

From Course Structure to Research Competence: Theoretical and Practical Perspectives on Seminar Design

Annika Barzen¹ and Dylan Göpfert²

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Abstract

This paper presents the structure and content of a qualitative research seminar for undergraduate sociology students. What sets this seminar apart is that its structure mirrors that of a traditional scientific article, students sequentially work through background, methods, results, discussion and limitations, allowing them to develop a small pilot study with a single case, with a strong emphasis on methodological reflection throughout the process. The course is based on the principles of Constructive Alignment and Research-Based Learning, which shape its practice-oriented, learning-by-doing approach throughout each session. To complete the module, students write an independently developed project paper that includes an individual qualitative-empirical component. The paper includes reflections by a participating student. Opportunities for improvement and the potential for adaptation are explored within the concluding remarks.

Keywords

Research-based Learning; Constructive Alignment; Seminar Structure; Project Report; Scientific Writing

- 1 Dr. Annika Barzen, TU Chemnitz, Institute of Sociology, Postdoctoral Researcher and Lecturer
annika.barzen@hsw.tu-chemnitz.de
- 2 Dylan Göpfert, TU Chemnitz, Institute of Sociology, Student Assistant
dylan.goepfert@s2022.tu-chemnitz.de

1. Background

This instructional article presents the structuring of a seminar based on the work steps involved in writing an academic paper as a teaching concept. The aim is to explore how the formal design of the seminar plan can be theoretically justified and to reflect on the potential transferability of this format to other seminars.

The approach described in this article was developed within the context of the Sociology Methods course for the seminar Special Issues & Techniques of Qualitative Empirical Social Research at the Technical University of Chemnitz. To pass the seminar, students are required to submit three exercises and write a 12-15 page project report, which accounts for the module grade. Approximately 20 students in their fifth semester of the bachelor's program participate in the seminar.

The core concept of the seminar is for students to conduct a qualitative pilot study on a topic of their choice, with a focus on the selection, application, and reflection of methods. Scientific writing and the organization of the research process are also central components.

The close guidance of students through a seminar structure oriented around the project report aims to progressively foster their research competencies.

Each session within the seminar corresponds to a step of the research report, providing students with the opportunity to develop their report weekly. By the end of the semester, they can efficiently consolidate the content, ensuring high constructive alignment for the course.

The value of this concept for the academic community lies in the close integration of theory and practice, as well as the continuous support provided to students. This fosters a conscious engagement with the choice of methods, as well as with research ethics and epistemological questions.

This structured approach provides students with a step-by-step and hands-on insight into qualitative research, deepening their understanding of the challenges and opportunities within empirical social research. Simultaneously, the targeted support in academic writing enhances their ability to communicate research findings clearly and precisely. Unlike traditional seminar formats, where students often only integrate their work at the end of the semester, this model supports them throughout the entire research process. In this way, the seminar contributes to the development of research skills while fostering a more sustainable and practice-oriented form of research-based learning.

This article aims to provide ideas and inspiration for organizing seminars according to the present-

ed framework. By aligning the seminar structure with the systematic steps of conducting empirical research, the article seeks to highlight how such an approach can effectively support learning objectives and assessment formats. Ultimately, the goal is to offer a valuable contribution to the development of students' research competencies.

2. Constructive Alignment and Research-based learning

There are various ways to design a supportive and proactive seminar that helps students build knowledge. Two key approaches integrated into the teaching presented here are Constructive Alignment (CA) and Research-Based Learning (RBL). Biggs (2014) understands Constructive Alignment (CA) as a teaching design that encourages students to "engage [...] in learning activities that optimise their chances of achieving those outcomes" (ibid., p. 5–6), while also helping them to gain deeper, more critical understanding by offering aligned assessment tasks. Teaching personnel "should focus on what outcomes students are meant to achieve and help them to do so" (ibid., p. 7). To achieve this, teaching and assessment must be aligned to strengthen students' knowledge construction (ibid.). It can be argued that CA has the potential to enhance course quality by creating dialogic spaces between learners and teachers, increasing students' independence and commit-

ment, improving results through a work-in-progress approach, and supporting the development of key academic skills such as writing (Malmqvist, Wedel & Enelund, 2011). A core feature of CA is its adaptation to the specific context of a course to ensure relevance and effectiveness.

Students in CA-driven courses should be given opportunities “to present their own evidence” (Biggs, 2014, p. 12), made possible through “open-ended formats” (ibid.). Such formats might include, for example, the task of finding literature related to one’s own project paper, followed by a presentation and group discussion in the next session. Fotoh and Lorentzon (2022) suggest collaborative learning as a consensus-building practice, which also promotes group work and strengthens skills essential not only in academia but also in professional environments. The intended project paper (Table 1) in this course can thus be seen as an early version of the students’ degree or future research papers, supported by continuous feedback, discussion, and opportunities for revision. Ultimately, CA aims to ensure academic depth and substance, qualities essential for professional development (Loughlin, Lygo-Baker & Lindberg-Sand, 2021).

Introduction	<ul style="list-style-type: none"> • Introduce the topic • Formulate a clear research question aligned with the study’s objectives • Describe the relevance and timeliness of the topic • Present theoretical foundations and relevant studies 	Results	<ul style="list-style-type: none"> • Present the results in a structured and objective manner • Ensure a clear connection to the research question • Provide a visualization
Background	<ul style="list-style-type: none"> • Demonstrate how the scope of the literature contribute to the research question • Critically reflect on the literature • Identify a research gap 	Discussion	<ul style="list-style-type: none"> • Provide a deep interpretation of the results • Situate the findings within the theoretical framework • Relate the results to existing studies • Derive implications for research and practice • Present individual insights in the context of the findings
Methods: Methodological Adjustment Data Collection Data Analysis	<ul style="list-style-type: none"> • Describe data collection and analysis methods • Justify method selection • Adapt methods to the research project • Describe practical implementation • Justify the suitability of the data collection method • Justify the sampling strategy • Provide a transparent presentation of data collection • Reflect on data privacy and ethics • Ensure the appropriateness and depth of the analysis • Establish a clear connection to the research question and ensure traceability • Provide the MAXQDA file 	Limitations	<ul style="list-style-type: none"> • Reflect on the limitations of the study and its findings • Critically assess the methodological approach • Propose ideas for further development
		Conclusion & Outlook	<ul style="list-style-type: none"> • Summarize key findings • Relate findings to the research question • Provide outlook on open questions or future research

Table 1: Content of the project report

In addition to CA, Research-Based Learning (RBL) is a teaching and learning approach that engages students in developing their own research questions and exploring them through systematic investigation (Sonntag et al., 2017). This approach primarily aims to involve students in an individual research process and to support the production of meaningful scienti-

fic insights. Independent work is a key component of this method. The focus lies on the reflective application of methods, while writing forms an integral part of the learning process. Revising and clearly presenting research findings are central goals. Within this framework, the instructor takes on a mentoring role, supporting students in realistically and successfully completing their research projects (ibid.).

The seminar follows an iterative structure of research steps to deepen understanding while offering a practical walkthrough of the research process. Although Willison and Buisman-Pijlman (2016) argue that such a structure may artificially fragment the research process, they also note that RBL improves students' understanding and internalization of research practices. Ongoing feedback and opportunities for reflection further foster critical thinking.

When combined, CA and RBL are mutually reinforcing and contribute to an improved overall learning experience. CA ensures coherence between learning objectives, teaching methods, and assessments. RBL encourages practically oriented student engagement with the research process. These concepts are also flexible and adaptable across a wide range of subjects, disciplines, and course formats.

3. Learning Objectives

The overarching qualification goal, as outlined in the module description, is the acquisition of both theoretical and practical foundational knowledge in qualitative social research. This goal is to be achieved through the execution of a self-designed pilot study and its methodological refinement.

The following outlines the central learning objectives of the seminar, formulated in alignment with the levels of Bloom's Taxonomy (Bloom, 1956; Anderson & Krathwohl, 2001).

The seminar pursues cognitive learning goals that cover all stages of Bloom's Taxonomy, becoming increasingly complex throughout the semester. Given that students already possess prior knowledge, the seminar specifically targets higher levels of the taxonomy, from which precise learning objectives can be derived.

These learning objectives are structured along the taxonomy and illustrate the fluid transitions between cognitive levels (Table 2). While developing a research question and planning a methodological design can be categorized under the 'Applying' level, data analysis demands a more in-depth engagement like 'Analyzing'. The interpretation of results and reflection on methodological decisions are placed under 'Evaluating', as they require critical assess-

ment. Finally, 'Creating' goes beyond mere application, such as when independently developing a data collection instrument or writing the project report. The seminar's learning objectives are designed to support bachelor students nearing the completion of their degree, particularly those preparing an empirical thesis.

The learning objectives highlight that academic work is not a linear process but involves intertwined cognitive processes. They offer a clear progression, ranging from the practical application of methodological foundations to independent design and critical reflection. They are strongly practice-oriented, as they are closely linked to the actual demands of the research process.

Taxonomy level	Applying	Analyzing	Evaluating	Creating
Learning Objectives	... develop a precise research question.	... code & categorize data using software.	... interpret & critically discuss results.	... design an individual data collection tool.
The students are able to...	... plan & conduct a methodologically grounded research design.	... derive key findings from the data.	... evaluate the choice of methods & their limitations.	... develop strategies to address emerging challenges.
	...prepare their data for analysis.	... compare results with existing theories & studies.	... assess & select relevant literature.	... write a project report.
	...document ethical considerations in a consent form.	...derive implications for research & practice.	... reflect on how their subjectivity influences the research process.	... propose approaches for refining the research design.

Table 2: Learning objectives aligned with taxonomy levels

4. Didactic Challenges and Goals of Teaching Competence

Designing a seminar that is structured along the key steps of a research article places particular demands on the teaching staff. This format does not only require students to gradually build their individual research projects but also challenges the instructor to create a coherent framework that integrates diverse methodological and thematic student projects. Each project is unique, presenting different methodological and content-related demands. This requires the instructor to immerse themselves in various research designs and methods, allowing for personalized feedback. At the same time, balancing the individuality of the projects with the need for a consistent seminar structure highlights the central importance of specific teaching competencies.

Drawing on the competence model for university teaching at the Technical University of Munich (Fleischmann, Jäger & Strasser, 2014), three key teaching competencies are necessary for designing research-based seminars (Figure 1).

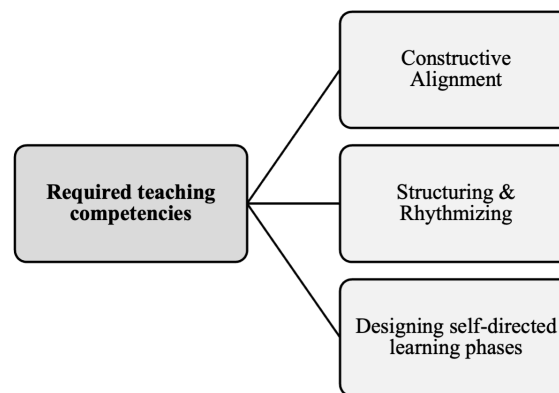


Figure 1: Required teaching competencies for designing research-based seminars (figure by the first author, based on Fleischmann, Jäger & Strasser (2014))

Constructive Alignment

The heterogeneity of student projects and the uniqueness of qualitative research materials make it essential to closely align learning activities, seminar sessions, and assessment goals. Constructive Alignment ensures that despite the diversity of individual research questions, all students can take concrete steps toward their project reports (Table 1) in each session. Assessment goals are explicitly presented from the start, and seminar activities are directly linked to the requirements of the research report. This creates orientation for students and provides a common frame of reference that helps to balance individual and collective learning processes (ibid.).

Structuring and Rhythmizing

The varying levels of motivation among students underline the need for a clear dramaturgy of the seminar. By structuring the course along the sections of a scientific article and alternating between input and practice phases, the instructor provides both stability and momentum. This rhythm helps students to deepen their projects while offering orientation and regular touchpoints for those who might otherwise fall behind. In this way, structuring and rhythmizing are crucial to keeping all participants on track and fostering continuous progress (ibid.).

Designing Self-Directed Learning Phases

A significant share of the research process takes place outside of the seminar sessions, such as

coding and categorizing qualitative data. These phases often represent particular challenges for students, requiring autonomy, methodological precision, and sustained motivation. Carefully designed self-directed learning tasks, embedded at key stages of the research process, provide the necessary scaffolding. They encourage students to independently practice essential skills while ensuring that their work remains connected to the overall seminar structure (ibid.).

Taken together, these competencies allow instructors to provide close yet flexible guidance throughout the semester. They create a balance between individual support and collective orientation, ensuring that all students have the opportunity to successfully complete their projects. The key takeaway is that in a seminar built around the steps of a research article, the success of student learning depends not only on methodological knowledge but above all on the instructor's ability to align goals, structure the learning process, and enable self-directed work.

5. Practical Implementation and Structure of the Seminar Plan

The following table presents the structure and tasks of the seminar, based on the steps required for the project report. The learning objectives are linked with the individual steps to demonstrate the connec-

tion to Constructive Alignment. Each session lasts 90 minutes.

Content	Learning Objectives	Methods
Session 1 Introduction, Seminar Plan, Assessment Objectives, Expectations	<ul style="list-style-type: none"> • Introduction & activation of prior knowledge • Understanding the structure & objectives of the seminar • Identifying areas of interest & expectations 	<ul style="list-style-type: none"> • Introduction round focusing on thematic interests • Input: Introduction & social constructivism • Clarification of structure & expectations • Assessment goals: exercises & project report
Session 2 Formulation of a Research Question	<ul style="list-style-type: none"> • Developing a precise research question • Reflecting on one's own subjectivity in the research process 	<ul style="list-style-type: none"> • Introduction: Mood board on researcher identity • Input: Qualitative research question • Think-Pair-Share: Developing research questions • Think-Pair-Share: Preconceptions about the chosen research topic • Brainwriting: Exploring the relevance of the research question for research & practice • Students bring a qualitative study of their interest
Session 3 Strengths & Weaknesses of Qualitative Studies	<ul style="list-style-type: none"> • Critical reading of qualitative studies • Awareness of typical strengths & weaknesses in qualitative research designs 	<ul style="list-style-type: none"> • Input on quality criteria of qualitative research • Small groups: Presentation of selected study & discussion of methodological strengths & weaknesses (notes for a gallery walk) • Development of ideas for applying strengths & avoiding weaknesses
Session 4 State of Research & Adjustment of Research Question	<ul style="list-style-type: none"> • Assessing and selecting relevant literature • Assessing and Collecting relevant literature • Identifying research gaps • Refining the research question 	<ul style="list-style-type: none"> • Debate: Glaser vs. Strauss on the inclusion of literature as a dialogue, read by two students • Input on literature review, critical reading & publication bias • Research task: Identify 2-3 relevant sources for your individual project (key findings, research gaps, search terms) • Group work with plenary session: Exchange on search strategies, results & refining research question

Content	Learning Objectives	Methods
Session 5 Research Methodology & Adaptation to own Topic	<ul style="list-style-type: none"> Plan a methodologically grounded research design 	<ul style="list-style-type: none"> Presentation of a bachelor thesis, focusing on the research design, by a senior student Input: Objectives of a pilot study Think-Pair-Share: Questions to reflect on the choice of data collection & analysis methods Brainwriting: Idea generation for interview topics Exercise: Summarize your planned research design
Session 6 Ethics, Data Protection & Presentation of a Research Design	<ul style="list-style-type: none"> Ethical considerations for an informed consent form Further development of the research design 	<ul style="list-style-type: none"> Input: Research ethics & data protection Tandem: Discuss the relevance of the input for your own project Projects with high ethical discussion needs will be addressed in the plenary
Session 7 Development of Data Collection Instrument	<ul style="list-style-type: none"> Design of an individual data collection instrument 	<ul style="list-style-type: none"> Input on interview types Developing quality criteria for questions in plenary Individual brainstorming on main themes & initial question formulations Question development & feedback in small groups Tandem: Testing the interview guide
Session 8 Fieldwork & Transcription	<ul style="list-style-type: none"> Independent data collection Preparation of data for analysis 	<ul style="list-style-type: none"> The session is 'free' for data collection & transcription Foundational literature will be provided 2 truths & 1 lie about one's own data collection Tandem: Share and embellish field experiences
Session 9 Fieldwork Review & Instrument Revision	<ul style="list-style-type: none"> Develop approaches for further refining the research design Develop strategies for addressing emerging challenges 	<ul style="list-style-type: none"> Input: Circular research process, theoretical sampling & saturation Tandem: Refining interview guide Outlook: Reflecting on data collection
Session 10 MAXQDA, Grounded Theory & Coding	<ul style="list-style-type: none"> Activate prior knowledge of MAXQDA software Code and categorize own data using the software Applying Grounded Theory 	<ul style="list-style-type: none"> Input: MAXQDA Practical task to re-engage with MAXQDA Input: Grounded Theory Collaborative coding of students' data
Session 11 Content Analysis & Coding	<ul style="list-style-type: none"> Code and categorize own data using the software Applying content analysis 	<ul style="list-style-type: none"> Input: Content analysis Joint coding of students' data Exercise: Code 10% of your own material with MAXQDA and submit it for feedback

Content	Learning Objectives	Methods
Session 12 Presentation of Results & Coding	<ul style="list-style-type: none"> Deriving key findings from the data 	<ul style="list-style-type: none"> Input: Presenting & visualizing qualitative results Group work: categorize codes based on current research example & find key categories Joint coding of students' data Flash round: Content of the discussion section
Session 13 Discussing Results, Implications for Research & Practice	<ul style="list-style-type: none"> Compare results with existing theories & studies Interpret and critically discuss the results Derive implications for research & practice 	<ul style="list-style-type: none"> Input: Structure & content of the discussion section Think-Pair-Share: Which results do you want to highlight? Connection to theory & empirical data Input: Examples of discussions Think-Pair-Share: Implications for research & practice Exercise: Summarize the content you want to include in the discussion section of your report
Session 14 Limitations, Conclusion, Outlook, Open Questions	<ul style="list-style-type: none"> Evaluate the selection of methods & their limitations Write a project report 	<ul style="list-style-type: none"> Input: Strategies for reflecting on & relativizing limitations Tandem: Reflect on the limitations of your own work & formulate ideas for potential follow-up studies Survey: Have the initial expectations been met? Organizational details on project report & evaluation Clearing any remaining questions

Table 3: Seminar plan

6. Experiences of a participating student

Experiences of teachers and students may differ. For a practical insight, the following is a description of the seminar from the perspective of the second author of this article, who participated in the course as a student.

The seminar presented here demonstrated strong potential and captured my interest early on. It stood

out as a uniquely designed course. Rather than pure theory, sometimes mixed with simple tasks, the learning-by-doing seminar structure suggests an in-depth approach to creating a personal project paper while encouraging open discussion of challenges in class. Each session completed an important step toward completing the final work, allowing students to progress collaboratively rather than working in isolation outside of class. At the beginning, most students had no clear idea how to write what was required, where to start, or how to develop a suitable qualitative research question. However, the course provided the necessary knowledge in manageable

portions, building up step by step each week. Importantly, the absence of an overly rigid scientific framework fostered a supportive climate, where students could learn from mistakes and observe and reflect on their peers' approaches, which often helped improve their own workflows.

While there are many positive features, there are also improvements to be suggested from my point of view. A course like this depends heavily on students' consistent engagement and presence. In university settings where attendance is not mandatory, this can pose a challenge. Missing even a single session can

significantly hinder a student's ability to keep up. As with lots of other course structures, this seminar may not suit all learning preferences. Not all attendees prefer highly active seminars, some learn better through passive listening and a more strictly planned program.

In my opinion, this seminar created a refreshing and productive atmosphere for both learning and academic development. The step-by-step schedule reduced pressure to complete an entire final paper all at once after the seminar. Instead, it encouraged steady, continuous progress throughout the course, contributing to a more positive and motivating learning. This factor lightens the mood, giving 'touchable' effort which grants a feeling of success. The course helped me approach the topic I imagined interesting in a more in-depth way. The practical aspects of conducting research were particularly beneficial. Activities such as group coding and categorizing interview material helped me understand perspectives I had not previously considered.

A distinctive and highly appreciated aspect of the course was the consistent feedback from both peers and the instructor. This ongoing dialogue enabled continuous improvement of each student's research design. Feedback was often shared in group settings, which meant that insights offered to one student could benefit the entire class.

In the end, I produced a student project paper titled *Inclusion and Discrimination of Non-Heterosexual Students at University – A Pilot Study*. The paper is based on a qualitative interview. Using qualitative content analysis, several categories were developed to explore key experiences and to provide a basis for future research. Selected results include reports of discriminatory or insensitive comments by fellow students, a generally positive perception of the university's participation in pride parades, and the impression that sexual identity is largely irrelevant in everyday university settings.

7. Development opportunities and transferability to other Seminars

A Teaching Analysis Poll showed that the seminar's step-by-step progression effectively enhanced students' understanding and application of the content. This was primarily because the information presented was directly aligned with the research process, allowing students to immediately apply the theory to their own work. The use of practical exercises, which provided a solid foundation for the project report, was particularly well-received, as it helped students practice and internalize the individual steps of scientific work. Group discussions, where feedback on individual work could be sought, also contributed to deepening the learning process. Specific examples from the students' current data material were used,

strengthening the connection to practice and encouraging application-oriented reflection.

Based on student feedback, the seminar could be adapted to have the text coding process carried out more in group work than in a plenary setting, to promote exchange and collaborative engagement with the content. Additionally, coding sessions could be shorter to enhance student focus and allow for more efficient processing.

To reduce the complexity of the seminar, the freedom in choosing data collection and analysis methods could be more tightly specified. This would result in more homogeneous student projects, reducing the need for extensive explanations and allowing for deeper exploration of the specific methods. Such simplification is possible, but at the expense of developing students' independent research skills. Furthermore, a list of common mistakes in the exercises could be compiled and made available to students in future courses.

The seminar structure can easily be transferred to other disciplines. Students are guided through the process of scientific work, starting with topic selection and research question formulation, literature review, method selection, data analysis, and concluding with the final argumentation and presentation of results. In other fields, whether in the social or natural sciences, this process can be adapted by modify-

ing the research approach, methodology, or data analysis depending on the discipline.

This seminar structure is particularly suitable for beginners in teaching because it provides a clear, understandable framework that supports instructors in planning their courses. The individual steps that students go through are structured in such a way that instructors can not only define the topics and goals but also provide concrete guidance and support throughout the entire process. For novice teachers, it is helpful to follow a proven framework that covers all essential stages of academic work.

8. Conclusion

The presented seminar structure is grounded in the theoretical frameworks of Constructive Alignment and Research-Based Learning. CA fosters learning beyond scheduled sessions by clarifying exercises and goals, enhancing practice-oriented teaching. RBL emphasizes students working on their own projects, promoting learning-by-doing and enabling them to acquire both basic and specialized research skills through personalized projects.

What unites CA and RBL is their strong focus on practice, supporting a seminar format that teaches qualitative social research fundamentals interactively and applied. Instead of a one-way teaching sys-

tem, constant interaction allows immediate practice in each session.

This work-in-progress model serves as a practice-oriented workshop format, readily adaptable to diverse university teaching contexts. The seminar structure includes all necessary elements for students to complete their project papers, providing ample time and support.

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