Interviewed, but When and How? A Methodological Review of the Qualitative Side of Q Methodology in Applied Linguistics

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Article info	Abstract
	With the rapid rise of Q methodology across a range of disciplines in recent decades, an increasing number of researchers have embraced this innovative approach to reveal individuals' opinions and beliefs as expressions of subjectivity, which has been greatly supported by the qualitative dimension embedded in the method. This makes Q particularly well-suited to applied linguistics (AL) as a branch of educational research, where participants' perspectives often shape the core of the investigation. Yet, despite its growing use, the qualitative side of Q has received limited attention in the literature, and no clear framework currently guide Q researchers in how to plan, conduct, and transparently report this aspect. In this methodological review, we sought to examine 55 empirical Q studies in AL published in various journals over the past five years (2019–2024). We extracted the qualitative components and analyzed the interview features across three phases of the Q process, namely, pre-sorting, while-sorting, and post-sorting. It was discovered that to handle interviews in Q, a variety of methodological choices are practiced, with different frequencies. However, a considerable number of qualitative details were missing in the reports, particularly concerning post-sorting phase in general and interview approach in particular. The current study contributes to the ongoing discussion of qualitative practices in Q methodology as well as the broader discourse on transparency in qualitative research. Ultimately, we offer a practical checklist (CHIP-Q) to support the systematic planning and transparent reporting of qualitative phases in Q studies.

Keywords: applied linguistics, interview features, methodological review, Q methodology, qualitative phase

1. Introduction

Q methodology is, at its core, the science of subjectivity (Brown, 1980). In a research landscape where quantitative approaches often reduce human experience to numbers, and qualitative designs sometimes instill complexity into tidy themes, both with a 2D lens, Stephenson (1935) introduced Q as a method that weaves together "the best of both worlds" (Ramlo, 2025, p. 103). It was designed to uncover people's beliefs, perspectives, and attitudes in a way they are truly felt and expressed by the experiencers themselves (Brown, 1996). In fact, rather than stepping outside the moment to report on it objectively, Q walks in the shoes of those at the heart of the experience and lets them illuminate the blind spots in our understanding. With its unique 'by-person' factor analysis, it does not force a single rigid standpoint onto a group. Instead, it offers a multidimensional 3D view of each participant, reflecting what they agree with, oppose, or feel neutral about. Having such a tailored approach to exploring subjectivity, it occasions no surprise that Q methodology has drawn growing scholarly interest in recent decades (Dieteren et al., 2023; Irie et al., 2018; Lundberg et al., 2020; Stone et al., 2017; Watts & Stenner, 2012).

Essentially, a full picture of the perspectives surrounding a subject is gained only when people are given the chance to express their subjectivity freely and explain the reasoning behind their views, which is best-achieved through open-ended interviews (Gallagher & Porock, 2010). This qualitative agenda plays a determining role in unlocking the potential of this innovative approach to explore subjectivity (Shemmings & Ellingsen, 2012). Surprisingly, this dimension of Q methodology has received scant attention (Brown, 1980; Kirschbaum et al., 2024). Despite its prominence, very few studies have exclusively explored the interview-based phases of Q methodology and their features in depth (see Gallagher & Porock, 2010; Wolf, 2014), and to date, no systematic review has examined the methodological choice trends pertaining to these phases.

Given how vital the qualitative stages are in enriching factor interpretations and offering a more comprehensive understanding of the phenomena under study, ensuring clarity and transparency in how these stages in a Q practice are planned, carried out, and reported becomes even more essential. In the absence of such clarity, readers might arguably question how systematic and thoughtful the interview process was. As Riazi et al. (2023) emphasized, clearly describing the methodological process boosts confidence in the trustworthiness of the qualitative data, ultimately leading to more reliable inferences of the findings. In this light, transparent reporting of interview data in Q studies materializes not merely as a procedural concern, but as a safeguard of accountability, which allows subjectivity to be genuinely

heard and appreciated. Yet, the quality of reporting qualitative phases within Q methodology remains largely unexamined in the existing literature.

To address these gaps, the present methodological review examined Q studies in Applied Linguistics (AL) published between 2019 and 2024, with a focus on how the qualitative dimension of this methodology was conducted as well as reported. The goal was to identify common choices and features in designing, implementing, and documenting of the interviews. Based on the findings, a practical checklist (CHIP-Q) was further developed to offer a ground-breaking framework for Q researchers who seek to navigate and communicate these stages more clearly. Thus, the research questions that guided this review are as follows:

1. To what extent is qualitative dimension of Q methodology reported in AL studies?
2. Which methodological choices are most prevalent at qualitative phases among those reported?

2. Literature Review
2.1. Operant Subjectivity and Q methodology

While quantitative methods tend to chase patterns across populations, qualitative approaches linger in the particular, letting individual voices, emotions, contradictions, and meanings come to light. It is through this very kind of data that subjectivity finds space to unfold. Stephenson (1968) described subjectivity as what we say to ourselves or to others. Saying "It is raining" is an objective statement. But when someone asserts that a rainy day reminds them of a sad movie scene, or that they love the smell of wet soil, they are expressing subjectivity (Brown, 2019; Brown & Montgomery, 2025; Stephenson, 1978). However, there are more layers to the concept of subjectivity than the simple contrast people often draw between objectivity and subjectivity. If one person enjoys the scent of rain-soaked earth, that is subjective. But when many feel the same, their collective subjectivity begins to appear as objectivity (Lundberg et al., 2023).

This is where Q methodology becomes especially useful and relevant. Back in 1935, William Stephenson in a letter to *Nature* initiated a discussion about a methodological technique called *Q methodology*, which allows researchers to uncover individuals' *self-referential* beliefs, even those marginalized and hidden voices, by using factor analysis (Stephenson, 1935). As it is the operations of participants that ultimately shape the factors, rather than predefined concepts imposed by the researcher, Q methodology is known as a systematic way to investigate *operant subjectivity* (Brown & Montgomery, 2025). In this way, the richness of this exploration depends not only on the analytical framework but on the opportunity for participants to openly express their perspectives through interviews. It is this qualitative engagement that

activates Q methodology's true potential, by grounding statistical structures in authentic human insight (Gallagher & Porock, 2010; Shemmings & Ellingsen, 2012). There are specific steps and terms essential to conducting a Q study which are expanded upon in the section to follow.

2.2. Conceptualization and Operationalization of Q methodology

Q methodology is an innovative design that combines quantitative rigor with qualitative depth in an interwoven way, to ensure a comprehensive view of the phenomenon under investigation (Ramlo, 2016; Riazi & Amini Farsani, 2024). This 'qualiquantological method' (Stenner & Rogers, 2004) initiates by developing a tailored concourse, which is a collection of potential ideas regarding a concept that can be adopted from various sources, ranging from papers, books, and journals to focus group discussions, experts' opinions, and even an early interview conducted before the actual data collection process as a preliminary phase (McKeown & Thomas, 2013). From this pool of statements, the researcher derives an appropriate Q-sample, a well-structured and representative set of statements that allows participants to express their genuine thoughts and feelings in a familiar language (Dryzek & Holmes, 2002; Ernest, 2001). These statements are then presented to participants to be sorted accordingly.

Participants (known as the P-set in Q domain) are purposefully selected to be as diverse as possible to capture a wide range of perspectives on the phenomenon (Akhtar-Danesh et al., 2008). Unlike R-methodology (i.e., traditional factor analysis), Q methodology treats individuals as variables and values their holistic viewpoints on a phenomenon through what is known as 'by-person' factor analysis (Watts & Stenner, 2005). Accordingly, the actual sample in Q methodology, as the terminology suggests, is the Q-sample statements, which are drawn from the concourse, and not the participants themselves (Brown, 1980).

Once the necessary statements are crafted and the desired P-set is recruited, each participant is asked to rank-order the statements on a Q-grid, which is a symmetric quasi-normal distribution designed by the researcher (see Figure 1). Following the Q-sorting process, participants typically complete a survey or interview, allowing them to explain their reasoning for the arrangement of statement cards and to expand on their perspectives through open-ended questions (Watts & Stenner, 2012).

Figure 1
Q-Grid Layout

Strongly Disagree			Neither Agree Nor Disagree				Strongly Agree	
-4	-3	-2	-1	0	+1	+2	+3	+4

The Q-sorts are then analyzed using Q data analysis packages to extract rotated factors representing common viewpoints on the concept under investigation. The output of this data analysis is factor arrays, which serve as the ideal configuration of each factor, aiding researchers in interpreting the data (Finchilescu & Muthal, 2019). It is at this stage that qualitative data is weaved into the quantitative threads. Excerpts from interview responses are transcribed and integrated into the interpretation of the factors as quantitative results. For a clear understanding of the Q-methodology procedure, Figure 2 illustrates the steps involved in conducting a Q study.

Figure 2
Q methodology Procedure

Concourse development → Q sample construction → P-set selection → Q-sorting → Data anlysis & interpretation

2.3. Literature Reflections on the Qualitative Side of Q Methodology

Thus far, there has been only two systematic reviews that explored the range of methodological choices made in Q studies. Dieteren et al. (2023) comprehensively examined 613 Q papers published between 2015 and 2019,

spanning multiple disciplines. Their analysis revealed considerable variation in how researchers applied Q methodology, particularly in study design, data collection, analysis, and reporting. While most choices fell within reasonable bounds, a striking number of studies failed to clearly report key methodological decisions, particularly those related to interview details consisting of interview mode and type, Q-sample construction, and data analysis procedures, especially factor extraction and rotation methods. To address this gap, the authors developed a detailed checklist aimed at improving transparency and consistency in future Q studies.

As another seminal study, Lundberg et al. (2020) conducted a focused review of 74 Q methodology applications in educational sciences published between 2010 and 2019, contextualized in 20 countries. To interpret the results and implications, the authors employed a narrative analysis grounded in the Science of Learning and Development (SoLD) principles proposed by Darling-Hammond et al. (2019). Beyond describing study contexts, including geographic scope, educational settings, and participant profiles, the review provided detailed insights into methodological preferences across Q-sampling, Q-sorting, and Q factor analysis. In fact, a handful of studies incorporated a participatory approach, mainly by involving participants in the Q-sample development or pilot phases (excluding studies that relied solely on interview data of previous papers or questionnaire items). Other practitioners invited participants to further contribute to the interpretation of the emerged factors themselves. Finally, the authors synthesized major themes echoed in the implications of the reviewed articles.

While both reviews highlighted the patterns that researchers tend to follow throughout the Q process, they only touched briefly on the qualitative aspects, focusing mostly on the interview mode, type, and the orientation of interview questions. Additionally, both analyses covered Q studies up to 2019, therefore a noticeable gap exists in capturing the growing body of work published since then.

More specifically, when it comes to the interview-involved phases of Q methodology, two studies have addressed them with greater focus. Gallagher and Porock (2010) acknowledged the limited attention given to interviews in the existing Q literature. After outlining the interview process, they argued that this phase serves to invite participants' reflections on their sorting decisions. They went on to compare the benefits and drawbacks of Q studies with and without post-Q sort interviews. Ultimately, they highlighted how interviews can contribute to enhancing transparency, minimizing researcher bias and error, and as a result, maximizing the study's rigor. They also called for more scholarly attention to the timing of interviews and its possible influence on results.

To continue the discussion of interviews in Q, Wolf (2014) identified two main types of interview questions in Q studies: those focused on the Q-sort items and those that explore participants' broader experiences. After distinguishing four interview strategies including, no interview, structured questionnaire, face-to-face post-sort conversational interview, and post-factor-analysis interview, she conducted a sample Q study to practically demonstrate the role interviews play in the interpretation of sorts. Verily, she contributed to the discussion by shedding light on the significance of engaging in direct conversations with Q sorters to illuminate hidden meaning and thoughts behind their ranking.

While these studies have helped clarify certain aspects of interview set up in Q research, several of its features such as interview structure and response format, which are more developed in broader qualitative literature (Flick, 2023), still have not been fully addressed in Q discussions. More importantly, none of the studies provided a comprehensive framework to guide Q researchers, whether novice or experienced, in planning, conducting, and transparently reporting the qualitative components of their work.

3. Method

For this study, we adopted a systematic methodological review (Newman & Gough, 2020) in order to scrutinize the qualitative dimension within the studies that have employed Q methodology to address the issues in AL. More specifically, our methodological review process was generally consisted of developing our research questions and concepts which directed us to selecting our criteria for inclusion and searching our key strings in scientific databases. After specifying the research articles, we coded them with our conceptual framework accordingly. In order to confidently proceed with our results, the reliability of the coded segments was discussed among the authors (see Figure 3).

Figure 3
The Process of This Study

Research Questions → Research Concepts → Selection Criteria → Searching Startegy → Article Extraction → Coding → Validity & Reliability → Synthesis and Reporting of Results
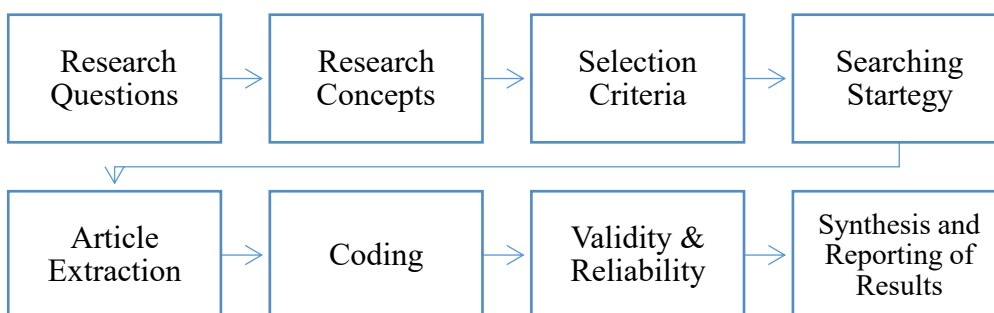
3.1. Search Strategy and Study Selection

After determining our conceptual framework, and formulating the research questions, we selected two major bibliographic databases, Scopus and Web of Science, for identifying and screening empirical articles that applied Q methodology and included the core stages of Q practices, namely, concourse development, Q-sample construction, P-set selection, Q-sorting procedure, and factor analysis and interpretation (Brown, 1980). To capture a wide range of relevant articles, we used multiple search terms across titles, abstracts, and keywords: "Q-Methodology" OR "Q Methodology," "Q-Method" OR "Q Method," "Q stud*," and "Q-Methodological" OR "Q Methodological." The initial search results returned 6,683 and 5,929 records in Scopus and Web of Science respectively. We, then, limited our search to a five-year window (2019–2024), considering the alleged rise of Q-methodology in diverse disciplines, especially in educational research (Irie et al., 2018; Lundberg et al., 2023). Notably, the year 2019 marks the cut-off point for the previous major systematic reviews, which further justified our timeframe.

Our selection criteria for Q articles were primary English academic journal documents in social sciences. In contrast, all secondary research (e.g., book reviews, review articles, discussions, position papers, commentaries, editorials), books, and book chapters were omitted from our inclusion, leaving 883 records from Scopus, and 340 from Web of Science eligible for the analysis. We also repeated the search in Operant Subjectivity, the peer-reviewed but non-indexed journal of the International Society for the Scientific Study of Subjectivity, which focuses exclusively on Q methodology. Eventually, no additional articles from this search were identified and added to the final dataset.

After ruling out the duplications in the screening process, we further refined the results to include only those in AL in general and language education in particular. Given the relatively small number of Q studies in these domains, we incorporated all eligible results existing in a range of journals within this research domain, and organized them into three broad categories: (a) English language education, (b) education of languages other than English (LOTE), and (c) broader areas within AL. This process resulted in a final pool of 55 empirical Q methodology studies for analysis. Figure 4 presents an overview of the process of selecting and screening records, following the PRISMA framework (Moher et al., 2009).

Figure 4

Flowchart of Selecting and Screening Process
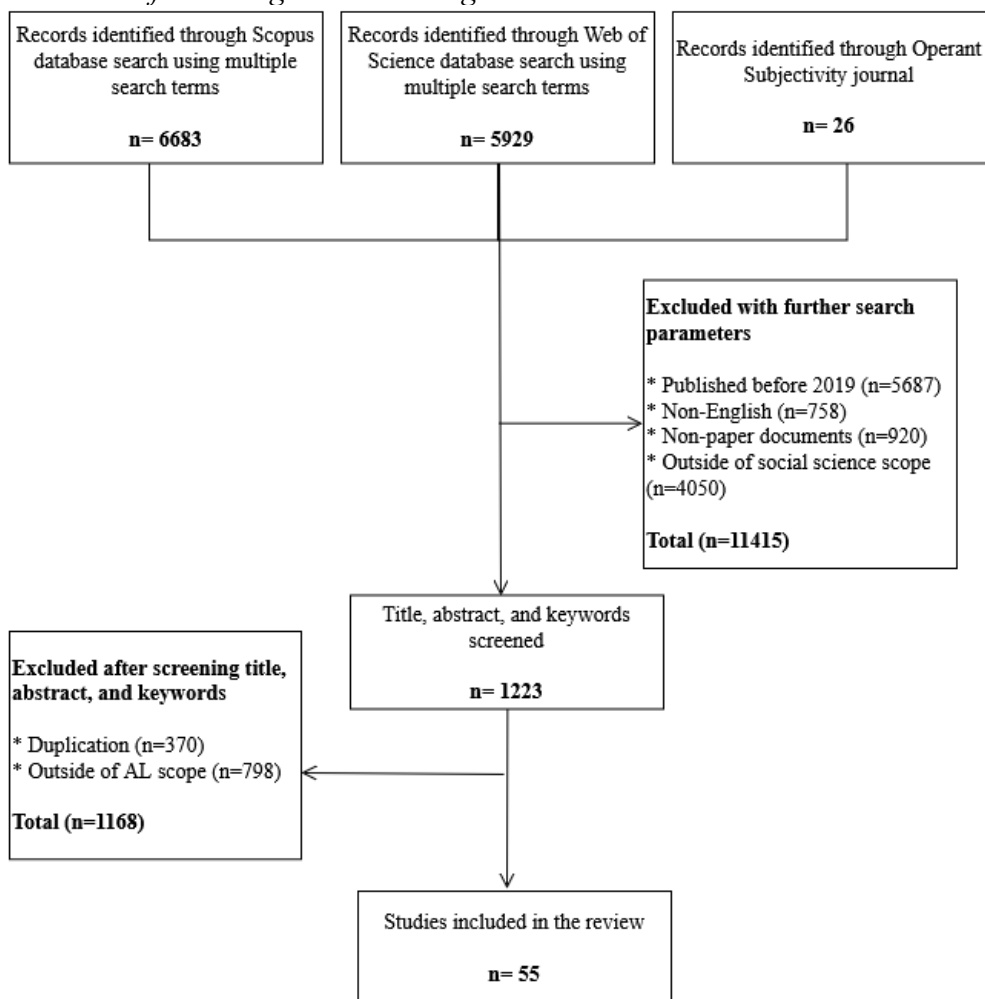
To comprehensively identify and include the articles, two of the authors checked for their eligibility in each of the above-stated phases, from searching parameters to the inclusion of articles for analysis, and measured the reliability for the certainty of the procedure. They achieved a high amount of reliability (94%) in doing that, and when they were any contradictions, they discussed and resolved the issue.

In the next step, we obtained authors' information, year of publication, and the subject area of the studies to have a more complete view over them. We then extracted specific data from the full-text of articles that met our conceptual framework for the analysis. That is, we retrieved data from any of the steps that specifically pertained to the interview data of Q in the data collection, data analysis, and interpretation stages.

3.2. Data Analysis

The findings from the selected studies were narratively extracted (Popay et al., 2006). We noticed that Q practitioners generally recognize the technique's qualitative aspect, most often through interviews commonly referred to as a 'post-sort' activity. However, there is more depth to where and how participant narratives are elicited throughout the Q process.

One stage that is not typically referred as qualitative, but arguably should be, is concourse development. This may be because the step is not inherently qualitative and a range of techniques can be used at this step. While researchers often gather statements from sources like academic papers, books, and journals, to serve as the informational element, to build an inclusive pool of ideas (McKeown & Thomas, 2013), many also rely on interviews, be they formal or informal discussions, for the conversational component, which are not only common but also encouraged (Brown & Montgomery, 2025).

A recurring issue in the literature is the sloppy use of 'post-sort' activity to refer to interviews in Q methodology. In some cases, it refers to interviews conducted immediately after the sorting task, while in others, it points to conversations held after data analysis (Wolf, 2014). To clarify this ambiguity, we used the terms "while-sorting" and "post-sorting", which more clearly indicate when interviews occurred and whether factor interpretation had already taken place.

It should be brought to attention that Q methodology does not treat both of these interview phases as mandatory practices. The approach is designed to collect participants' perspectives just as much as it adds subjective insights to factor interpretations and deepens understanding of the topic at hand, whether through while-sorting conversations, post-sorting interviews, or both. Building on this observation, our review identified three key stages in which interviews are incorporated into Q studies: pre-sorting, while-sorting, and post-sorting.

Our further analysis showed that in designing and implementing interviews in both while-sorting and post-sorting stages, three key moves could be observed: a) preparation, b) implementation, and c) integration. Pre-sorting phase is not discussed according to these moves, since it is not a primarily qualitative-based stage. More importantly, the focus of this stage, whether interviews are employed or not, is on reaching as many existing ideas as possible, therefore, the absence of detailed information about the procedure is unlikely to be perceived as a significant omission.

According to these observed moves, to prepare for the interview, Q researchers first decide on the overall type of questions that could deepen the results obtained from Q-sorts. The interview questions can be item-driven, experience-focused, or a combination of both (Wolf, 2014). While item-driven questions are built on Q statements and specifically look for further meaning behind the cards placed at the extreme columns, experience-focused questions

broadly elicit participants' viewpoints on the concept. Once the interview questions are crafted according to the topic under investigation, the researcher determines the structure in which these prompts will be asked. In a precise sense, the interviews can be structured, semi-structured, or unstructured whereby they are determined by the researchers. Before running the interview, the extent of participant coverage is also estimated. That is, some Q studies interview all participants, while others select a smaller number of their P-set either voluntarily or by purposefully inviting significant factor loaders.

When everything is planned, the Q researchers hold the interview using a specific mode and type. Participants, whether individually or in a focus group, contribute to the study with a richer narrative of their lived experience. Interviews may take place face-to-face, online, over the phone, or through multiple communication methods. Following this, participants provide their responses either orally or in written form. After conducting the interview, Q authors may select excerpts from participants' responses to enhance the depth of factor interpretation and integrate them directly or indirectly into their analysis of perspectives. It is apparent that in studies that both while-sorting and post-sorting interviews are conducted, each phase has its own contribution to the pool of quotes used in factor interpretations. Nonetheless, since it is common not to specify which phase generated each excerpt, we analyzed the integration stage regardless of the interview timing.

Using this classification, we developed a coding sheet (Norris & Ortega, 2008) to document recurring interview features found across different qualitative phases within the Q literature. These excerpts were then systematically coded in Microsoft Excel under the following categories according to the developed coding scheme:

1. Author(s) and Publication Year
2. Subject area
3. Pre-sorting phase (Concourse development technique)
4. While-sorting phase:
   – Presence
   – Preparation (Interview question type, approach, and participant coverage)
   – Implementation (Interview mode, type, and response format)
5. Post-sorting phase:
   – Presence
   – Preparation (Interview question type, approach, and participant coverage)
   – Implementation (Interview mode, type, and response format)
6. Integration (Quote inclusion)

Before initiating this stage of analysis, to strengthen our certainty, two of the authors randomly selected five articles and independently coded them.

In case of any discrepancies in the coding between these two authors, they referred to the third author to reach a consensus. In this manner, initially, there was about 79% of reliability in coding these materials, but after addressing the disagreements, it was enhanced to 88% which is high enough for reliability measurements.

4. Results and Discussion

4.1. Results

The results of the current inspection are organized around the qualitative dimension of Q methodology studies in recent years. First, we present data on the distribution of Q papers in applied linguistics by publication year and subject area. Next, for each identified qualitative phase including pre-sorting, while-sorting, and post-sorting, we examined the rate of reporting, methodological choices for interview features at each stage, and the most prevalently stated practices. Finally, we assess how participant quotations were incorporated across the reviewed studies.

As detailed before, the search for Q studies in AL field based on the defined criteria resulted in 55 eligible papers from various journals, accessed via Scopus and Web of Science, two of the well-known and comprehensive academic databases. Given the growing popularity of Q methodology in the recent decades (Dieteren et al., 2023; Irie et al., 2018; Lundberg et al., 2020; Stone et al., 2017; Watts & Stenner, 2012), this review, covering the latest studies from 2019 to 2024, further acknowledges a steady-upward trend in language education research, with 2024 having the highest number of entries (n=17), a substantial rise over those published in 2023 (n=11) (see Figure 5). Moreover, we could also spot that the research focusing on non-English language topics had a relatively sharp increase in their publication from 2023, a trend that began with English-language papers in 2022.

Figure 5

Distribution of Q Methodology Publications in Language Education Research by Year and Subject Area
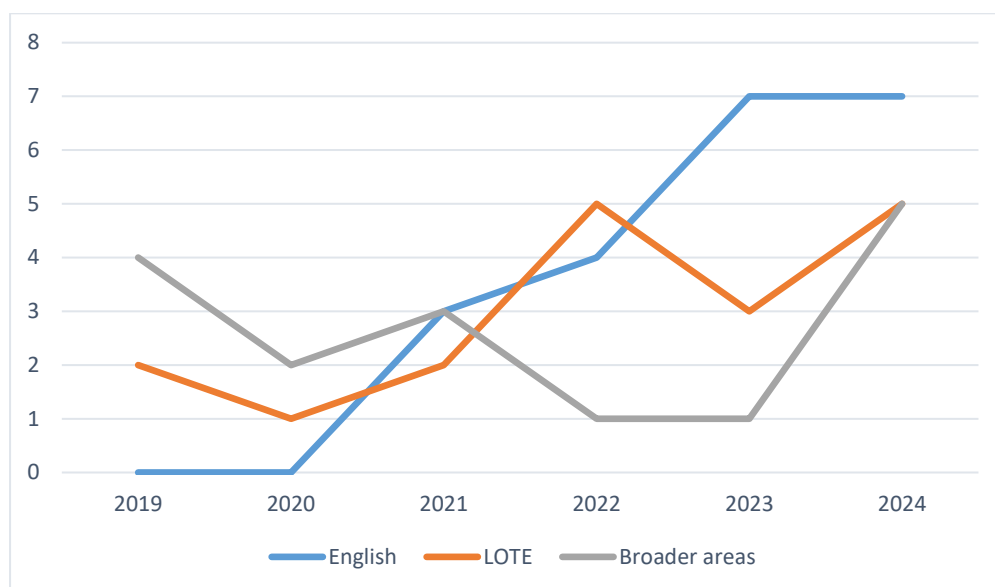
As previously discussed, this review identified three broad categories in terms of their subject areas which showed different frequency: studies centering around English language education (n=21), articles on education of LOTEs such as Chinese, Korean, Spanish, Thai, Japanese, and Italian (n=18), and papers addressing broader areas within AL domain, such as language policy and multilingualism (n=16). Despite the potential of Q technique to explore new perspectives across various research domains, this inquiry revealed that Q methodology is more integrated with research on English-language related issues. Figure 6 depicts more detailed topic clusters and their frequency across all three categories in the databases.

Figure 6

Frequency of Topic Clusters in the Database Across All Categories

Regarding the qualitative features of Q methodology, we distinguished them in line with our established framework where three phases for interviews were detected, namely pre-sorting, while-sorting, and post-sorting phase. As such, the Q studies in our corpus indicated the following patterns:
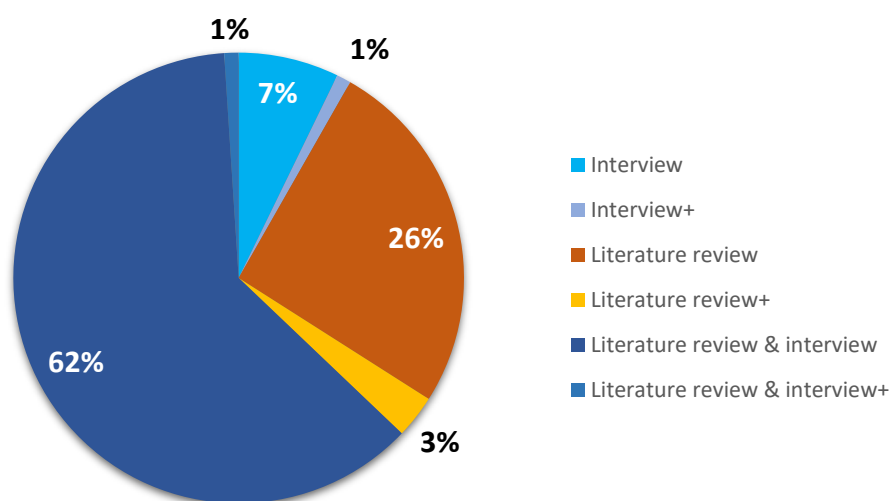
4.1.1. Pre-sorting Phase

Out of the 55 Q studies, more than half (n=34, 61%) utilized a combination of literature review and interviews to gather a comprehensive pool of statements for their concourse. In contrast, the use of either method (i.e., literature review or interview) individually received less attention, with

only five studies (9%) relying solely on interviews, one of which also searched diaries for possible notions. The remaining studies (n=16, 29%), however, conducted a standalone literature review or probed into various sources such as papers, documents, and webpages. The frequency of each existing concourse culling technique found in the dataset is illustrated in Figure 7. The slices shaded in varying tones of blue in the following figure represent techniques involving interviews, either independently or in combination with other methods.

Figure 7
Distribution of Concourse Development Techniques in Q Studies

4.1.2. While-sorting Phase

Conducting an immediate interview once participants had already rank-ordered the statements onto the grid was observed in less than half of the Q language educational publications (n=25, 45%), indicating a weaker desire to interview participants when factors are not still defined. Interview questions at this stage were mainly designed to explore items in the Q sample located at the +4/–4 and +3/–3 columns of the sorted grid (n=18, 72%). This was followed by studies that employed both item-driven and experience-focused question types (n=3, 12%). Four Q studies did not disclose their question types, either explicitly in their reports or implicitly through supplementary materials (16%).

Not revealing the details of the interview procedure was even more pronounced in terms of interview approach, with only 6 studies stating that their interviews were designed and conducted semi-structurally (24%), while the rest left this aspect unspecified (n=19, 76%). As expected, findings show that studies employing immediate qualitative data collection generally

gathered responses from all individuals who participated in the study (n=13, 52%). Rest of the papers either allowed their P-set to voluntarily take part in further discussions (n=6) or did not clearly specify the scope of the interview (n=6, 24%). Given that the factor representatives are identified after analysis and hence purposeful selection of significant loaders is not feasible at while-sorting phase, interviewing all participants or only voluntary cases seems to be a reasonable approach.

In collecting such narrative data, more than half the authors had one-on-one conversations with their participants (n=13, 52%), while 44% of studies did not mention the interview mode (n=11). Only one study reported running a focus group for the while-sorting interview (4%). Regarding the interview type, face-to-face sessions were more common among Q researchers (n=13, 52%), followed by online interviews (n=6, 24%). Still, a portion of studies did not provide any information on interview type (n=6, 24%). Interestingly, the response format was not dependent on whether interviews were conducted in person or virtually, as both formats were utilized in each setting, with oral and written responses each appearing in 8 studies (25%). Other 9 studies did not provide any details on this matter (36%).

4.1.3. Post-sorting Phase

A considerable number of Q studies in AL did a retrospective interview after the factor analysis process (n=31, 56%). At this phase, where researchers primarily work with factor exemplars, it is of no wonder that a large number of studies with a post-sorting qualitative phase structured their questions to gain deeper insights into the statements positioned at the poles of the sorted grid (n=21, 67%). Only two studies collected general explanations of individuals' experiences (n=2, 6%), while 3 studies benefited from both types of question types (n=3, 9%). A few studies (n=5, 16%) did not provide details on their questions' content, leaving their readers uncertain about the specificities of their work. Regarding interview approach, authors either adopted a semi-structured format (n=13, 41%) or did not reveal their technique at all (n=18, 58%).

Since follow-up interviews are particularly valuable for Q researchers once factors have been established and factor representatives identified, purposefully selecting a subset of participants for interviews was predictably the dominant approach (n=20, 64%). In addition to that, a wide range of participant selection techniques was observed in the dataset. Four studies called for volunteer participation (12%), while another four interviewed their entire P-set (12%). At last, very few studies (n=3, 9%) did not state their participant selection method in their descriptions of Q procedure.

Among the 31 studies that included a post-sorting interview, only 11 articles specified the interview mode, ten of which favored an individualistic

format (32%), and one used a focus-group interview (3%). In contrast, the rest of the studies did not state the interview mode (n=20, 64%). The pattern for reporting interview type followed a similar trend. A handful of studies (n=8, 25%) indicated that responses were collected either in person (n=2), via online platforms (n=2), over the phone (n=3), or using a combination of tools (n=1). In three-quarters of the articles, retrospective interview types were not reported (n=23, 74%). However, 18 studies confirmed that participants' responses were provided orally and recorded (58%), while none reported collecting written responses for follow-up interviews. Taken together, Table 1 summarizes the qualitative methodological choices used during the while-sorting and post-sorting phases and compares them.

Table 1
Summary of Qualitative Methodological Choices in Q Studies

Feature	Choice	While-sorting	Post-sorting
Interview type, n (%)		25 (45%)	31 (56%)
A) Preparation			
Interview question type, n (%)	Item-based	18 (72%)	21 (67%)
	Experience-driven	–	2 (6%)
	Both	3 (12%)	3 (9%)
	Not stated	4 (16%)	5 (16%)
Interview approach, n (%)	Structured	–	–
	Semi-structured	6 (24%)	13 (41%)
	Unstructured	–	–
	Not stated	19 (76%)	18 (58%)
Participant coverage, n (%)	All	13 (52%)	4 (12%)
	Volunteers	6 (24%)	4 (12%)
	Significant factor loaders	–	20 (64%)
	Not stated	6 (24%)	3 (9%)
B) Implementation			
Interview mode, n (%)	Individually	13 (52%)	10 (32%)
	Focus group	1 (4%)	1 (3%)
	Not stated	11 (44%)	20 (64%)
Interview type, n (%)	Face-to-face	13 (52%)	2 (6%)
	Online	6 (24%)	2 (6%)
	Phone	–	3 (9%)
	Combination	–	1 (3%)

	Not stated	6 (24%)	23 (74%)
Response format, n (%)	Oral	8 (25%)	18 (58%)
	Written	8 (25%)	–
	Not stated	9 (36%)	13 (41%)
C) Integration			
Quote inclusion, n (%)	Yes	46 (83%)	
	No	9 (16%)	

4.1.4. Quote Inclusion

As shown in Table 1, among the 55 reviewed Q studies in AL, only a handful of papers did not extract participants' quotes from their responses and thus the excerpts did not appear in their factor interpretation (n=9, 16%). The inclusion of excerpts varied, ranging from a single sentence or phrase to full paragraphs capturing individuals' narratives. Two studies referenced participants' comments only indirectly (n = 2, 3%), while the remaining 44 explicitly included quotes from interview transcriptions (80%). Also, as expected, in studies that carried out both while-sorting and post-sorting interviews, no author gave details about which phase produced each excerpt. Taken together, whether stated outright or implied, Q researchers examined factor interpretations to identify the most meaningful points for adding quotations, positions that would deepen the analysis.

4.2. Discussion

With growing interest in applying Q methodology to educational studies (Irie et al., 2018; Lundberg et al., 2020), more researchers are turning to this approach to gain interpretively richer, more nuanced insights grounded in subjectivity. Despite its dual qualitative-quantitative nature, contrary to Q-sorting procedure as the quantitative side, little has been informed about the quality of conducting and documenting interviews through different qualitative stages of this technique (Brown, 1980; Kirschbaum et al., 2024). This gap may raise questions for readers about how narrative data is obtained and signal a need for clearer reporting of these steps. To address this, we systematically reviewed the latest Q studies in AL, published between 2019 and 2024, with a particular focus on how the qualitative features of the methodology were reported.

As delineated earlier, three interview-involved phases in a Q procedure were identified: pre-sorting, while-sorting, and post-sorting. Each phase received varying levels of attention and reporting across the studies we reviewed. Among them, the pre-sorting phase, occurring during concourse development, is unassailably the least fixed in its qualitative nature, and researchers seem to approach concourse culling in diverse ways. Our findings

show that no author missed on describing their concourse development method, contributing to a more transparent account of this flexible stage. Sources used to gather Q-sample items in this dataset included literature reviews, web searches, and diary analyses. Yet, in line with Lundberg et al. (2020), a significant portion of Q practices preferred interviews either in combination with other techniques or as a stand-alone method. This points to a clear leaning toward qualitative input at a stage where methodological choice is open-ended.

Given that Q statements, drawn from the concourse, form the actual sample in Q methodology, presented for sorting, the existing preference for consulting individuals with relevant expertise during this stage to fill the missing spots in the literature marks a promising trend. It consequently leads to a more representative collection of viewpoints and, in turn, more reliable and refined findings. In light of this, we strongly recommend that Q researchers continue to consider qualitative strategies when compiling their concourse, not only to enhance methodological rigor but also to amplify the subjective voices that sits at the heart of Q methodology.

Meanwhile, while-sorting and post-sorting interviews, both integral qualitative stages in Q methodology, also appeared with varying frequency across the studies reviewed. Whereas some Q researchers benefited from both of these interview phases, others employed only one of them, based on their discretion. Notably, only four studies in our dataset conducted both types of interviews, suggesting that most Q practitioners consider one interview, regardless of its timing, to be sufficient for complementing the quantitative results. Furthermore, conducting two consecutive interviews may simply be too time-consuming and labor-extensive within an already demanding procedure of this technique.

There are also three cases, among 55 examined Q articles, that did not include any interviews either during the sorting session or following factor analysis. Wolf (2014) suggested that omitting interviews is sometimes a deliberate choice to reduce respondent burden, particularly in online settings. Yet, all three of these studies were conducted in person, which prompts us to consider other possible reasons like having a longitudinal research design, the use of additional data collection methods alongside Q, or a strong reliance on pre-sorting interviews as an adequate source of narrative input. In such cases, choosing not to run further interviews may also stem from practical constraints. Given how much time and effort the Q process asks of participants, it is understandable that securing the additional time needed for interviews is not always feasible.

Still, Brown and Montgomery (2025) remind us that the strength of interviews lies in their ability to reveal actual meanings and thoughts behind the process of individual interpretation of each statement and its ranking.

Hearing participants' stories can shift perspectives and uncover how individuals make sense of the same set of statements in uniquely personal ways. That is why, even when time is limited, it is worth considering doing either brief interviews with all participants or having in-depth discussions with just a few sorters, so that the interpretive depth of the study is not sacrificed. A short conversation can still open meaningful windows into people's subjectivity.

Nevertheless, most authors opted to conduct a single round of interviews, either while-sorting or post-sorting. When choosing between the two, researchers leaned slightly more toward collecting qualitative data after the factor analysis stage (i.e., post-sorting), once the factors and their exemplars had been already revealed. This finding suggests that many believe the interview is more effective after viewpoints have taken shape, allowing for a sharper focus on what requires deeper exploration.

Looking more closely, interviews carried out immediately after the sorting task or at a later point varied in the process of preparation (e.g., interview question type, approach, and participant coverage), and implementation (e.g., interview mode, type, and response format). Across the board, what is vividly apparent is a high rate of missing information, regardless of the feature or interview phase (i.e., while- or post-sorting). Markedly, interview approach was the most frequently unreported detail in both while-sorting and post-sorting phases of the Q studies in AL we examined.

In particular, the post-sorting stage reflected the greatest lack of transparency. Interview mode, type, and approach were reported in fewer than half of the papers that included this phase. These findings contrast with those of Dieteren et al. (2023), who did note the gaps in reporting information, but found that most authors still provided their methodological choices. This discrepancy may be due to the fact that our low report rate pertains specifically to the post-sorting phase, whereas Dieteren et al. (2023) analyzed them as a single group, concluding that different lenses can lead to different patterns.

Additionally, although interview question types were specified in 84% of the papers for both phases, very few studies shared the questions themselves, be they in the method section or as supplementary materials. This leaves readers unsure about the prompts used to elicit specific narratives. On the other hand, a bulk of studies promisingly did include excerpts from participants' responses in their factor interpretations, which helped to successfully explicate the interview goals to enrich the factor descriptions from the lens of participants' experiences. Table 2 highlights the most recurrent methodological options for interviews conducted during both while-sorting and post-sorting phases.

Table 2

Most Prevalent Methodological Choices for Each Interview Feature

Feature	While-sorting	Post-sorting
A) Preparation		
Interview question type, (n, %)	Item-based (18, 72%)	Item-based (21, 67%)
Interview approach, (n, %)	Semi-structured (6, 24%)	Semi-structured (13, 41%)
Participant coverage, (n, %)	All (13, 52%)	Significant factor loaders (20, 64%)
B) Implementation		
Interview mode, (n, %)	Individually (13, 52%)	Individually (10, 32%)
Interview type, (n, %)	Face-to-face (13, 52%)	Phone (3, 9%)
Response format, (n, %)	Oral/Written (8, 25%)	Oral (18, 58%)
C) Integration		
Quote inclusion, (n, %)	Yes (46, 83%)	

According to Table 2, there seems to be a general consensus on how interviews are typically set up, whether conducted before or after factor analysis. The only notable differences appear in participant coverage, interview type, and response format. Since the post-sorting phase takes place after factor analysis, it is no surprise that researchers tend to engage with participants who load significantly onto each factor. In contrast, at the while-sorting phase, where this information is yet to be revealed, researchers often choose to interview all participants. It is also common for post-sorting interviews to be carried out via phone or online in an oral format, which places less burden on participants. In-person interviews during the sorting session clearly do not carry such logistical limitations. Last but not least, we wish to underscore that although interview questions are often item-driven across both interview phases, the authors believe that experience-focused prompts hold a strong exploratory potential, as also favored by Wolf (2014). Thus, we encourage Q researchers to make use of their merits to see the surrounding context of the phenomenon more thoroughly.

Taking everything into account, it should be declared that the main purpose of this methodological review is to inform the Q community about the varied ways in which the qualitative side of Q is perceived, practiced, and reported in AL. However, by no means, we intend to offer fixed solutions for narrative data collection. In fact, Q is a method that teaches us to have a quantum mindset (Brown & Montgomery, 2025; Stephenson, 2018) and to

embrace relativity, uncertainty, and probabilism (Banks-VanAllen, 2023), which in the qualitative dimension, it translates into giving researchers the freedom to choose their methods within a systematic and thoughtful framework to explore human subjectivity (Lundberg et al., 2023). Some methodological choices that appeared less common in our review may still be the most appropriate, or even the only feasible option considering the topic, research context, and participants' demographic features as well as their cooperation.

While this flexibility allows for thoughtful adaptation, it does not mean careful planning and transparent reporting should fall by the wayside. The limited detail often given to qualitative phases in published papers might be linked to the extensive reporting needed for other aspects of Q design and analysis, especially when more than three factors (generally deemed as the average number of extracted solutions, as noted by Lundberg et al., 2020) are involved. In such cases, researchers may face space limitations and choose to leave out some procedural details related to interviews. Still, we argue that these aspects can be reported clearly without taking up excessive space. Even brief, well-chosen phrasing, such as using a few descriptive adjectives, can convey meaningful information and preserve transparency without compromising the depth or rigor of the study.

To further help Q-researchers manage the dimensions of their interviews during each qualitative phase as well as documenting them more clearly, we have developed a Checklist for Interview Phases in Q methodology (*CHIP-Q*; see Appendix 1). This checklist covers six core interview components: interview question type, approach, participant coverage, mode, type, and response format. These are further grouped into three categories for each interview: a) preparation, b) implementation, and c) integration. It should be, however, informed that the above-mentioned components are considered only for while-sorting and post-sorting qualitative phases since concourse development step, as the pre-sorting phase, is not always qualitative-based. Besides, whether interviews are used or not, the focus at this stage is on gathering as many available ideas as possible, and the specific structure of the interview is of little prominence.

Prior to this, Dieteren et al. (2023) introduced a comprehensive checklist for methodological choices across various stages of Q studies, including design, data collection, analysis, and presentation of findings. However, their checklist only briefly touched on qualitative components, sufficing to interview mode and type. By comparison, CHIP-Q exclusively concentrates on interview-based phases and the features that lead to clearer documentation. It offers Q researchers across disciplines an explicit roadmap for planning and conducting interviews thoughtfully, while ensuring that key details are communicated. This kind of clarity can support more accurate

interpretation of findings and strengthen the influence of results both on how people perceive a given phenomenon and on how future research practices are shaped.

5. Conclusion and Implications

As a multi-dimensional method, Q methodology encompasses both quantitative and qualitative datasets each having and requiring their own workarounds. However, the qualitative side of Q, which is admittedly attached to the interviews, has largely been understudied. To address this, we focused on the specific features of interviews implemented by the authors in AL and disclosed what exactly these items are and also the extent to which they are commonly reported by Q researchers. In association with that, it was found that authors would include the interviews in three phases, namely pre-sorting, while-sorting, and post-sorting, each receiving varying levels of methodological attention.

Overall, after methodologically reviewing the studies considering their qualitative features, we noticed that a large number of studies did not clearly report several interview-related features across the identified phases, leading to ambiguity and diminishing the trustworthiness of the narrative data collection process. The pre-sorting phase emerged as the most flexible yet transparently reported, with all studies describing their concourse development methods and showing a clear preference for interviews as a qualitative input. While-sorting and post-sorting interviews were used more selectively, with most studies conducting only one of the two. However, the post-sorting phase showed the greatest lack of clear procedural description, especially regarding interview mode, type, and approach, the latter being the most frequently unreported detail in both phases. Nevertheless, in spite of the limited disclosure of interview details, most studies successfully integrated participant quotations into factor interpretations, affirming the value of qualitative insight in enriching the analytical depth of Q findings.

Despite the strengths of this methodological review, it is like all studies, not without limitations. First, although we used a range of related terms to identify Q-applied studies across two major databases, Scopus and Web of Science, as well as Operant Subjectivity, the only dedicated peer-reviewed journal for Q methodology, it is possible that some eligible articles not published in these sources were missed. Additionally, there are Q studies articulated in languages other than English that can further contribute to our understanding of qualitative phases of Q methodology. Second, given the relatively small number of Q studies in AL, we did not apply quality assessment criteria. Our aim was to capture a broad picture of how the qualitative dimension of Q methodology is reported across all available studies regardless of their individual rigor. As such, we did not evaluate the

methodological quality of interview analyses or the inclusion strategies for participant excerpts. Third, despite careful review, there may still have been instances of misinterpreting methodological choices related to interview features. For example, we identified interview questions as item-based if the author indicated that follow-up questions were centered around the cards placed at the extreme ends of the Q sort. However, as most studies did not provide the actual interview questions, there is still a chance that some were not exclusively focused on those statements and may have veered into participants' general experience of the matter.

By casting light on how Q researchers collect participants' narratives, this review offers future researchers a clearer, more nuanced understanding of the qualitative stages involved in Q methodology. It encourages greater transparency at each step, from planning and conducting interviews to reporting the process, which in turn can help strengthen the trustworthiness of the findings. The checklist developed through this study (CHIP-Q) provides a practical, step-by-step guide for researchers across disciplines who are willing to approach the qualitative side of Q with a clear vision while ensuring that procedural details are addressed.

Looking ahead, we hope to see more scholarly attention directed toward the qualitative aspect of Q data collection, which have much to contribute to the interpretative power of this strand. Future research could expand this inquiry by exploring how qualitative phases are handled across different research foci. It is also recommended to enthusiasts to look into how narrative data is analyzed and woven into factor interpretations, especially the ways in which quotes are selected and presented. Another research direction would be to explore interview design more closely by engaging with Q authors about their settings and strategies, to help identify time- and effort-efficient approaches that support thoughtful participant input while keeping the process manageable for all involved.

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Appendix
Checklist for Interview Phases in Q methodology (CHIP-Q)

N	Feature
1	**Interview type**

✓   Which type of interview did you use? (multiple choices can be checked)

☐ Pre-sorting interview (optional)

☐ While-sorting or immediate interview

☐ Post-sorting or follow-up interview after factor analysis

☐ Both while-sorting and post-sorting interviews

✓   Did you report it?

☐Yes   ☐No

For either of while-sorting or post-sorting interviews:

A) Preparation

2	**Interview questions type**

✓   How did you craft your interview questions?

☐ Item-based

☐ Experience-driven

☐ Both

✓   Did you report it?

☐Yes   ☐No

3	**Interview approach**

✓   How did you design your interview?

☐ In a structured format

☐ In a semi-structured format

☐ In an unstructured format

✓   Did you report it?

☐Yes   ☐No

4	**Participant coverage**

✓   Who did you interview?

☐ All the participants

☐ Volunteer participants

☐ Significant factor loaders

✓   Did you report it?

☐Yes   ☐No

B) Implementation

5	Interview mode

✓ How did you run your interview?

☐ Individually

☐ In a focus-group

✓ Did you report it?

☐Yes   ☐No

6	Interview type

✓ How did you hold your interview?

☐ Face-to-face

☐ Online

☐ Over the phone

☐ Others

☐ Using a combination of tools

✓ Did you report it?

☐Yes   ☐No

7	Response format

✓ Which response format did you collect from your interviewees?

☐ Oral response

☐ Written response

✓ Did you report it?

☐Yes   ☐No

Regardless of the qualitative phase:

C) Integration

8	Quote inclusion

✓ Did you include excerpts of interviewees' responses in your factor interpretations?

☐Yes   ☐No