Quality & Quantity
https://doi.org/10.1007/s11135-022-01565-9

What is subjectivity? Scholarly perspectives on the elephant in the room

Adrian Lundberg[1] · **Nicola Fraschini**[2] · **Renata Aliani**[3]

Accepted: 19 October 2022

Abstract
The concept of subjectivity has long been controversially discussed in academic contexts without ever reaching consensus. As the main approach for a science of subjectivity, we applied Q methodology to investigate subjective perspectives about 'subjectivity'. The purpose of this work was therefore to contribute with clarity about what is meant with this central concept and in what way the understanding might differ among Q researchers and beyond. Forty-six participants from different disciplinary backgrounds and geographical locations sorted 39 statements related to subjectivity. Factor analysis yielded five different perspectives. Employing a team approach, the factors were carefully and holistically interpreted in an iterative manner. Preliminary factor interpretations were then discussed with prominent experts in the field of Q methodology. These interviewees were selected due to their clear representation by a specific factor and led to a further enrichment of the narratives presented. Despite some underlying consensus concerning subjectivity's dynamic and complex structure and being used as individuals' internal point of view, perspectives differ with regard to the measurability of subjectivity and the role context plays for their construction. In light of the wide range of characterisations, we suggest the presented perspectives to be used as a springboard for future Q studies and urge researchers, within and beyond the Q community, to be more specific regarding their application of the concept. Furthermore, we discuss the importance of attempting to deeply understand research participants in order to truly contribute to a science of subjectivity.

Keywords Q methodology · Subjectivity · Objectivity · Factor interpretation · Deep understanding

✉ Nicola Fraschini
nicola.fraschini@uwa.edu.au

Adrian Lundberg
adrian.lundberg@mau.se

Renata Aliani
renata.aliani@unimelb.edu.au

[1] Malmö University, Malmö, Sweden

[2] The University of Western Australia, M257, 35 Stirling Hwy, Crawley, WA 6009, Australia

[3] The University of Melbourne, Melbourne, Australia

Published online: 08 November 2022

1 Introduction

According to an ancient fable, six blind men went out to use their sense of touch to investigate the nature of an elephant, something they had never heard of. Each man touched a different part of the creature. One perceived the elephant to be a wall (side), another one was sure to be touching a snake (trunk) and the third one was convinced that he had just put his hands on a tree (leg). The other three were touching the elephant's tusk, ear and tail and again came to a different conclusion regarding the nature of the elephant. Because human beings tend to believe what they subjectively perceive to be the absolute truth, the six men were not able to agree.

If this fable is used as a metaphor for human beings' subjective experience of the world around them, then research needs methodologies that help us understand subjectivity and uncover consensus and points of disagreement across individuals' lived experiences. One of these methodologies was developed by British physicist and psychologist William Stephenson (1902–1989) in the 1930s (Stephenson 1935). Later proclaimed as "the best-developed paradigm for the investigation of human subjectivity'' (Dryzek and Holmes 2002, p. 20), Q methodology provides researchers with the framework and a set of methodological steps to study subjectivity.[1] First, researchers select a representative Q sample from the concourse, that is the corpus of subjective communicability about a selected topic (Brown 2019). Second, participants are engaged in a Q sorting activity with a guiding condition of instruction, where they arrange the Q sample items according to their point of view. The resulting Q sort is then used as data for factor analysis. Finally, emerging factors are iteratively interpreted by the researchers.

As any other methodology, Q has its limitations and critiques. A constant companion throughout its existence is the criticism of Q being misguided or improper with regard to statistics (McKeown and Thomas 2013; Ramlo 2016). Many of these critical voices stem from researchers that are uncomfortable with Q's hybridity regarding qualitative and quantitative processes (Stenner and Stainton-Rogers 2004) or the fact that Stephenson, in his first announcement of Q methodology in 1935, suggested inverting the factor analytical procedure for Q methodology. As opposed to more traditional and well-known R methodological factor analysis, Q factor analysis groups persons based on the similarity of their sorts. As a consequence, the resulting factors provide substantive generalisations about a phenomenon (Thomas and Baas 1993).

Relatively recently, an attempted academic dialogue between prominent Q researchers and two academics from outside the Q community was published in *Quality & Quantity* (Kampen and Tamás 2014; Brown et al. 2015; Tamás and Kampen 2015). One of the core points of disagreement between the two research teams seemed to be the nature of subjectivity. In fact, a conceptualisation of subjectivity is all but straight forward. Researchers within and beyond the Q community seem to perceive it in various ways and only very few try to define subjectivity. In addition, if Q methodological studies are supposed to contribute to a science of subjectivity (Brown 2019; Ramlo 2022), it is troubling to realise that there is no conceptual consensus. This again might be an explanation for the lack of deep and holistic interpretations and the connection of results to the larger question(s) pertaining

[1] A distinction needs to be made between the Q technique and the Q method. The Q technique refers to the Q sample and the Q sort, while the analysis of the Q sorts is called Q method. The methodology holds these two together in a theoretical framework (Brown 2019).

to subjectivity, as opposed to the mere reporting of factor descriptions in Q methodological publications (Wolf 2009; Albright et al. 2019).

In that sense, subjectivity represents the elephant and this paper aims to use Q as an approach to explore and uncover the range of perspectives about the very concept of subjectivity among researchers across various disciplines, geographical locations, regardless of their expertise of Q methodology. The guiding research questions for this paper are:

RQ1: What are the different perspectives on the meaning and characteristics of subjectivity?
RQ2: What are the main aspects of subjectivity about which scholars particularly agree or disagree?

In the next sections, we provide a snapshot of the different existing perspectives about subjectivity, and particularly discuss Stephenson's ideas on this concept. Then, we illustrate the procedure followed in this study, and report and discuss the result. We conclude with some suggestions on how to adopt Q methodology to contribute to a science of subjectivity.

2 Subjectivity in scientific research and Q methodology

An historical overview of the development of the concept of subjectivity, already conducted in detail by others (see Hall 2004), is outside the scope of this paper. We limit our literature review to those aspects we believe to be essential to an understanding of Q methodology as a means of investigating the science of subjectivity.

2.1 Subjectivity and objectivity

The Western production of knowledge has been defined, for many centuries, by the Cartesian distinction between mind and body, and between objectivity seen as impartial truth and subjectivity seen as the characteristic of a faulty individual (Hanson 2015; Hall 2004). Subjectivity has been considered a hindrance in the quest for objectivity, a form of impurity to avoid at all costs (Shapin 2012). Such a subjectivity has been associated with personal perspectives, individual goals, deviation from standards, and distorted or biased evaluations (Sabini and Silver 1982) and attempts to exclude it from scientific research was characteristic of many disciplines in the past.

In the twentieth century, several scholars observed that removing the personal perspective from the observation of social phenomena constitutes a form of distortion (Boon 2007). The exclusion of subjectivity from the pursuit of knowledge is not possible since subjectivity and objectivity are intertwined (Stenner 2008), and explicitly studying subjectivity is crucial to gathering reliable evidence (Lundberg et al. 2020). The shift in psychology from studying people's mind as if they were in a vacuum, to studying people's mind acknowledging an individual's subjectivity, equivalent to the turn from classical physics to quantum mechanics (Hwang and Choi 2002), highlights the understanding that subjectivity does not negate objective reality, but it is only a perspective from which to look at it (Sabini and Silver 1982).

Subjectivity and objectivity "can both be seen as aspects of the constructivist idea of human participation in knowledge making" (Hanson 2015, p. 859). In these terms,

objectivity can be seen as shared subjectivities, multiple points of view from which to observe aspects of the same reality. Indeed, many forms of knowledge in modern societies are attempts to provide an objective measurement by removing the subjective component from the evaluation process (Phillips 2016) and are thus examples of "objectified subjectivity" (Shapin 2016, p. 437). These attempts, called inter-subjectivity engines by Shapin (2012; 2016), allow people to share their subjective experiences through language, and show how people's subjectivities concur to inform objectivity through finding an agreement among shared points of view.

2.2 Subjectivity in Q methodology and the work of William Stephenson

Stephenson's work too is an attempt to overcome the body/mind and subjectivity/objectivity dualism (Good 2010). Instead of considering subjectivity in opposition to objectivity, Stephenson viewed subjectivity as expressed through objectivity (Midgley and Delprato 2017), and he stated that "the Q-technique could be applied to subjective as well as objective behaviour, there could be no valid basis for their separation" (Stephenson 1953, p. 25).

Stephenson (1968, p. 501) defined subjectivity as "what one can converse about, to others, or to oneself"; that is the communication of a personal point of view about matters of social or personal importance (McKeown and Thomas 2013). This personal viewpoint expresses the individual's subjectivity through their reflection upon their lived experiences (Stephenson 1982). The link between personal opinion and behaviour was summarised in Parloff's law of behaviour, stating that "self-referred operants are homologous with lived (objective) experience", which indicates that "one's behaviour can be the reflection of one's opinion" (Stephenson 1974, p. 14).

Behaviour is central to the understanding of subjectivity in Q methodology. Stephenson's (1953) concept of behaviour includes attitudes, thinking, self-conceptions, personality, as well as social behaviour. Consequently, behaviour is "neither mind nor body nor physiology: it is simply behaviour, whether subjective to a person or objective to others" (Stephenson 1953, p. 23). By rejecting the mind/body dualism and the idea of the mind as the place of subjectivity, behaviour becomes itself the location of subjectivity (Midgley and Delprato 2017). Behaviour, and therefore subjectivity, is not just a phenomenon out in the open (Stephenson 1953) and therefore empirically observable (Stephenson 2014), but its internal structure is measurable through Q methodology (Brown 1980; Brown et al. 2015). Such subjectivity is complex (Stephenson 2006) and highly contextual (Stephenson 1987), but it does not depend only on the environment, the individual is focal as subjectivity is self-referential (Stephenson 1987) and grounded in personal experiences.

Stephenson's subjectivity is "rooted in conscire, in the common knowledge, the shareable knowledge known to anyone in a culture" (Stephenson 1980a, p. 15). Consciring is at the foundation of the concourse of a Q study, i.e., "a random collection of self-referable statements about something" (Stephenson 1993, p. 5). The concourse does not only represent common knowledge, it is also a common language that allows people to express beliefs and attitudes regarding a given topic (Stephenson 1980b). The use of a common language (the Q sample) enables people to operationalise and express their subjectivity with self-reference. Subjectivity can therefore be reached operantly (Stephenson 1968), which means that by allowing the study participants to express it through the sorting of the Q sample, subjectivity is transformed into operant factor structure accessible to the researcher (Stephenson 1980b; 1982). Stephenson, in formulating his interpretation of Newton's fifth rule, pointed out that the operant factor structure is what allows the formulation of new,

different, and subjective hypotheses, which are "inherent to the concourse" (Stephenson 1982, p. 51). The result is that in Q methodology "what is involved is the discovery of hypothesis and reaching understanding, instead of testing hypothesis by way of predictability and falsifiability" (Stephenson, in Brown 1980, p. X).

2.3 From the nature of subjectivity to a science of subjectivity

Wolf (2009) observed a lack of specific attention to the nature of subjectivity in the majority of recently published Q studies. Later, Albright et al. (2019) confirmed that most focus is put on the statistical aspect of the Q method. A potential reason might be the misconception that quantification implies objectivity and validity (Ramlo 2022), despite that "the dividing line between R methodology and Q methodology turns on the fundamental distinction between what is objective and what is subjective" (Brown et al. 2015, p. 528). However, Q methodological researchers should understand and accept the subjective side of the scientific process to let the respondent's view of reality emerge from the data through the interpretation process. Therefore, more than the statistical procedure, it is the interpretation step and the researcher's judgement that are at the core of a contribution to a study of subjectivity. This step is often considered arbitrary by critics of Q methodology (Brown 1980), but factor interpretation, "subjective as it may be, must square with the known facts" (Brown 1980, p. 257); i.e., the interpretation must adhere to the factor arrays and other empirical evidence.

If we consider that "science cannot rest with mere narrative: It asks for proof" (Stephenson 1985, p. 103), simply describing a factor is not enough to contribute to a science of subjectivity. During the interpretation process, researchers must show empathy and get a 'feeling for the organism' (Brown 1989), which means putting themselves in the participant's shoes to "provide the feelings of the sorters who define the factor" (Albright et al. 2019, p. 135). Such a deep level of understanding, allowing conversations to occur among resultant factor viewpoints, where each sorter is "examined on its own terms" (Brown 1989, p. 95), is possible only with the researcher's knowledge of the concourse, situation, context, and participants (Ramlo 2022). This process is supported by the "logic of everyday sense-making" (Wolf 2009, p. 24), which guides the researcher's attention to the discovery of new meaning, in line with a more recent view of abduction for explanatory reasoning in justifying hypotheses (Douven 2021). In Q methodology, abduction was historically used with regard to the theoretical rotation of factors to generate hypotheses.

To further facilitate the interpretation task, interviews are a common and important tool (Brown 1980; Stephenson 1953), since "in a science of subjectivity, the observer is the Q sorter, who is the only person in direct contact with his or her own point of view and therefore the only person who can directly inform on it" (Brown et al. 2015, p. 534). Follow-up interviews can be organised with pure or highest factor representatives (Albright et al. 2019), and short post-sort interviews can be conducted with all participants (Watts and Stenner 2012). In the case of online collection of the Q sort, participants can be invited to provide written comments. Beyond the interview, Albright et al. (2019) proposed to proceed to the analysis of the results by multiple iterations, valuing team interpretation to add new ideas and fresh perspectives at each iteration. Additionally, the feelings of the sorters who define the factor are provided by a holistic view which indicates the importance of considering the rating of the statements within a factor and across factors. Researchers should examine all statements, thinking about why they have been rated as they have been, or suggest hypotheses if there is no apparent reason (Watts and Stenner 2012).

Q methodology provides researchers with the theoretical ground to overcome the subjectivity/objectivity dualism, and with the methodological tools to investigate subjectivity. Nevertheless, since much of the discussion around Q methodology lacks attention to the nature of subjectivity, essential for a contribution to a science of subjectivity (Wolf 2009), we feel it necessary to explore how researchers, with or without knowledge of Q methodology, understand the concept of subjectivity.

3 Method and procedure

To explore scholars' perspectives on the concept of subjectivity, we followed a series of steps that are typical of Q methodology.

3.1 Generation of a concourse

Following what McKeown and Thomas (2013) call a 'naturalistic process', we collected a total of 102 statements related to subjectivity from Q specific and broader literature as well as from discussions with academic colleagues who may or may not have been conversant with Q. Many works considered in the literature review above have been used, among others, to inform the concourse.

3.2 Reduction of the concourse to a manageable set of statements (Q sample)

We reviewed the concourse and deleted unclear and overlapping statements. The statements taken from Q methodology and non-Q methodology literature were then reworded to make them begin with the words "Subjectivity is…". This process produced a set of 45 statements. Subsequently, a peer familiar with Q methodology and working in education, and a peer not familiar with Q methodology and working in the Humanities were asked to review the list of statements. After their feedback, a few statements were further refined and the sample was reduced to 40 statements.

3.3 Setting of the online instrument to collect the sorts, followed by further adjustment of the Q sample and sorting instructions

We set up the online app, developed at the University of Western Australia and already used for previous Q studies (Fraschini and Park 2021, 2022). This online instrument replicated the steps that are part of the Q sorting activity (Watts and Stenner 2012) and presented full instructions to complete the task. The online application also allowed the participants to comment on the placement of statements. The instrument and the 40-statement Q sample were tested by two academics, different from those who had previously reviewed the list of statements. One of the two was an academic au fait with Q methodology and in the Humanities, the second one had not used the methodology before and was in Social Sciences. After receiving their feedback, we produced the final 39-statement Q sample (appendix A) and adjusted the wording of the instructions. The sorting grid was finalised as in Table 1.

Table 1 Sorting grid

Value	−5	−4	−3	−2	−1	0	+1	+2	+3	+5	+5
N. of statements	2	2	3	4	5	7	5	4	3	2	2

Table 2 Descriptive information of the study participants

N	46	
Geographical area	Asia	5
	Oceania	16
	Europe	16
	North and Central America	9
Research specialisation	Education [edu]	19
	Health Sciences [hea]	4
	Social Sciences [soc]	9
	Psychology [psy]	3
	Humanities [hum]	8
	Business and related [bus]	3
Previous experience of using Q methodology for research purposes	Yes [Q]	28
	No [N]	18

3.4 Recruitment of the study participants and forwarding of the Q sort activity link

After receiving Human Research Ethic approval from the University of Western Australia, we invited colleagues in the Humanities, Education, and Social Sciences fields based in Europe and Australia, with and without Q methodology expertise, and without bias regarding their stance towards Q methodology. The call for participants was also posted on an internal research notice newsletter of a large Australian university, and to broaden the geographical representation of the participants, the call was also extended to an online Q methodology group and a Q methodology scholarly association in East Asia. All participants completed the sort in an anonymous form.

Additionally, we personally contacted several people considered influential in Q methodology, upon consideration that, among others, "a new generation of researchers will become true academic scholars if we not only model good research practice but also establish communities that include synergistic mentor–mentee relationships" (Ramlo 2016, p. 42). Among prominent Q methodology scholars, Steven Brown, Susan Ramlo, Noori Akhtar-Danesh, Peter Schmolck, and Alessio Pruneddu accepted our invitation to participate in a non-anonymous form, and are therefore identifiable in the remainder of this paper. These academics were asked to complete a Q sort so that their perspectives could be compared to that of others, and some were invited to participate in a follow-up interview.

The description of the 46 participants is reported in Table 2. Members of the P set were based across four continents and their expertise spans from a range of disciplines covering humanities, arts, social sciences, science, and health sciences.

Table 3 Statistical description of the factors

	Sig. loadings	Q experience	No Q experience
Factor 1	18	13	5
Factor 2	10	4	6
Factor 3a	2	0	2
Factor 3b	1	1	0
Factor 4	5	3	2
Total	36 (of 46)	21 (of 27)	15 (of 18)

A link provided access to the on-line instrument, reporting on the landing page the study's Information Form and the Consent Form. Then, the application generated a random code which rendered the sorts anonymous, and could be used to withdraw the sort after submission, or to retrieve it at a later time. Before starting the sorting task, the participants were asked to provide the demographic information summarised in Table 2.

3.5 Analysis

The 46 Q sorts collected were analysed with KADE v.1.2.1 (Banasick 2019), where different factor analytic solutions were explored. Because Centroid factor analysis yielded a factor that nobody identified with, we extracted the factors with PCA. The four factors within this clearer solution where then subjected to Varimax rotation. Significant sorts were flagged manually considering $p < 0.01$, following the formula reported in Brown (1980). One sort loaded negatively on Factor 3, making it a bipolar factor. We considered the perspective expressed by this negative sort to be theoretically relevant, and therefore decided to split this factor into Factor 3a and Factor 3b. The rotated factors with flagged sorts are available in appendix B and the statistical description of the factors is reported in Table 3.

We could not detect any pattern regarding the geographical location of the participants; therefore, this aspect is not dealt with further. Only those sorts representative of a factor (view) are used for the construction of factor arrays.

3.6 Interpretation of factors

The goal of the interpretation is to pursue understanding and synthesis, proceeding in a bottom-up direction, for the whole of the participant's subjectivity (Stephenson 1982). In other words, it is not only about describing the range of viewpoints, but the reasons behind differences and similarities between factors. We took an iterative approach to craft preliminary descriptions of the factors (Albright et al. 2019). This means "revisiting the data with a fresh perspective, allowing the information to incubate as we developed themes and generalisations further" (Albright et al. 2019, p. 142). Firstly, as a team we compared the statements within a factor by considering the most salient ones, i.e., those ranked at the extremes, and the list of distinguishing statements. Secondly, we compared the statements across factors. Thirdly, we examined the list of statements ranked from consensus to disagreement. This process was conducted considering two analysis outputs, one which included Factor 3b and another one which excluded it, since a split factor may affect the consensus statements. As a fourth step, we individually worked on the narrative descriptions, which were then compared and integrated through team discussion. As a final step,

we reviewed the original sort of each participant loading on a factor and their comments, and excerpts from the comments were used to further support the narrative. Most steps of the interpretation process were undertaken as a team to "minimise the effects of the researcher bias" (Albright et al. 2019, p. 143), and following Kitzinger's (1999) suggestion about the verification of the adequacy of the factor description and interpretation by the readers, the full factor arrays are available in appendix A. Additionally, we acknowledge that we loaded on Factor 1 and come from a background in education and language studies.

3.7 Interviews with participating experts to gather additional qualitative data

Interviews were scheduled with some of the experts who completed the Q sorts to member-check the narrative description of the factors, and to minimise the risk of "meanings being inadvertently imposed on the research participants" (Kitzinger 1999, p. 269). The researchers contacted were Susan Ramlo (Factor 1), Alessio Pruneddu (Factor 2), and Steven Brown (Factor 4). The interviews were conducted online, lasted between 40 min and 1 h and 15 min and included three steps. First, participants were shown the factor description without the ranking of the statements, and were asked whether they could recognise their subjective perspective within the description of the factor. In a second step, they were shown the ranking of the statements within the narrative description and asked to comment on what they felt strongly about and where the description did not match their preference. Finally, the participants were shown the factor array and their individual sort, and were invited to comment on the statements that showed the greatest discrepancy. The interviews were recorded, and written notes were taken about portions of the discussions that seemed particularly relevant for our deeper understanding of the factors (Albright et al. 2019). The factor interpretations presented in the next section of this paper were adapted and finalised in an additional iteration.

4 Results

This section illustrates the different perspectives scholars participating in this study hold about the concept of subjectivity. The narrative of each factor, which represents shared viewpoints, is introduced by a short description of the participants loading on the factor. The numbers in brackets indicate the reference to the relevant statement, followed by the ranking of the statement for the specific factor (see also appendix A). Comments, to foreground the participants' point of view in their own words, are reported together with their participant's code (appendix B).

4.1 Factor 1. Subjectivity is the lens individuals use to understand the world, and it is measurable

Eighteen participants are associated with Factor 1. Eight are researchers in a field related to education, two in health and medical sciences, four in the social sciences, two in linguistics, one in psychology, and one in marketing. Thirteen of these participants have previously used Q methodology for their research, while five are not Q methodologists. Among highly cited Q methodology scholars, Susan Ramlo, Noori Akhtar-Danesh, and Peter Schmolck are associated with this factor.

Participants associated with this factor share the perspective that subjectivity draws on the individual's own experience (28, + 2) and that it is what individuals use to make sense of the world (35, + 5). Subjectivity can be seen "as the process of making sense of the world as one engages in communicable thought with oneself and the world through discourse" [45socQ] and as "the lens through which we see and interpret the world" [10socN]. In that sense, subjectivity is highly contextual (36, + 4), as it represents "how one sees the world around himself/herself" [28heaQ]. Furthermore, for these participants, subjectivity represents their beliefs (30, + 4), something "subjective, true for me, and maybe only for me" [04eduQ] and as such neither right nor wrong (39, + 5), because "the reality we experience is our reality, which may be different to others" [06heaQ]. In other words, subjectivity is personal but not disconnected from the external world and does not indicate a lack of objective reality (2, − 5). Subjectivity is not something metaphysical located only in people's minds (5, − 4); instead, it is empirically observable (37, + 3) and therefore measurable (27, + 3) either "through a person's Q sort on a topic" [22eduQ], or by other individuals (8, − 3) since it manifests through "behaviour or discourse" [41humN]. For the participants associated with this factor, subjectivity is not a site of struggle (33, − 3), a characteristic more often associated with subjectivity understood as strongly influenced by social discourse and ranked positively in other factors.

To summarise, subjectivity for the participants associated with Factor 1 represents an individual's understanding of the world, which is not in opposition to external objective reality. Furthermore, such subjectivity is observable and measurable, and it is not the result of a struggle with the surrounding discourse.

4.2 Factor 2. Subjectivity is the unique and complex result of the interaction between individual and context, and not measurable

Ten participants are associated with Factor 2. Three are researchers in education, two in psychology, two in fields related to humanities, two in medical and health sciences, and one in social sciences. Among them, four have used Q methodology in their research. Among influential Q methodology scholars, Alessio Pruneddu is associated with this factor.

Participants associated with Factor 2 share the perspective that subjectivity is complex (21, + 5), socioculturally influenced (15, + 4), and contextual (36, + 5), because "one's subjectivity is highly contingent on the surroundings and the environment in which they were raised, thus is both contextual and socio-cultural" [38socN]. Its complexity results from the fact that it "isn't fixed but changes over time depending on individual and shared experiences" [42eduQ]. Such subjectivity is unique to the individual (22, + 2); in other words, subjectivity for the participants associated with Factor 2 is the unrepeatable product, in time and space, of the individual interaction with the surrounding social environment. This might also explain why Factor 2 ranks item 1 (subjectivity is related to emotions) higher than any other factor (+ 2).

In contrast to the perspective of the participants associated with Factor 1, participants associated with Factor 2 do not consider subjectivity to be empirically observable (37, − 5) and measurable (27, − 5) because "insofar as one's identity is immeasurable—such concepts cannot be assigned a numerical value" [38socN] and because subjectivity is "not a trait" [24psyQ]. This perspective is unique among all factors, as these two statements have been rated positively by all other perspectives.

4.3 Factor 3a. Subjectivity is a performed social construct, understood as intersubjectivity

Two participants are associated with this factor. One of them is a researcher in the humanities, the other in linguistics. Both participants have never used Q methodology for their research projects.

The participants associated with this factor consider subjectivity constructed in discourse (32, +5) and a site of struggle (33, +3). As such, subjectivity is for them the product of the interaction between the individual and the surrounding social environment, "resulting from the complex intersubjective dynamics of collective experiences" [17humN]. Subjectivity is multifaceted (14, +5), and the individual can perform multiple subjectivities (31, +2). Therefore, these two participants understand subjectivity as a social construct shared collectively across individuals (20, +3). This might explain the significantly lower ranking of item 35 (subjectivity is what individuals use to make sense of the world, 0) in comparison with other factors. Further confirmation of this point of view is that, in contrast with the perspective emerging from the other factors, these two participants do not consider subjectivity to be self-referential (24, −5), to represent one's individuality (6, −3) or one's reality (29, −1). They assume that this collective subjectivity is necessary for the existence of objectivity (18, +2) and therefore consider subjectivity and objectivity as two opposite but complementary constructs, one necessary for the comprehension of the other. Regarding this aspect, one of the participants pointed out that "the concept of subjectivity has a long and convoluted history that is connected to the variable uses of the concept of objectivity" [17humN].

To summarise, participants associated with Factor 3a understand subjectivity as socially constructed, performed, collective, and strictly related to objectivity.

4.4 Factor 3b. Subjectivity is equivalent to self and identity, in antithesis to social reality

One participant is associated with this factor. The perspective of this factor mirrors Factor 3a, as it represents the opposite point of view. The participant associated with this factor is a researcher in marketing and advertising, based in East Asia, and has previous experience using Q methodology.

The participant associated with this factor considers subjectivity to constitute one's reality (29, +5), the self (34, +5), and understand subjectivity to be synonymous with identity (26, +3). This participant understands subjectivity as strictly personal, intimate, and individual, the antithesis to the social dimension (12, −5; 33, −5). Therefore, subjectivity as a strictly individual feature is self-referential (24, +4) and draws on individual experience (28, +4). Such an individualised subjectivity cannot have plurality (14, −3) or be collective (20, −4). A further characteristic associated with subjectivity is not being communicable (19, −3), a feature ranked positively in all other factors.

4.5 Factor 4. Subjectivity is communicable, self-referential, and distinct from identity

Five participants are associated with this factor. Three of them are researchers in the field of education, and two are in the social sciences. Three of them have already adopted Q methodology for their research, while two have no previous knowledge. Among the highly

influential Q methodology researchers who participated in this study, Steven Brown is associated with this factor.

Participants associated with Factor 4 share the perspective that subjectivity is dynamic (25, +5) because "influenced by context and environment" [08socN], communicable (19, +3), and self-referential (24, +2), since "the self is central to all meaning and significance" [35socQ]. These are all characteristics of the concept of subjectivity that have been considered central to Q methodology, in the sense that Q methodology is supposed to measure subjectivity as understood by the participants themselves. The perspective of this factor clearly distinguishes subjectivity from identity (26, −5) because identity "tends to be defined or created vis-a-vis others, whereas subjectivity does not need the reference of others" [08socN] and does not consider subjectivity to be unique to the individual (22, −3). This means that for the participants associated with this factor subjectivity can be shared, although it is not collective (20, −2) as for those associated with Factor 3a. This is another fundamental aspect of Q methodology, which shows participants sharing the same perspective on the topic under investigation. However, Factor 4 highlights that subjectivity does not represent one's beliefs (30, −4) because "it's identity which is a part of/contributor to one's subjective beliefs" [31eduQ], and that is not a matter of behaviour (38, −3), since behaviour is "linked to social psychological work where the social dimension aren't adequately accounted for" [14eduN].

5 Consensus and disagreement on the concept of subjectivity

The factors above have been discussed with reference to those statements ranked higher (or lower) than others in the same factor, or ranked higher (or lower) in a factor compared to other factors, on the ground of one of the postulates of Q methodology that Stephenson expressed as "all the important information for each array is contained in its variation (no information is lost in throwing away the variate means)" (Stephenson 1953, p. 58). This brings the question of how to deal with the statements ranked at zero. Brown (1980, p. 22) wrote that "the statements towards the middle, relatively speaking, lack significance". Nevertheless, these statements are not meaningless, in fact "even zero scores, which are normally associated with an absence of salience, can be quite revealing" (Brown 2005, p. 18). Zero is to be understood as a distensive zero, a point from where "all the information, so to speak, bulges out or distends from it—it is all contained in the dispersion about zero, that is, in the variance" (Stephenson 1953, p. 196). Watts and Stenner (2012) interpret statements ranked at zero as a fulcrum for the expression of a perspective. The fact that important information is contained in the variation, and that zero scores indicate a lack of salience in comparison to statements ranked at the extremes, does not mean statements ranked at zero do not have any meaning at all. In defining a factor, these statements simply have less discriminating power compared to the statements towards the extremes.

The meaning of the distensive zero is even more relevant when factors share consensus statements ranked around the zero score. We interpret these statements, ranked around zero across all factors, as unmarked statements indicating an underlying and shared characteristic that informs in the background of all factors (Fraschini and Caruso 2019). To use a culinary metaphor, a consensus statement around zero can be seen as a pizza base, which is the same for all kinds of pizzas, while the marked statements ranked towards the extremes can be seen as the toppings, which give each different pizza its distinctive flavour.

Among the statements ranked around zero in all factors, we found statement 13 (subjectivity is behaviour as being experienced by the individual, a statistical consensus), statement 4 (subjectivity is an individual's point of view), and statement 11 (subjectivity has an internal structure). All these statements indicate aspects of subjectivity that are often stressed in Q methodology (Brown et al. 2015; McKeown and Thomas 2013), and we feel to suggest that despite the fact that most factors consider other aspects of subjectivity to be more salient and defining, nevertheless these aspects lay in the background of the five perspectives.

Of particular relevance is statement 13 (subjectivity is behaviour as being experienced by the individual). According to our interpretation, the underlying consensus indicated by this statement reinforces the centrality of behaviour in relation to the concept of subjectivity as a shared background perspective among the factors. Additionally, the fact that statement 38 (subjectivity is a matter of behaviour) has not been ranked positively in any factor indicates that the study participants understand subjectivity to be reflected in behaviour only when this is experienced by the individual, in line with Stephenson (1974). This interpretation is confirmed by the rating of statement 24 (subjectivity is self-referential), which is positive in all factors with the exception of Factor 3a, a factor with participants who are not Q methodologists.

In line with Stephenson (1953), the participants of this study overall reject the subjectivity/objectivity dichotomy as indicated by statements 18 (subjectivity is needed for objectivity) and 2 (subjectivity is lack of objective reality), which are not positive in any factor. We would also expect statement 3 (subjectivity is located within people's mind) to be rejected by most factors, but this is not the case. This may indicate that despite the study participants rejecting the dualism subjective/objective, there are still uncertainties regarding the dualism body/mind.

Statement 7, (subjectivity is accidental), resulted as a statistical consensus statement ranked negatively in all factors. The negative rating of this statement indicates that for the majority of the factors subjectivity is not the result of chance. The ranking of this statement can be read together with the ratings of statements 15 (subjectivity is socio-culturally influenced) and 35 (subjectivity is what individuals use to make sense of the world) which have not been rated negatively by any factor, to indicate that although subjectivity is not the result of chance, it is nevertheless the result of the interaction of the individual and the many variables of the external environment. This is confirmed by the rating of statement 32 (subjectivity is constructed in discourse), which is positive in all factors except for Factor 3b; however, regarding this statement, Steven Brown remarked in the follow-up interview that subjectivity, despite being connected to discourse, it is not a function of discourse since discourse and subjectivity are not linked by a relationship of cause/effect, adding that the term 'discourse' may be interpreted in many different ways.

Other two statements have been rated positively in all factors, statement 25 (subjectivity is dynamic) and statement 21 (subjectivity is complex). The positive rating of these statements, although to different degrees, shows an overall consensus about the dynamic and complexity of subjectivity. The dynamic aspect is due to the ever-changing surrounding environment, while the complexity aspect is visible from the complex structure of the Q sorts of each individual participant.

Although not commonly discussed in the results of Q methodology studies, it is worth pointing out some of the statements with the highest variance among the factors, which means with the highest degree of disagreement. Among these statements there are statement 37 (subjectivity is empirically observable), and 33 (subjectivity is a site of struggle). We feel it necessary to point out the high discrepancy in the rating of these two statements

since statement 37 may be fundamental to Q methodology but not to other research traditions, which may perhaps consider subjectivity to be partially observable but not fully measurable, as discussed with the participants of the interviews. As a further confirmation of this, it does not surprise that statement 27 (subjectivity is measurable) is also one of the statements with the highest rating discrepancy. For participants associated with Factor 2, subjectivity is not measurable because it is not a trait, therefore as Hanson (2015, p. 859) eloquently pointed out "issues of measurement become questions of consensus on what is being measured and how".

On the other hand, statement 33 (subjectivity is a site of struggle) may be important to more socio-culturally oriented post-structuralist theoretical approaches, but less so for Q methodology practitioners who depending on their discipline may be less acquainted with concepts such as 'site of struggle'. We can draw a similar conclusion for another statement showing a high degree of discrepancy, statement 24 (subjectivity is self-referential), which has been rated positively in all factors but Factor 3a. While the self-referentiality of subjectivity has often been indicated as one of the tenets of Q methodology (Stephenson 1987), this is clearly not so true for the two participants with a background in the Humanities but without Q methodology knowledge associated with Factor 3a, who see subjectivity as a performed social construct and as a site of struggle.

6 Discussion

The current study indicates that several perspectives are found among researchers when it comes to defining the meaning of subjectivity and its inherent characteristics. Five views concerning subjectivity emerged from the analyses. The empirical evidence from this study demonstrates that academics, regardless of their location or knowledge of Q, think in at least five divergent ways about subjectivity.

Only Factor 3a was characterised exclusively by researchers not acquainted with Q methodology, which may suggest that there are elements of convergences about the conceptualisation of subjectivity among Q and non-Q scholars. However, we recognise that this view is representative of only two participants in this study. Aspects of subjectivity about which scholars participating in this study more or less agree with, are that subjectivity constitutes an internal point of view, and that it has a dynamic and complex structure. On the other hand, major points of disagreement seem to be the possibility to observe and measure subjectivity, and the degree to which subjectivity depends on the environment or on the individual.

The issue of measurability emerged as a point of divergence not only across factors, but potentially also within factors. The perspective of Factor 1, for example, is characterised by the belief that subjectivity is measurable. Nevertheless, Ramlo in her interview made the distinction that even if people believe that subjectivity is measurable, there may still be disagreement on why it is so. For her, subjectivity is measurable because it is part of the Quantum universe, and the Q sort is what makes subjectivity measurable. Explaining her personal view, Ramlo argues that, in Quantum physics, whilst people may have the same experience, their perception of that experience gives different outcomes, unlike Newtonian physics where a cause always gives the same effect. However, she also acknowledges that for other researchers, subjectivity may be measurable because Q methodology simply allows statistical analysis. The difference in this case may be due to the disciplinary background and epistemological stance of the individual researcher (Ramlo 2020).

Regarding the same topic of the measurability of subjectivity, Factor 1 and Factor 2 are clearly contrasting. For Factor 2, Pruneddu clarified that subjectivity may be out in the open, nevertheless it does not mean that it is observable and measurable. Subjectivity is out in the open because people are aware of their subjectivity since subjectivity is internal in terms of abstractions, feelings, and perspectives. People have points of view, and take actions, but from those actions it is not possible to fully observe and measure their subjectivity. In other words, subjectivity is not observable and measurable because it is not a trait. Considering Pruneddu's background as a personality psychologist, a trait is something very specific. Being extroverted, for example, is a trait and a characteristic of a person of which the individual may be aware. However, subjectivity is not a trait because it is too influenced by the environment. This highlights again that, as noted by physics professor Ramlo, Q is used in different fields, and people arrive at Q methodology from different disciplines and theoretical backgrounds, and they never let that background go, adapting Q to their belief system.

The views agree that context and environment have a role in shaping subjectivity, although they disagreed on the degree of this influence. In his interview, Brown noted that Stephenson was very contextual (see also Stephenson 1987, 2014). This consideration of context does not only include the environment surrounding the individual in their everyday life, but also the context in which the sort is carried on. He further remarked that at the end the expressed uniqueness of an individual depends on the statements, the personal history experiences, and also on the situation in which the sort is conducted. Pruneddu was of the opinion that the influence of the context is what makes subjectivity complex, however other aspects, such as emotions for example, are more relevant in defining subjectivity. Also, Ramlo said that, despite the context playing a fundamental role, an individual point of view is not 100% contextual, and that the structure of subjectivity depends on what people create in their minds through their multiple individual experiences. On the other hand, for Factor 3a, the only factor without any representation of Q methodology scholars, subjectivity is constructed in discourse, constitutes a site of struggle, and is multifaceted. This reflects a more post-structuralist understanding of subjectivity, once again a perspective that may have been influenced by the background of the participants associated with this factor. In contrast, other scholars associated with other factors, although agreeing that the discourse has a role, do not share the same opinion on how this role is played out. Brown, for example, remarked that he always avoids using the term discourse because of the theory behind it, and although recognising that subjectivity is connected to discourse, he also does not think that subjectivity is a function of discourse, since discourse and subjectivity are not linked by a relationship of cause/effect.

The final perspective identified in the findings is consistent with claims in the Q literature that subjectivity is communicable (Stephenson 2014) and self-referential (Stephenson 1987). These characteristics of subjectivity are central to Q methodology, and Brown, the Q expert represented by Factor 4, explains that factors reflect shared communicability among people and that Q shows the structure underlying people's communicability in the form it is expressed and shared. Moreover, Brown comments, subjectivity is self-referential because each statement acquires meaning in relation to the individual, and therefore each statement tells something about the participant. While the broader literature sometimes equates subjectivity to identity (McNamara 2019), the findings indicate this is not the view expressed by the fourth perspective and Brown clarifies that subjectivity is distinct from identity because the current focus on identity is only 20–30 years old, and identity is distinct from behaviour.

7 Implications, limitations, and conclusions

This study allows us to draw several conclusions and present a range of implications. As discussed, the concept of subjectivity lacks a common definition, within and beyond the Q community. Therefore, and to potentially expand a Q study into its importance to subjectivity more generally, Q researchers should clearly define their own understanding of this central concept. The factors presented in this study might serve as a springboard for Q researchers to describe their view regarding subjectivity. Overall, we suggest Q researchers put more emphasis on their own positionality, including their disciplinary background and epistemological view of research.

The extensive description of the methodological procedures and in particular the analytical work as a research team, based on recommendations in Brown (1989) and Albright et al. (2019), has clearly illustrated the need for additional detailed descriptions of how Q researchers pursue to deeply understand their research participants and report their perspectives in the most unbiased way possible. We wish there to be extensive knowledge and experience exchange within the Q community that supports the current and emerging generation of Q researchers to more fully understand Q methodology and a science of subjectivity. This might also include synergistic mentor–mentee relationships (Ramlo 2020) and joint publications as illustrated by Albright et al. (2019).

Despite interviewing established experts and requesting written comments on sorts, capturing the context in which participants sort the items is challenging. This is exacerbated by sorters participating anonymously, as often occurs in online settings. To have empathy for participants and thereby deeply understand their feelings about the items during the sorting, we invite Q researchers to adopt a more participatory approach to their study designs. In addition to including participants in the development of the concourse and culling of the items, which is comparatively common, researchers might choose to be present during the participants' sorting and invite them to be co-creators of factor interpretations (Lundberg 2022).

Other ways forward are a renewed focus on intensive single-case studies (Fraschini 2022), or more intensive pre-sorting surveys that might include questions about the feelings and context of the sorters. Q methodological studies adopting an intensive single-case design are scant in many disciplines, including education (Lundberg et al. 2020), although present in others (see Brown and Rhoads 2017). The intensive single-case study design allows the researcher to adopt very fine-grained lens by applying "the penetrating power of factor analysis to the study of individual lives" (Brown 2019, p. 574).

Finally, the present study has disclosed some of the challenges Q methodologists face towards non-Q academics. Subjectivity might be understood differently depending on academics' disciplinary background, and terminology such as 'self-referential' and 'behaviour' are anything but straightforward. Q researchers should carefully choose their terminology and explain concepts that are necessary to be included, to avoid "a worrisome proliferation of terms with substantial overlap and redundancy, all of which are left up to each reader to form their own conception of its meaning and boundaries" (Al-Hoorie et al. 2021, p. 9), and in order to be fully understood beyond the Q community and potentially be published more easily.

Before concluding, we want to mention some considerations related to generalisation, replicability, and the procedure. Although we tried to be as broad and inclusive as possible with regards to the participants, we acknowledge that scholars from other disciplines may hold even more faceted conceptualisations of subjectivity. Therefore, we do not think that

our study is representative of the whole academic community as additional viewpoints may also exist that were not uncovered here. We invite other Q scholars to expand deeper on the conceptualisation of subjectivity. Nevertheless, in a more qualitative logic, the factors presented in this study provide generalisable results based on substantive inference (Thomas and Baas 1993). This leads to the issue of replicability. Considering that the sorting activity is grounded in the participants' life experiences, beliefs, and sorting context, we invite the readers to understand replicability again not in a positivistic way but, as suggested by Al-Hoorie et al. (2021), as interpretability of the results, therefore putting the accent of a replication attempt not on the methodological and mechanical aspects of the procedure, but on the interpretation of the research outcomes. Finally, the ethical procedural need to safeguard the anonymity of the non-Q expert participating in this study meant that we were unable to conduct interviews with participants associated with factors 3a and 3b, which would have probably opened up a more detailed discussion.

In returning to the fable with which we opened, we conclude that Q methodology can in fact serve as an approach to deeply investigate perspectives about concepts and phenomena. However, we should not expect there to be a single, objectively true, definition of subjectivity or description of an elephant. What is much more important for Q methodologists and other researchers interested in subjectivity, is not only understanding *how* participants feel and think the way they do, but more importantly *why* there might exist multiple divergent views.

Appendix

Appendix A

Factor Array.

Statement	Subjectivity…	Factor 1	Factor 2	Factor 3a	Factor 3b	Factor 4
1	…is related to emotions	−1	2	0	1	0
2	…is lack of objective reality	−5	−3	−4	0	−2
3	…is located within people's mind	0	1	−1	1	−2
4	…means an individual's point of view	1	0	1	1	0
5	…indicates something metaphysical	−4	−1	−2	0	1
6	…is individuality	0	0	−3	2	−1
7	…is accidental	−4	−4	−4	0	−5
8	…can be measured only by the individual	−3	−2	−2	2	0
9	…is vulnerable to random influences	−2	−1	−1	−2	0
10	…is truth	−2	−4	−3	0	−4
11	…has an internal structure	−1	1	0	2	1
12	…is a phenomenon out in the open	−3	−3	1	−5	0
13	…is behaviour as being experienced by the individual	−1	0	−1	1	−1
14	…has plurality	0	1	5	−3	1

Statement	Subjectivity…	Factor 1	Factor 2	Factor 3a	Factor 3b	Factor 4
15	…is socio-culturally influenced	1	4	3	0	2
16	…is about matters of personal importance	0	−1	1	3	−1
17	…is about matters of social importance	−1	0	0	0	−1
18	…is needed for objectivity	−2	−1	2	−3	−3
19	…is communicable	2	1	1	−3	3
20	…can be collective	1	0	3	−4	−2
21	…is complex	3	5	3	0	2
22	…is unique to the individual	0	2	−2	3	−3
23	…is the domain of unprovable hypotheses	−5	−2	−5	−1	0
24	…is self-referential	1	1	−5	4	2
25	…is dynamic	2	4	4	2	5
26	…is synonymous with identity	−2	−2	−2	3	−5
27	…is measurable	3	−5	2	−1	1
28	…is an individual's own experiences	2	0	0	4	−1
29	…is one's own reality	2	2	−1	5	1
30	…is beliefs	4	0	−1	−4	−4
31	…is performed	−1	2	2	−1	0
32	…is constructed in discourse	1	3	5	−1	4
33	…is a site of struggle	−3	3	4	−5	3
34	…is the self	0	−2	−3	5	−2
35	…is what individuals use to make sense of the world	5	3	0	1	4
36	…is highly contextual	4	5	2	−1	5
37	…is empirically observable	3	−5	1	−2	2
38	…is a matter of behaviour	0	−3	0	−2	−3
39	…is neither right or wrong	5	−1	0	−2	3

Appendix B

Rotated factors with flagged sorts (*).

Q sort	Factor 1	Factor 2	Factor 3a	Factor 3b	Factor 4
01eduQ	**0.5444** *	0.2586	0.0627	−0.0627	0.4011
02eduQ	0.2612	0.4517	0.2389	−0.2389	0.5778
03eduQ	0.1057	0.4994	0.1981	−0.1981	0.4183
04eduQ	**0.4525***	0.3892	0.0972	−0.0972	0.2921
05eduQ	**0.54***	0.2548	0.2607	−0.2607	0.1196
06heaQ	**0.7601***	−0.0068	−0.1018	0.1018	0.2635
07eduQ	**0.5382***	0.3274	0.3978	−0.3978	−0.011
08socN	0.1625	0.245	0.2897	−0.2897	**0.7085***
09socN	0.1968	0.192	0.5067	−0.5067	0.5439
10socN	**0.4942***	0.3996	0.1069	−0.1069	0.0769

Q sort	Factor 1	Factor 2	Factor 3a	Factor 3b	Factor 4
11eduQ	−0.0125	0.2627	0.2064	−0.2064	**0.484***
12heaN	0.2019	**0.5988***	−0.0828	0.0828	0.1269
13psyN	**0.5514***	0.2401	−0.144	0.144	0.1769
14eduN	0.1318	0.267	0.3855	−0.3855	**0.4929***
15heaN	0.4079	**0.5862***	0.1986	−0.1986	0.3245
16busN	0.5725	0.5091	−0.1098	0.1098	0.2384
17humN	0.1658	0.2236	**0.748***	−0.748	0.2821
18humN	0.2477	**0.6465***	0.0025	−0.0025	0.2405
19psyN	0.0625	**0.4615***	0.3795	−0.3795	0.2753
20humQ	0.617	0.1395	0.5272	−0.5272	0.0913
21eduQ	**0.8077***	−0.1269	0.1855	−0.1855	−0.0058
22eduQ	**0.604***	−0.2344	−0.0363	0.0363	0.3912
23socQ	0.415	0.0525	−0.3523	0.3523	0.6857
24psyQ	0.2778	**0.4425***	0.1097	−0.1097	0.3278
25busQ	0.1698	0.2634	−0.8194	**0.8194***	0.0779
26humN	0.3012	0.1225	**0.6806***	−0.6806	0.0863
27socQ	**0.6316***	0.3598	−0.3014	0.3014	−0.1763
28heaQ	**0.5947***	0.3663	0.0269	−0.0269	−0.0748
29eduQ	−0.0933	**0.731***	0.3845	−0.3845	0.2934
30eduQ	0.6676	0.4766	0.06	−0.06	0.1852
31eduQ	0.0792	0.2266	−0.05	0.05	**0.6044***
32eduQ	**0.7244***	0.1679	0.1887	−0.1887	0.1684
33humN	0.1242	**0.5795***	0.1124	−0.1124	0.0229
34eduQ	0.5651	0.4774	0.2686	−0.2686	−0.0615
35socQ	0.289	−0.0628	0.0887	−0.0887	**0.492***
36humN	0.32	0.3824	−0.1449	0.1449	0.2677
37humN	**0.5563***	0.3449	−0.0981	0.0981	0.1206
38humN	−0.0939	**0.691***	0.0409	−0.0409	0.1948
39eduN	0.0832	0.4376	0.6915	-0.6915	–
40busQ	**0.6919***	0.0354	−0.0605	0.0605	0.3763
41humN	**0.736***	−0.0028	0.1862	−0.1862	0.1103
42eduQ	0.0457	**0.6657***	0.3884	−0.3884	0.0065
43eduQ	0.3416	**0.592***	−0.0038	0.0038	0.0104
44socQ	**0.4786***	0.0376	0.2768	−0.2768	0.2608
45socQ	**0.7418***	0.1433	0.3077	−0.3077	0.1899
46eduN	**0.6958***	0.2084	0.0817	−0.0817	0.1663

Acknowledgements We would like to thank the reviewers for their comments and in particular reviewer 1 for the valuable feedback.

Author contributions All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by all authors. All authors contributed to the drafting and revising of the manuscript. The article is not under consideration elsewhere and all authors have approved the final manuscript.

Funding Open Access funding enabled and organized by CAUL and its Member Institutions. The authors declare that no funds, grants, or other support were received during the preparation of this manuscript.

Declarations

Conflict of interest The authors have no relevant financial or non-financial interests to disclose.

References

Albright, E., Christofferson, K., McCabe, A., Montgomery, D.: Lessons learned: some guidelines to factor interpretation. Operant. Subj. **41**, 134–146 (2019)
Al-Hoorie, A.H., Hiver, P., Larsen-Freeman, D., Lowie, W.: From replication to substantiation: a complexity theory perspective. Lang. Teach. (2021). https://doi.org/10.1017/S0261444821000409
Banasick, S.: KADE: a desktop application for Q methodology. J Open Sour Softw **4**(36), 1360 (2019). https://doi.org/10.21105/joss.01360
Boon, V.: Subjectivity. In: Ritzer, G. (ed.) The blackwell encyclopedia of sociology. Wiley (2007)
Brown, S.: Political subjectivity: applications of Q methodology in political science. Yale University Press, New Haven (1980)
Brown, S.: A feeling for the organism: understanding and interpreting political subjectivity. Operant Subj. **12**(3/4), 81–97 (1989)
Brown, S.: The science of subjectivity: methodology, identity, and deep structures. J. Korean Soc. Sci. Study Subj. **11**, 5–31 (2005)
Brown, S.: Subjectivity in the human sciences. Psychol. Rec. **69**, 565–579 (2019)
Brown, S., Rhoads, J.: Bibliography of intensive single-case studies. Operant Subj. **39**(1/2), 98–100 (2017)
Brown, S., Danielson, S., van Exel, J.: Overly ambitious critics and the medici effect: a reply to Kampen and Tamás. Qual. Quant. **49**, 523–537 (2015)
Douven, I.: Abduction. In: Zalta E.N. (ed.) The stanford encyclopedia of philosophy. https://plato.stanford.edu/archives/sum2021/entries/abduction/ (2021)
Dryzek, J.S., Holmes, L.: Post-communist democratization: political discourses across thirteen countries. Cambridge University Press, Cambridge (2002)
Fraschini, N.: Language learners' emotional dynamics: insights from a Q methodology intensive single-case study. Lang. Cult. Curric. (2022). https://doi.org/10.1080/07908318.2022.2133137
Fraschini, N., Caruso, M.: "I can see myself…" A Q methodology study on self vision of Korean language learners. System **87**, 102147 (2019). https://doi.org/10.1016/j.system.2019.102147
Fraschini, N., Park, H.: Anxiety in language teachers: exploring the variety of perceptions with Q methodology. Foreign Lang. Ann. **54**(2), 341–364 (2021). https://doi.org/10.1111/flan.12527
Fraschini, N., Park, H.: A Q methodology study to explore Korean as a second language undergraduate student-teachers' anxiety. Int. J. Educ. Res. Open **3**, 100132 (2022). https://doi.org/10.1016/j.ijedro.2022.100132
Good, J.: Introduction to William Stephenson's quest for a science of subjectivity. Psychoanal. Hist. **12**(2), 211–243 (2010)
Hall, D.: Subjectivity. Routledge, London (2004)
Hanson, B.: Objectivities: constructivist roots of positivism. Qual. Quant. **49**, 857–865 (2015)
Hwang, S., Choi, E.: The implementation of Q methodology in psychological research and the interpretation of its result: the duet of objectivity and subjectivity. J. Korean Soc. Sci. Study Subj. **7**, 4–25 (2002)
Kampen, J.K., Tamás, P.: Overly ambitious: contributions and current status of Q methodology. Qual. Quant. **48**, 3109–3126 (2014)
Kitzinger, C.: Researching subjectivity and diversity: Q methodology in feminist psychology. Psychol. Women Q. **23**, 267–276 (1999)
Lundberg, A.: Academics' perspectives on good teaching practice in Switzerland's higher education landscape. Int. J. Educ. Res. Open **3**, 100202 (2022). https://doi.org/10.1016/j.ijedro.2022.100202

Lundberg, A., de Leeuw, R., Aliani, R.: Using Q methodology: sorting out subjectivity in educational research. Educ. Res. Rev. **31**, 100361 (2020). https://doi.org/10.1016/j.edurev.2020.100361
McKeown, B., Thomas, D.: Q methodology (2nd ed.). SAGE Publications (2013). https://doi.org/10.4135/9781483384412
McNamara, T.: Language and subjectivity. Cambridge University Press, Cambridge (2019)
Midgley, B., Delprato, D.: Stephenson's subjectivity as naturalistic and understood from scientific perspective. Psychol. Rec. **67**, 587–596 (2017)
Phillips, C.: The taste machine: sense, subjectivity, and statistics in the California wine world. Soc. Stud. Sci. **46**(3), 461–481 (2016)
Ramlo, S.: Mixed method lessons learned from 80 years of Q methodology. J. Mixed Methods Res. **10**(1), 28–45 (2016)
Ramlo, S.: Divergent viewpoints about the statistical stage of a mixed method: qualitative versus quantitative orientations. Int. J. Res. Method Educ. **43**(1), 93–111 (2020)
Ramlo, S.: A science of subjectivity. In: Rhoads, J.C., Thomas, D.B., Ramlo, S.E. (eds.) Cultivating Q methodology: essays honouring Steven R. Brown, pp. 182–217. The international association for the scientific study of subjectivity (2022)
Sabini, J.P., Silver, M.: Some senses of subjective. In: Second, P.F. (ed.) Explaining human behaviour: consciousness, human action, and social structure, pp. 71–92. Sage Publications, Beverly Hills (1982)
Shapin, S.: The science of subjectivity. Soc. Stud. Sci. **42**(2), 170–184 (2012)
Shapin, S.: A taste of science: making the subjective objective in the California wine world. Soc. Stud. Sci. **46**(3), 436–460 (2016)
Stenner, P., Stainton-Rogers, R.: Q methodology and qualiquantology: the example of discriminating between emotions. In: Todd, Z., Nerlich, B., McKeown, S., Clark, D.D. (eds.) Mixing methods in psychology, pp. 99–118. Psychology Press, Nove (2004)
Stephenson, W.: Technique of factor analysis. Nature **136**(34), 297 (1935)
Stephenson, W.: The study of behaviour: Q technique and its methodology. University of Chicago Press, Chicago (1953)
Stephenson, W.: Consciousness out-subjectivity in. The. Psychol. Rec. **18**, 499–501 (1968)
Stephenson, W.: Methodology of single case studies. J. Oper. Psychiatry **5**(2), 3–16 (1974)
Stephenson, W.: Consciring: A general theory for subjective communicability. In: Nimmo, D. (ed.) Communication yearbook, vol. 4, pp. 7–36. Transaction Books, New Brunswick (1980a)
Stephenson, W.: Q methodology and the subjectivity of literature. Operant Subj. **3**(4), 111–113 (1980b)
Stephenson, W.: Newton's fifth rule and Q methodology: application to self psychology. Operant Subj. **5**(2), 37–57 (1982)
Stephenson, W.: Review of 'Structures of subjectivity: explorations in psychoanalytic phenomenology.' Operant Subjectivity **8**(4), 100–108 (1985)
Stephenson, W.: How to make a good cup of tea. Operant Subj. **10**(2), 37–57 (1987)
Stephenson, W.: Introduction to Q methodology. Operant Subj. **17**(1/2), 1–13 (1993)
Stephenson, W.: Intentionality: or how to buy a loaf of bread. Operant Subj. **29**(3/4), 122–137 (2006)
Stephenson, W.: General theory of communication. Operant Subj. **37**(3), 38–56 (2014)
Stenner, P.: A. N. Whitehead and subjectivity. Subjectivity **22**, 90–109 (2008). https://doi.org/10.1057/sub.2008.4
Tamás, P., Kampen, J.K.: Heresy and the church of Q: a reply. Qual. Quant. **49**, 539–540 (2015)
Thomas, D.B., Baas, L.R.: The issue of generalization in Q methodology: "reliable schematics" revisited. Operant Subj. **16**(1/2), 18–36 (1993)
Watts, S., Stenner, P.: Doing Q methodological research: theory, method and interpretation. SAGE Publications (2012). https://doi.org/10.4135/9781446251911
Wolf, A.: Subjectivity, the researcher and the researched. Operant Subj. **32**, 6–28 (2009)