teaching
- ☐ RQ2-11: Inferior teacher role as trainee
- ☐ RQ2-12: To calm down an agitated classroom when left alone without seminar instructor

Category Name +

If you have finished coding you are presented with the following screen:

RQ2 Description of stress factors in first praxis experiences

Inductive Category Formation

First professional experiences, especially for teachers, are often described as "praxis shock" (Smagorisky et al. 2011; Mueller-Forbrodt, 1978). We want to describe the concrete stressing factors.

Start Coding **Stop categorization** **Analysis** **+ New Intra-Coder-Agreement** **+ New Inter-Coder-Agreement**

Intra-Coder-Agreements

ready **CA1: Test**

View **Compare** **Set acceptance** **Analysis** **Reopen** **Delete**

If you press "Stop categorization", then the "Analysis" is activated. It's possible to go back and do further categorizations ("Continue categorization") in the material, and as you would expect different output files would be created, if any categorizations were changed. You can also check for coder agreements (I will describe this later).

The "Analysis" button takes you to the following screen:

Main Categories

Use drag and drop to move categories and main categories to and between main categories.


Main Categories
+

No main categories yet...


Categories
+

Disappointments about students
Little time for education
Problems in very large classes
Being forced to authoritarian behaviour
Difficult students
Dependence on seminar instructor
Conflicts with concepts different to the ones in mind of the seminar instructor
Forced by seminar instructor to apply mechanical rules
Critique by seminar instructor impacts negatively on self-esteem
Lack of experiences in teaching
Inferior teacher role as trainee
To calm down an agitated classroom when left alone without seminar instructor

Download Analysis Documents

 Download coded passages

 Download category statistics

 Download document statistics

First, you can formulate main categories, integrating the inductive categories to groups. This is a process of inductive (looking for similarities between the categories) or deductive theory bound argumentation. If you have defined main categories, the output files will contain frequencies for them as well.

Further analysis is done by creating three output files in Excel-format:

- “Download coded passages” creates a list of all categories and their corresponding text passages.
- “Download category statistics” creates a table of categories and their frequencies, including percentages of all categories and percentages of documents, in which the categories occurred:

A	B	C	D	E	F
Category ID	Category Name	Absolute Count	% of SUM	N of Documents	% of Documents
RQ2-1	Disappointments about students	1	0.05	1	0.25
RQ2-2	Little time for education	1	0.05	1	0.25
RQ2-4	Problems in very large classes	1	0.05	1	0.25
RQ2-5	Being forced to authoritarian behaviour	1	0.05	1	0.25
RQ2-3	Difficult students	2	0.11	1	0.25
RQ2-6	Dependence on seminar instructor	4	0.21	2	0.5
RQ2-7	Conflicts with concepts different to the ones in mind of the seminar in	1	0.05	1	0.25
RQ2-8	Forced by seminar instructor to apply mechanical rules	2	0.11	1	0.25
RQ2-9	Critique by seminar instructor impacts negatively on self-esteem	3	0.16	2	0.5
RQ2-10	Lack of experiences in teaching	1	0.05	1	0.25
RQ2-11	Inferior teacher role as trainee	1	0.05	1	0.25
RQ2-12	To calm down an agitated classroom when left alone without seminar	1	0.05	1	0.25
		19			

Naturally, within Excel you can edit the table. The category ID indicates the number of the research question (RQ2 in this case) and the category number associated with that question.

- “Download document statistics” creates an Excel-file, which can be further analysed with statistical procedures. It is a table of categories and occurrences; it contains four documents and eight inductive categories in our simple example:

Document	RQ2-1	RQ2-2	RQ2-4	RQ2-5	RQ2-3	RQ2-6	RQ2-7	RQ2-8
Case A.txt	1	1	0	0	0	0	0	0
Case B.txt	0	0	1	1	2	0	0	0
Case C.txt	0	0	0	0	0	3	1	2
Case D.txt	0	0	0	0	0	1	0	0

Deductive Category Assignment

You should choose deductive category assignment, if the theoretical background of the research question enables you to formulate categories before working with your texts. In addition, if you are interested in the occurrence and/or frequency of those categories within the texts. The program will guide you through different steps of analysis.

There are two forms of deductive category assignments: a nominal list of deductive categories or an ordinal category system. We will examine an example with an ordinal category system, and the following the research question: Has "practice shock" affected the self-confidence of the individual? (categories high self-confidence – middle self-confidence – low self-confidence).

As before ,the blue link (picture next page) would take you to information about the specific step model and the rules for analysis in a separate window.

You have to define the content analytical units. They might be different from the ones given above for the inductive question for analysis.

In deductive category assignment the recording unit is predefined as “document” because every document is coded separately with the common deductive categories.

Usually, every document is coded by one of the categories. For working with ordinal categories, this is essential. I want to know if the document (the interview partner) shows high, middle, or low self-confidence. I would not “Allow multiple categorizations” because at the end of the analysis I want to know how many

persons (documents) show high, middle, or low self-confidence (for this reason the respective checkbox is not selected at the bottom of the picture below).

Edit question for analysis

[Home](#) > [My Projects](#) > [Example Teacher U...](#) > Has "practice shock" affected the self-confidence of the individual?

Question for analysis
 Has "practice shock" affected the self-confidence of the individual?

Content analytical technique
 Deductive Category Assignment

[Step models & rules](#)

Description
 What do the first practice experiences mean for the person itself? Does he or she grow or loose self-confidence? The interview material on 'practice shock' has to be rated in respect to the degree of self-esteem as consequence of the first practice experiences.

Content analytical units

Coding unit
 Clear semantic elements in the text

Smallest component of material which can be coded (sensitivity).

Context unit
 The whole interview, interviewer protocol and background material

Background for coding decision.

Recording unit
 1 Document

Text portion confronted with the category system.

☐ Allow mutiple categorizations

☐ Count multiple codings

Coding guideline

If the documents (e.g., interviews) are very extensive, covering different areas, it might be interesting when a given category occurs several times in one document. In that case, you should click “Count multiple codings”. Again, for ordinal category systems it is not recommended because it is an act of interpretation, taking all relevant phrases together, to decide for one of the ordinal categories, and typically not a case for counting. For the same reasons, we do not recommend coding all text passages relevant to the ordinal variable on one of the categories, and then counting which category occurs most often within one document.

The next step would be to write a coding guideline (click on “Coding guideline – add new category”). This is the central instrument in deductive category assignment. Please formulate an explicit definition for each deductive category based on the theoretical background of the project. Within the pilot phase you may find a good example for one of the categories. If so, you can put it in coding guideline as “anchor example”. If you come to a text passage for which you are not sure about the right category, then it would be necessary to decide based on the theoretical background, formulating an additional coding rule for further codings. In doing so, the coding

guideline will be adapted as you go along, as displayed in the example. Please do not forget to save changes in the coding guideline. After the pilot phase, the coding guideline cannot be changed any longer; it is crucial that you code all material with the same coding guideline.

Text portion confronted with the category system.

☐ Allow multiple categorizations

☐ Count multiple codings

Coding guideline

Definition	Anchor examples	Coding rules
<p>RQ1-1: High self-confidence</p> <p>High subjective feeling of having met the challenge well, i.e.</p> <ul style="list-style-type: none"> - good awareness of the kind of challenge and the way it should be coped with; - positive, optimistic feeling when dealing with the challenge - conviction that mastery of the challenge lay in one's own hand 	<p>Of course there were little problems now and then, but they were simply solved: owing to a change either in my view or in that of the pupil, depending on who was at fault - we all make mistakes.</p>	<p>All three aspects of the definition must point in the direction of "high", at least no aspect should allow the diagnosis of simply average self-confidence; otherwise encoding for "average self-confidence"</p>
<p>RQ1-2: middle self-confidence</p> <p>Only partial or fluctuating certainty of having coped with the challenge</p>	<p>I managed to grope my way through O.K., but it was often a cliffhanger."</p> <p>"With time it got a bit better, but whether that had to do with me or with other circumstances I don't know."</p> <p>"Towards the end I got on quite well with the seminary instructor but I didn't have a very good feeling about it - I just accommodated myself, submitted to the demands.</p>	<p>If not all three aspects point to high or low self-confidence</p>
<p>RQ1-3: low self-confidence</p> <p>Conviction of having coped badly with the challenge, i.e.</p> <ul style="list-style-type: none"> - little awareness of the nature of the challenge; - negative, pessimistic feeling when dealing with the challenge; - conviction of not having had control of the way the challenge was dealt with. 	<p>That hit my self-confidence hard, I thought of myself as a nobody, a nothing.</p>	<p>All three aspects point to low self-confidence, otherwise encoding for "middle self-confidence"</p>
<p>RQ1-4: not inferrable</p> <p>The demands were reported but the manner of dealing with them remains unclear.</p>	<p>At the beginning it was difficult, but with time it improved.</p>	

Now you can code the material:

The screenshot shows the QCMap software interface. On the left, a sidebar contains navigation options: 'Question for analysis' (with a dropdown for 'RQ1: Has "practice shock" affected th...'), 'Content analytical technique' (Deductive Category Assignment), 'Content analytical units', 'Coding unit' (Clear semantic elements in the text), 'Context unit' (The whole interview, interviewer protocol and background material), and 'Recording unit' (1 Document, Ignore multiple codings per document). A search bar and 'Hide coding guideline' button are at the bottom of the sidebar. The main area displays 'Case A.txt' with a text excerpt. A modal window is open over the text, showing four radio button options: 'RQ1-1: High self-confidence', 'RQ1-2: middle self-confidence', 'RQ1-3: low self-confidence', and 'RQ1-4: not inferrable'. The 'RQ1-1' option is selected. The modal has 'Delete' and 'Cancel' buttons. On the right, a 'Coding guideline' panel is visible, showing details for 'RQ1-1: High self-confidence' and 'RQ1-2: middle self-confidence', including anchor examples and coding rules.

When marking the material, you can, of course, only assign one of the preformulated categories.

Having coded all documents, please press “Finish coding” (left-hand side at the bottom) and go to “Analysis”. QCMap creates three Excel-files for you as results: the coded passages together with the code, the coding guideline, and most important for deductive category assignment, a table with documents and categories:

	A	B	C	D	E
1	Document	RQ1-1	RQ1-2	RQ1-3	RQ1-4
2	Case A.txt	1	0	0	0
3	Case B.txt	1	0	0	0
4	Case C.txt	0	0	1	0
5	Case D.txt	0	1	0	0

This table can be further analysed using statistical procedures.

Summarizing

Summarizing is a content analytical technique used for

- Smaller amounts of material because it is very extensive,
- Diffuse material, in which it's difficult to ascertain the central points,
- Explorative research questions, where categories cannot be formulated in advance.

Summarizing content analytical procedures convert the whole text into single propositions and generalizes those propositions step by step to its core categories.

The result is a table with all those steps, almost as extensive as the original text. Inductive category formation is based on this procedure, but much more economical:

- There is no paraphrasing.
- Only text passages relevant to the research question were taken into consideration.
- The categories are directly formulated on a predefined level of abstraction and not generalized step by step.

Hence, think carefully about whether inductive category formation might be more appropriate before deciding for summarizing.

The procedure starts with the formulation of propositions. Every sentence has to be reduced to its content.

QCAmap [Back](#)

You are in coding mode.

Question for analysis

RQ3: Summary

Content analytical technique

Summarizing

Content analytical units

Coding unit

Clear meaning component (seme) in the text

Context unit

one document

Recording unit

All Documents

Search

Finish paraphrasing ►

Case A.txt

Case A:

I: Well, it certainly wasn't a strain for me, at least from the, well, the physical side of things. The contrary in fact. I was sort of pretty keen to get down to teaching at last. You're studying, you see, for the teaching certificate and that is your course, the academic part of it, I mean, up to the First State Examination, that is... that has nothing to do with teaching as such, and in my practical - we have to do a sort of practical - and I had the luck to be able to teach a full two weeks- that was the time I was there - at a senior elementary school. Normally all you do during these practicals is sit in on other people's classes - just sit at the back; which is incredibly boring of course just listening to someone else teach for two whole weeks. And it so happened that at that time they were a bit short of teachers and the principal says to me: "Listen, I know what we'll do. You take the 8th and 9th grades in physics and mathematics, then I don't need to do that myself any more; that's extra work for me, you see and if you do it, I'll have more time for my administrative stuff."

Q: So that was still during your undergraduate period?

I: That's that's the same for everyone. The practical has to be done by everyone at a high school, senior elementary or junior elementary school. So I was able to teach two whole weeks there and I had a marvellous time. Senior elementary school is of course relatively simple as far as preparation is concerned, as the content is not so difficult. In 9th grade maths there's Pythagoras, well...

Q: We know!

I: ...which you can do more or less straight off if you're a science student, and to the students you're a magician anyway when you give them a demonstration with the circle of Thales. They say, "That's incredible, it's almost magic!" And that's what I enjoyed. that's why I was already looking forward to being able to teach at a seminary school. Certainly, there are disappointments that the students are not as one thinks they ought to be. I mean, in a big city like this there are just a lot of problems, what with the big firm here. And it is certainly not as you really thought it was going to be, but well, it was certainly not a practice shock for me.

RQ3-F2
RQ3-F1 RQ3-F3
RQ3-F4
RQ3-F5
RQ3-F6
RQ3-F7
RQ3-F8
RQ3-F9
RQ3-F10
RQ3-F11
RQ3-F12
RQ3-F13

"Finish paraphrasing" at the left bottom gives you the possibility to work with those paraphrases. Immediately you are asked to define the level of abstraction for this step. Afterwards you can generalize the paraphrases or leave them out if they are duplicated or included in other generalized paraphrases.

QCMap [Back](#)

You are in coding mode.

Question for analysis

RQ3: Summary

Abstraction level

general experiences on a personal level

Generalizations

Q Search

Finish generalization >|

RQ3-P1: No psychological strain experienced	Add generalization	Mark as insignificant
RQ3-P2: On the contrary very keen on teaching	Add generalization	Mark as insignificant
RQ3-P3: University pure academic instruction, nothing to do with teaching	Add generalization	Mark as insignificant
RQ3-P4: Able to gather teaching experiences within a practical at a senior elementary school	Add generalization	Mark as insignificant
RQ3-P5: The practical is compulsory for all teacher students	Add generalization	Mark as insignificant
RQ3-P6: Able to teach two weeks in practicum	Add generalization	Mark as insignificant
RQ3-P7: Enjoyable practice experiences	Add generalization	Mark as insignificant
RQ3-P8: Relatively simple content in elementary school makes it easy	Add generalization	Mark as insignificant
RQ3-P9: teacher student explaining Pythagoras impresses pupils	Add generalization	Mark as insignificant
RQ3-P10: enjoyed teaching, keen to instruct	Add generalization	Mark as insignificant
RQ3-P11: Dissappointments about students	Add generalization	Mark as insignificant
RQ3-P12: school in a big city with problems of a firm make disappointments about pupils	Add generalization	Mark as insignificant
RQ3-P13: no praxis shock experienced	Add generalization	Mark as insignificant

The next step would be to summarize further. Press “Stop generalization”.

You are in coding mode.

Question for analysis

RQ3: Summary

Abstraction level

general experiences on a personal level

Generalizations

RQ3-G1: I had no praxis shock
RQ3-P1

RQ3-G2: I looked forward to teaching
RQ3-P2

RQ3-G3: University gives no practical instruction to teaching
RQ3-P3

RQ3-G4: My prior teaching experiences helped
RQ3-P4

RQ3-G5: My prior teaching experiences were enjoyable
RQ3-P7

RQ3-G6: My teaching experiences were positive because of simple contents
RQ3-P8

RQ3-G7: I impressed the pupils
RQ3-P9

RQ3-G8: I was disappointed about pupils in problem school
RQ3-P11

Q Search

Finish generalization >|

RQ3-P1: No psychological strain experienced	RQ3-G1: had no praxis shock
RQ3-P2: On the contrary very keen on teaching	RQ3-G2: looked forward to teaching
RQ3-P3: University pure academic instruction, nothing to do with teaching	RQ3-G3: University gives no practical instruction to teaching
RQ3-P4: Able to gather teaching experiences within a practical at a senior elementary school	RQ3-G4: My prior teaching experiences helped
RQ3-P5: The practical is compulsory for all teacher students	RQ3-G5: My prior teaching experiences were enjoyable
RQ3-P6: Able to teach two weeks in practicum	RQ3-G6: My teaching experiences were positive because of simple contents
RQ3-P7: Enjoyable practice experiences	RQ3-G7: impressed the pupils
RQ3-P8: Relatively simple content in elementary school makes it easy	RQ3-G8: was disappointed about pupils in problem school
RQ3-P9: teacher student explaining Pythagoras impresses pupils	
RQ3-P10: enjoyed teaching, keen to instruct	
RQ3-P11: Dissappointments about students	
RQ3-P12: school in a big city with problems of a firm make disappointments about pupils	
RQ3-P13: no praxis shock experienced	

Rechner

Every paraphrase has to be generalized or left out. At the end, the “Finish generalization” button takes you to the next step. It gives you the possibility to reduce the generalized paraphrases.

QCAmap

[Back](#)

You are in coding mode.

Question for analysis

RQ3: Summary

Abstraction level

General experiences about practise

Reduced phrases

RQ3-R1:
No practise shock, if -positive prior experiences -simle content -no problem school
RQ3-G1

RQ3-R2:
University gives few practice experiences
RQ3-G3

Search

Finish 1st reduction

RQ3-G1: had no praxis shock

RQ3-G2: looked forward to teaching

RQ3-G3: University gives no practical instruction to teaching

RQ3-G4: My prior teching experiences helped

RQ3-G5: My prior teaching experiences were enjoyable

RQ3-G6: My teching experiences were positive because of simple contents

RQ3-G7: impressed the pupils

RQ3-G8: was disappointed about pupils in problem school

RQ3-R1: No practise shock, if -positive prior experiences -simle content -no problem school

RQ3-R2: University gives few practice experiences

“Finish 1st reduction” leads either to the next round of generalizations and reductions or it stops the summarizing process. If we would stop here, we would have developed two summarizing categories from one page of the transcript. The two categories are on a different level, which is typical for summarizing because we did not have a category definition. The summary addresses all material, and this only makes sense for very explorative research questions. The output files contain the paraphrases, or the whole process of generalization and reduction.

Coder Agreements

QCAmap offers the possibility to rate the intra-coder agreement as a measure for reliability and the inter-coder agreement as a measurement for objectivity as central quality criteria in qualitative content analysis.

On the project page, for every question for analysis the two checks can be opened. For inter-coder agreement tests, please fill in the email address of the second coder (who has to be registered within QCAmap). In both cases, a pull-down menu offers three possibilities within inductive category formation.

What do the first practice experiences mean for the person itself? Does he or she grow or loose self-confidence? The interview material on 'practice shock' has to be rated in respect to the degree of self-esteem as consequence of the first practice experiences.

View Analysis Continue categorization + New Intra-Coder-Agreement

RQ2 Description of stress factors in first praxis experiences

Inductive Category Formation

First professional experiences, especially for teachers, are often described as "praxis shock" (Smagorisky et al. 2011; Mueller-Forbrodt, 1978). We want to describe the concrete stressing factors.

Start Coding Stop categorization Analysis + New Intra-Coder-Agreement

Question for analysis *

Description of stress factors in first praxis experiences

Description

First professional experiences, especially for teachers, are often described as "praxis shock" (Smagorisky et al. 2011; Mueller-Forbrodt, 1978). We want to describe the concrete stressing factors.

empty coder-agreement

main category system

main category system and coded passages

- The strongest test would be to give myself (intra-coder) or the other person (inter-coder) only the documents and research questions. She or he has to formulate the categories and assign them to the material.
- A medium test consists in a remake of the codings. The main category system is given to the second coder.
- The weakest test shares all categories and codings with the second coder. This is a form of supervision.

For deductive categories, only the second test makes sense. The second coder is given the (preformulated) categories and tries to assign them to the texts. For summarizing, no agreement checks are offered.

RQ2 Description of stress factors in first praxis experiences

Inductive Category Formation

First professional experiences, especially for teachers, are often described as "praxis shock" (Smagorisky et al. 2011; Mueller-Forbrodt, 1978). We want to describe the concrete stressing factors.

▶ Start Coding
■ Stop categorization
Analysis
+ New Intra-Coder-Agreement
+ New Inter-Coder-Agreement

Intra-Coder-Agreements

ready
CA1: Description of stress factors in first praxis experiences
View
Compare
Set acceptance
Analysis
Reopen
Delete

In this example, the intra-coder agreement with shared categories was finished, and by pressing the Compare link, I can see the test results – with original codes on the right side and second codes on the left side (thus in the excerpt below there is no agreement for the two categories shown):

Q: So that was still during your undergraduate period?

I: That's that's the same for everyone. The practical has to be done by everyone at a high school, senior elementary or junior elementary school. So I was able to teach two whole weeks there and I had a marvellous time. Senior elementary school is of course relatively simple as far as preparation is concerned, as the content is not so difficult. In 9th grade maths there's Pythagoras, well...

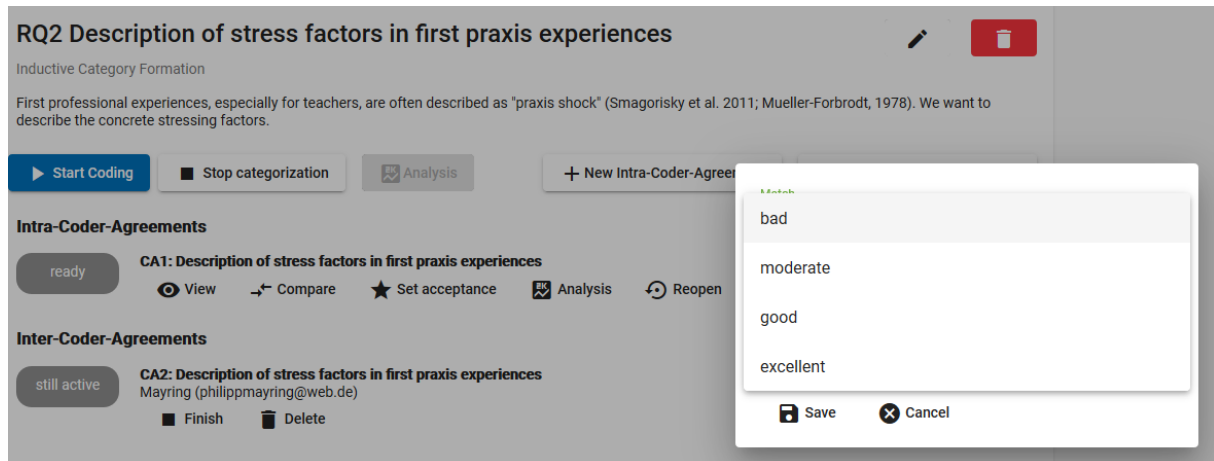
Q: We know!

I: ...which you can do more or less straight off if you're a science student, and to the students you're a magician anyway when you give them a demonstration with the circle of Thales. They say, "That's incredible, it's almost magic!" And that's what I enjoyed. that's why I was already looking forward to being able to teach at a seminary school. Certainly, there are disappointments that the students are not as one thinks they ought to be. I mean, in a big city like this there are just a lot of problems, what with the big firm here. And it is certainly not as you really thought it was going to be, but well, it was certainly not a practice shock for me.

RQ1-11

RQ1-1

Only for deductive category assignment does a statistical inter-rater agreement calculation (e.g., Cohens Kappa) makes sense. In inductive category formation the degree of agreement has to be rated by the first project author. By choosing the button “set acceptance”, she or he can assign an agreement of bad, moderate, good or excellent.



That's it; enjoy the program!