Qualitative meta-analysis

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The term *qualitative meta-analysis* refers to a methodological approach that is based on the cross-study interpretation of existing empirical studies (primary studies) by other researchers on a certain phenomenon or nuanced phenomena. The objective of the qualitative meta-analysis is to use the interpretive synthesis of different primary studies to generate new findings about a different or similar phenomenon or phenomena than the ones investigated in those studies and thus to go beyond their particular results. Therefore, the primary studies represent the empirical cases that are analyzed and synthesized to produce the new findings. A qualitative meta-analysis is therefore useful for interdisciplinary spatial research because it makes it possible to correlate the knowledge from existing space-related studies from different (spatial) disciplines—each with their own perspectives—systematically, in order to gain new insights into spatial phenomena.

Notwithstanding the great potential that qualitative meta-analysis offers for research, a standardized methodological approach has not yet emerged from the existing debate. This is reflected in the series of slightly different terms used to designate various approaches that follow a similar methodology and share the prefix *meta* (Timulak 2014: 481 et seq.), such as qualitative meta-ethnography (Noblit/Hare 1988; Doyle 2003), qualitative meta-analysis (Sandelowski 2004), meta-interpretation (Weed 2005), or meta-synthesis (Sandelowski et al. 1997).

In this chapter, we use the term qualitative meta-analysis and present its methodological approach accordingly. Moreover, the method we describe is based on the experience of using it (and adapting it) for a research project conducted at the Collaborative Research Centre 1265 *Re-Figuration of Spaces*. The objective of the project *Education: The Spatial Knowledge of Children and Young Adults and Its Application in Planning Contexts* was by and large to study the relationship children and young people establish with their spaces. More specifically, the project aimed to shed light on how their spatial knowledge has evolved over the past five decades in view of the refiguration of spaces (Knoblauch/Löw 2017) by means of a qualitative meta-analytical investigation of various empirical studies. While our approach to qualitative meta-analysis was inspired by the meta-ethnographic methodology developed by George W. Noblit and R. Dwight Hare (1988), and enhanced by Lynn H. Doyle (2003), at various points we had to modify and adapt it to the require-

ments of our research project. Therefore, we prefer the term qualitative meta-analysis to meta-ethnography, as we did not limit ourselves to the analysis of ethnographic studies.

We thus start the chapter by explaining what characterizes a qualitative meta-analysis and how it differs from literature reviews and quantitative meta-analyses (as typical forms of synthesis research). We then describe the approach we took to applying qualitative meta-analysis. Afterward, we discuss relevant methodological challenges and quality assurance measures. Finally, we outline opportunities offered by qualitative meta-analysis for interdisciplinary spatial research, aside from the platitude that it allows (almost) every existing study to be re-evaluated and reinterpreted from a spatial standpoint.

1 Qualitative meta-analysis: Explaining and defining the method

Qualitative meta-analysis represents a synthesizing research method that differs from other techniques used to combine research literature in terms of its objectives and interpretative focus in particular. Hence, it is important to differentiate the method from techniques such as quantitative meta-analyses and literature reviews.

The synthesis of previous studies is often (mis)understood as the process of creating a literature review or defining the state of research (Weed 2005), although these generally does not constitute synthesizing approaches. After all, processing individual studies and their contents in literature reviews does not provide any meaningful information about what the studies collectively express (Noblit/Hare 1988: 14 et seq.). In other words, literature reviews lag behind qualitative meta-analyses in terms of synthesis as they do not generate any cross-study interpretations from the primary studies and thus pursue a different objective: namely, the progressive linking of reviewed studies to form a chain of reasoning. As a rule, literature reviews are used as arguments for accepting certain analytical perspectives or for justifying why it makes sense to carry out a certain research project (Weed 2005).[1] By comparison, the objective of qualitative meta-analyses is to produce new cross-study interpretations about a phenomenon or phenomena from the individual studies sampled.

Likewise, qualitative meta-analyses differ from quantitative meta-analyses. The latter follow an additive logic regarding the data and synthesis to develop generalizable correlations across the studies, which in turn allows for predictions about similar situations (Doyle 2003: 324). In contrast to this logic, which strives for generalizations, the synthesizing process in qualitative meta-analyses aims, as mentioned above, for cross-study interpretations (Doyle 2003: 324 et seqq.). Noblit and Hare (1988: 16) describe the process of synthesizing different findings for the meta-ethnography as "essentially an interpretative endeavor." This interpretative focus of the synthesis, which aspires to develop cross-study interpretations from existing studies and which we refer to as meta-interpretations below, is not only what distinguishes qualitative meta-analyses from the

1 Typical examples of such literature reviews include defining the current state of research and state-of-the-art discussions, which are often found at the beginning of research proposals, dissertations, and final reports.

other methodological approaches to synthesis research (literature review and quantitative meta-analysis) but also why we believe it to be rewarding.

2 Our qualitative meta-analysis approach: From analyzing individual studies to their meta-interpretation

Below we present the procedure for carrying out a qualitative meta-analysis as we have developed and used it within the framework of the research project *Education: The Spatial Knowledge of Children and Young Adults and Its Application in Planning Contexts*. On the whole, the method is divided into three stages: case selection, analysis, and synthesis (see Fig. 1). These stages should not be understood as strictly segregated steps, but rather they are mutually dependent and can be used in an iterative process.

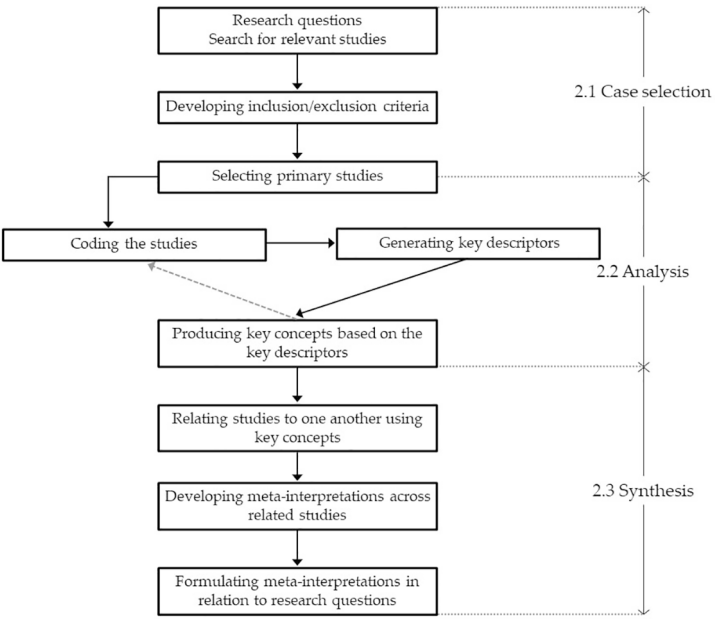

Fig. 1: Steps of the qualitative meta-analysis. | © Authors' own diagram

2.1 Case selection

The starting point and precondition for any qualitative meta-analysis is an adequate case selection, meaning a justified choice of the primary studies to be (meta-)analyzed. Before definitively settling on the cases in a deliberate manner based on defined criteria, it is necessary to identify the existing studies that are relevant for the research questions and the phenomenon or phenomena being investigated. This can be done, for example, through search queries in literature databases derived from the research questions and

by searching in the references of already known or tentatively selected studies (Timulak 2014: 486 et seq.).

After preselecting potentially relevant studies, it is necessary to define inclusion and exclusion criteria. These criteria can include content-related and methodological considerations: for instance, whether the studies should contain different methodological approaches or whether quantitative or mixed-methods research designs should be included in the sample (Timulak 2014: 487). For the case of the qualitative meta-analysis we carried out to study how the spatial knowledge of children and young people has changed, relevant case selection criteria for answering our research questions included the time period and the location of the studies, among other aspects.

Additionally, it might be helpful to base the case selection less on research questions and perspectives that are as similar as possible to the ones being pursued through the qualitative meta-analysis—in line with the principle of concentration (Behnke et al. 2006: 194 et seq.)—and to instead focus more on which studies appear to offer the most abundant and promising data for answering the research questions of the qualitative meta-analysis (Doyle 2003: 327). Such an approach to case selection implies that it is possible to achieve empirical saturation for the object of investigation in qualitative social research not only by means of the sheer number of cases studied but also by compiling a wide-ranging and diverse body of data (Strübing et al. 2018: 89).

Aside from these methodological and content-related criteria, quality criteria should also be defined for choosing the studies. For example, Lynn H. Doyle (2003: 329) suggests that the studies included in the analysis should contain more than just descriptions of the data and consequently offer interpretations and analyses based on accepted theories and methods. Therefore, verifying such quality criteria requires researchers to carefully read the studies they have found rather than simply skimming abstracts, references, and keywords.

The selection of primary studies for the analysis can follow different logics. Firstly, given a manageable number of potential studies, it is possible to carry out a complete survey of all of them. Likewise, in line with the concept of *theoretical sampling* (Behnke et al. 2006: 198 et seq.), the selection of the studies, from the very moment of preselection, may be seen as an iterative process in which the studies to be (meta-)analyzed are chosen based on previous analyses.

All in all, these different possible criteria and considerations for the selection of primary studies illustrate the importance of documenting and transparently describing the process and the individual case selection criteria used to allow for intersubjective validation (Timulak 2014: 487).

2.2 Analyzing the individual primary studies

The ultimate object of analysis in the qualitative meta-analysis method proposed here is the full texts of the selected studies, their interpretative evaluations, and their presentations of the empirical material. The descriptions of the theoretical framework and the methodological approach in the studies should also be read. They represent valuable objects of analysis by providing us with both important information for contextualizing the

respective primary study and the perspectives of the authors regarding the phenomenon they investigated.

Doyle (2003: 332), as well as Noblit and Hare (1988: 63), recommends using grounded theory techniques to analyze and synthesize the primary studies. The qualitative meta-analysis approach employed for our research project is based primarily on the modifications to Noblit and Hare's (1988) meta-ethnography proposed by Doyle (2003: 330 et seqq.). However, we adapted the individual steps and several terms to the requirements of our research process.

2.2.1 Coding

The first step of the analysis entails "distilling" the material from the individual primary studies that is relevant for the research question(s). Depending on how many different primary studies are to be examined as part of the qualitative meta-analysis, this also involves reducing the amount of material to render it (more) manageable. For this purpose, a coding scheme is developed as a "conceptual framework" (Timulak 2014: 489), which makes it possible to break down the primary studies into logical units according to diverse codes (and, if needed, subcodes). In our research project, for example, a coding scheme (see Fig. 2) was developed deductively, drawing on the research questions, to cover both different aspects of the research questions and the main research topic, *spatial knowledge*. Furthermore, by using a set of codes and subcodes, we were able to operationalize the elements of the research questions and main research topic that needed be considered for the analysis.

The development of the coding scheme is to be understood as an iterative task in the sense that, as the analysis of the texts begins, it can be supplemented and modified if necessary. The primary studies are then coded with the final version of the coding scheme. Software for analyzing qualitative data can be helpful in this regard.

If the primary studies are coded by various researchers, it is advisable, based on our experience, to perform several coding tests collectively in advance. This makes it possible to develop a common understanding of the different codes and the coding process. Moreover, difficulties and problems with the (joint) coding or coding scheme may be detected early on. We also consider it indispensable for the researchers coding to check in with each other regularly—even during the analysis and synthesis stages—in order to develop a uniform analysis style. Furthermore, such an exchange between the different coders can be extremely beneficial for discussing different viewpoints on the data material.

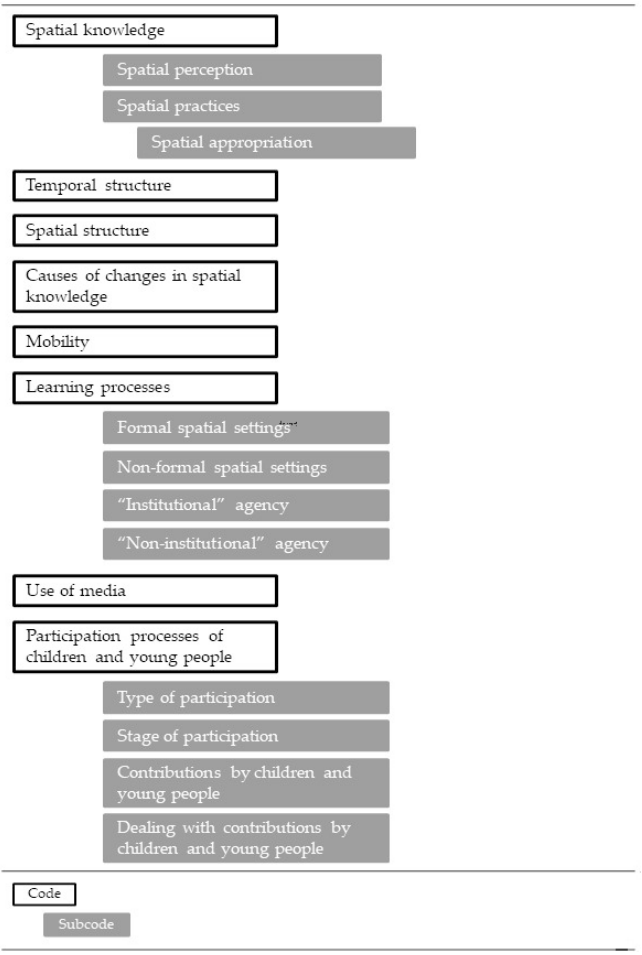

Fig. 2: Example of a coding scheme with codes and subcodes. | © Author's own diagram

2.2.2 Key descriptors

Following the coding of the studies, the individual coded positions in the respective studies are condensed into key descriptors for each code (see Fig. 3). In contrast to Doyle (2003: 333), our key descriptors consist of summaries of the coded positions in relation to the research questions. This results in one or more key descriptors for each code per study. As such, they form the basis for the synthesis. Therefore, key descriptors do not provide a separate interpretation and reconceptualization of the coded positions (even if this can never be completely avoided in the process of condensing the contents). Depending on the volume, length, and thematic breadth of the coded passages, key descriptors can either be just a few lines long or comprise multiple pages.

When converting the individual coded positions into key descriptors, we strongly recommend using original terms from the material. For example, Doyle (2003: 332 et seq.)

points out that "holding to the words of the original authors" makes it possible to retain the characteristics of the studies as much as possible in the analysis. This should help maintain the context and uniqueness of the primary studies in the key descriptors and avoid the use of excessively abstract interpretations of the individual textual passages.

CODE: **SPATIAL APPROPRIATION** (Tischer & Engelke 1978)	
KEY DESCRIPTOR	Children appropriate space in very different ways here. This can start with children taking a toy in front of their house in order to use the "outdoor space" as they see fit (see Tischer/Engelke 1978: 45) or using the surroundings of the urban environment differently than intended. This was illustrated at the row of shops in Garbsen, Germany, where children "transformed" the space for their own purposes: "'At Coop we go up on the roof, and if the bank leaves the window open, we kick [a ball] against it and inside' (3rd grade)." (Tischer/Engelke 1978: 46, own translation). Spatial appropriation can also involve asserting your own use of space in contested spaces, such as on the streets of Linden. This is shown strikingly by a group of children who made a street corner "their" corner: "This has turned into a permanent meeting point for a group of children with strong social cohesion. They consider this area to be their own and even prefer it to the playground. 'We play hide-and-seek there in the summer... I don't need to go to the playground. This is how we play.' (Ilonka, 9.J.). 'We' refers to 'the kids from our corner,' as the group refers to itself." (Tischer/Engelke 1978: 44, own translation).
KEY CONCEPTS	• Children augment the "facilities" of spaces or use the properties of the spaces for their own purposes, thus appropriating them. • Children can appropriate spaces by asserting their interests over those of other users – this can endow them with a sense of identity and be seen as them marking their territory.

Fig. 3: Example of an excerpt from a key descriptor and its key concepts. | © Author's own diagram

2.3 Cross-study synthesis

The synthesizing stage of the qualitative meta-analysis we conducted started with creating key concepts derived from the key descriptors we had produced per code for each individual study (see Fig. 3). These key concepts are intended to encapsulate and reformulate the central points contained in the key descriptors, thereby raising them to a more abstract level. This in turn makes it possible to gradually correlate the sampled studies with one other. Depending on the length and content of the respective key descriptor, various key concepts might be required. Essentially, the idea is to develop a common "language" among the studies through which to interconnect them. Although the resulting decrease in empirical references from the concrete primary studies and their specific characteristics represents the "price to be paid", it is also the precondition for the cross-study analysis and the formulation of meta-interpretations.

Based on the guiding research questions, it is then possible to compare the key concepts from the different studies by, for example, examining which thematic similarities exist between the key concepts or how the key concepts from different studies vary with regard to common topics. Doyle (2003: 335), who only addresses the synthesis process briefly, recommends using comparative strategies for this purpose. As a result, the col-

lection of studies can now be regarded as a collective—by using the key concepts to formulate and develop further cross-study meta-interpretations in relation to the research questions.

In order to compare and connect the studies with one another, visualization strategies can be helpful, such as diagrams, tables, or other types of graphical-textual depiction. For instance, during the synthesis stage of our research project, we printed out the individual key concepts including a short explanation and hung them up on a wall. This allowed us to establish connections between different key concepts visually and spatially, to cluster key concepts together thematically, and to rearrange them easily. Based on defined thematic clusters of key concepts, it was then possible to synthesize the findings from the individual studies—referring back to the key descriptors—and thus to formulate meta-interpretations to answer the research questions.

Overall, the synthesis constitutes the interpretive comparison between the analyzed individual cases or primary studies and the cross-study research questions based on the key concepts. This is the step in which the new meta-interpretations are developed about the phenomenon or phenomena being investigated through the qualitative meta-analysis, drawing on what is known from the primary studies to expand on the knowledge contained therein.

3 Methodological challenges

Conducting qualitative meta-analyses poses various methodological challenges that must be considered, several of which are discussed in this section. First, there is the issue of quality: the fact that the quality of the qualitative meta-analysis depends on the quality of the primary studies. After all, these studies provide the underlying data for the method. Thus, meta-analysts should point out any limitations in terms of the quality of the primary studies transparently (Timulak 2014: 493). Another option for overcoming this challenge is to define quality criteria, as described above, for filtering the preliminary studies so that they comply with established selection parameters. In doing so, it is possible to exclude studies with obvious qualitative deficiencies.

It is important to consider that the developed meta-interpretations come from a specific body of data that the meta-analysts construct by deliberately selecting the cases based on clearly defined criteria. Accordingly, we believe it is important both to reflect critically on the scope of the meta-interpretations and to disclose the particular perspective from which they emerged. Instead of assuming the data can be generalized, it is necessary to discuss critically and illustrate transparently which limitations apply to the body of data and where it is possible to make assertions: "Therefore it is probably more precise to say that qualitative meta-analysis may not necessarily provide a definite final picture or understanding, but rather a unique, systematic, in-depth analysing portrait and its interpretation of a studied field." (Timulak 2014: 492)

Another methodological challenge is the unavoidable decontextualization of the findings from the primary studies that occurs during the synthesis stage. This means that the researchers increasingly abstract from the concrete original contexts of the studies, as well as the specific methodological approaches and the theoretical perspec-

tives underlying the sampled studies. At the same time, this abstraction is required for comparing different findings and stocks of knowledge and for producing the meta-interpretations. In our research project, we dealt with this issue by creating a type of profile—a fact sheet—for each analyzed study containing basic information, including: its research questions, results, methods, and the disciplinary backgrounds of the authors. This makes it possible for all of the participating researchers to have the main information about the studies close at hand. In our opinion, the most challenging hurdle is the one related to synthesis, which requires striking a balance between performing the necessary abstraction on the one hand and staying attached to the concrete data on the other. The goal should be to ensure that the relationship between the abstracted meta-interpretations and the concrete primary studies remains clear (Doyle 2003: 336).

This challenge, moreover, is intensified if both the complexity and the size of the samples increase as a result of more studies being examined in the qualitative meta-analysis. It is easy to underestimate the effort involved in carrying out a qualitative meta-analysis if you are misled by the assumption that you only "have to read a few papers."

Hence, it is quite helpful to involve several researchers, especially in the case of large sample sizes. This makes it possible to not only handle the workload properly but also jointly discuss the procedure and the data. In addition, it provides diverse perspectives—especially in the case of an interdisciplinary team of researchers—of the complex data material, which can originate from different (disciplinary) contexts.

All in all, it is important to keep in mind these methodological challenges (and others) when carrying out a qualitative meta-analysis and when presenting the resulting meta-interpretations. Likewise, acknowledging limitations and obstacles encountered proves fruitful for contributing to methodological debates as it allows researchers to develop productive and critical solutions to dealing with challenges.

4 Quality assurance measures in qualitative meta-analyses

A key requirement for carrying out qualitative meta-analyses—as with any other methodological approach—is to ensure intersubjective validation for the method. This not only provides transparency for the readers but also reminds researchers of their own approach and allows them to reflect on certain steps. This holds true in particular as the qualitative meta-analysis becomes more complex with an increasing number of studies. It is necessary to document the different decisions that are made as part of the various stages of the methodological approach. This applies to presenting the criteria for selecting potential primary studies, to defining exclusion and inclusion criteria, and, in particular, to the method used for the analysis and synthesis.

Collaborating with other researchers represents another measure for assuring the quality of the qualitative meta-analysis and the resulting meta-interpretations. This could mean that the meta-analysis is performed by a multidisciplinary team whose members constantly discuss and reflect on its different steps and procedures. For our research project, this proved to be very valuable since it allowed for different (disciplinary) perspectives of the shared material and made it possible to discuss various interpretations and views of the primary studies, key descriptors, and key concepts in

the analysis stage. Furthermore, when developing meta-interpretations, we believe it is useful to discuss and validate initial ideas for interpretations with external experts from the field of study in order to reflect upon your own perspectives. This can be done in workshops or as part of a presentation of work-in-progress results at a conference (Timulak 2014: 490).

5 Conclusion: The value of qualitative meta-analyses for spatial research

We believe the potential of qualitative meta-analyses for spatial research is that the method enables researchers to combine different, otherwise separately regarded studies on a common phenomenon and then generate new findings. Therefore, individual case studies in the qualitative meta-analysis are not simply dismissed conceptually as being bound and limited to the local context; instead, the qualitative meta-analysis attempts to acknowledge the uniqueness of both the individual case studies and of the resulting collective of primary studies and to transcend the contextual borders by means of synthesis (Doyle 2003: 340). Furthermore, qualitative meta-analyses make it possible to compare and connect different stocks of knowledge in spatial research with each other. This could entail, for example, including primary studies that address different dimensions of space and that can be synthesized. Likewise, qualitative meta-analyses allow researchers to bring together studies from different spatial disciplines—such as architecture, sociology, urban planning, and geography—each with their own methods and perspectives, and to benefit from these diverse insights into a shared object of interest, which in turn is represented in the meta-interpretations. This can be helpful for developing more interdisciplinary terms and concepts in spatial research as these are needed for the purpose of cross-study synthesis and could be useful for future research projects and debates (Meacham 1998: 405; Doyle 2003: 340).

Moreover, qualitative meta-analyses enable spatial researchers to investigate processes of spatial transformation (see Hergesell in this handbook), as we did in our research project related to the spatial knowledge of children and young people. By including primary studies from different temporal contexts in the sample, it is possible to develop meta-interpretations about a certain period of time determined by the sample itself.

Finally, qualitative meta-analyses are (almost always) very time-consuming (regardless of whether only a couple or a large volume of primary studies are included), intellectually challenging (especially if the primary studies are taken from different disciplines, schools of research, and temporal and/or spatial contexts, etc.), and frustrating (you are likely to come across setbacks and dead-ends that have to be overcome). Nevertheless, we believe a meta-analysis is rewarding because it can uncover hidden interpretive potential in existing (spatial) analyses. Qualitative meta-analyses demonstrate it can be productive to re-examine already existing knowledge across studies when searching for new insights into certain research questions.

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