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Q Sorting with Non-Reading Participants: Some Effective Adaptations to the Q-Methodological Workflow[1]

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Abstract: As a participatory method combining qualitative and quantitative aspects, Q methodology has proven effective in academic as well as "practice-based" research and can be especially valuable in work with Indigenous groups and people who are in weak power positions. However, non-reading populations have often been excluded because procedures for sorting written statements often disqualified them. In cooperation with a Maasai research assistant and research participants in Northern Tanzania, I engaged in an approach through which participants who do not read rank ordered 42 written statements relative to each other, showing remarkable consistency when asked control questions. Thus, their perspectives regarding abstract concepts were made explicit and comparable to each other and to those who are literate. I discuss the involved extensions to the regular Q-sorting process, which can help researchers to acquire systematic insights into the worldviews of individuals or groups who are not proficient in reading. The approach in which they are embedded is valuable more widely when dealing with cultural and power disparities in Q research, underlining the importance of empathic and trusting researcher-participant relationships in a time when Covid-19 and calls for cognitive justice are impacting research designs.

Keywords: Q methodology, non-literate populations, participatory methods, research with Indigenous groups, research across a power gap.

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Introduction

Q methodology is a participatory method combining qualitative and quantitative aspects and has proven valuable in examining attitudes and opinions (Müller & Kals, 2004) in a wide variety of fields in the social, behavioral and health sciences, including psychology, communication, political science, environment and health studies as well as tourism, market opinion and media research (Brown, 1997; Fairweather & Rinne, 2012; Fairweather & Swaffield, 2001; Hunter, 2013; Müller & Kals, 2004; Webler, Danielson & Tuler 2009). Its use has been encouraged explicitly to stimulate more reflexive and critical paths of inquiry (Stergiou & Airey, 2011) as well as in practice-based contexts (Brown, 2008; Ellingsen, Størksen, & Stephens, 2010). As Q methodology involves participatory aspects, the method has been recommended especially when dealing with Indigenous groups and people who are in weak power positions (Donner, 2001; Ellingsen et al., 2010). This is not least because the procedure of rank ordering cards stimulates people to express themselves and elicits insight into points of view that are otherwise difficult to access (Wijngaarden, 2016). The approach stretches across qualitative and quantitative research methods in a wide range of the social and behavioral sciences (Edwards, 2017) and has special value to the field of Indigenous methodologies as it dovetails with incentives to broaden research approaches towards accessing different ways of knowing. It can thus be of great value in research regarding subjectivities and meaning-making in the context of Indigenous as well as other non-dominant groups.

Marginalized people have a higher chance of being non-readers.[2] Researchers worldwide complain that the perspectives and voices of these groups are not adequately reflected (Flecha 2014) and decolonization movements call for the decolonization of results as well as methods (Denzin, Lincoln, & Smith, 2008; Smith, 2012; Wijngaarden & Idahosa, 2021; Wilson, 2008). Due to its philosophical background, Q methodology can be a suitable tool to help respond to aspects of these deficiencies. As the dichotomization of quantitative and qualitative approaches is increasingly questioned, their integration in mixed methods approaches has become more and more common. The interaction between divergent philosophical traditions has also opened the way toward cooperation with Indigenous methodologies and ways of knowing (Botha, 2011), and in the past years, there has been as resurgence of interest to expand the repertoire and use of more participatory research methods (Bergold & Thomas, 2012).

However, in Q studies an obstacle is that non-reading or partly-literate people have often been excluded from participating, especially in more complex studies, because most Q sorts are designed with written statements. Although Q sorts with objects, auditory or visual material can produce successful insights in the subjective structures of non-readers, they cannot always easily and consistently provide the exact focus necessary, for example, when the researcher wants to work with complex abstract concepts or nuanced differentiations that are not easily captured by visual, auditory or

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[2] I use the term non-reader, because designations like "illiterate" or "non-literate" are more widely used to stigmatize and imply a level of ignorance, normalizing the practice of reading, Non-readers encompass peoples who rely on predominantly oral languages, persons who do not read or write because they have not been enrolled in dominant forms of education, as well as those who do not read due to some (physical) impairment.

material stimuli. When working with non-readers in such a study, there is a need to execute sorts which involve language.[3]

Even though literacy is on the rise, still more than one billion people worldwide (1 in 5) are non-reading (Huettig & Mishra, 2014). In many countries, literacy rates are still below 50% (UNICEF Global Databases, 2015), with women often being disproportionately affected (Robinson-Pant, 2004). In research contexts where participatory methods are favored, levels of literacy are more likely to be low. Moreover, in many regions, medical aid and access to optometrists is lacking, which means that literate people with eye diseases or elderly individuals with diminishing eyesight will not be able to read statements. Even in areas of the Western world, reading disabilities are widespread (Fowler & Scarborough 1999, p. 54), and dyslexia is found in every culture studied (Peterson & Pennington, 2012). Clearly, excluding participants who cannot read can lead to biases in research results or even omit whole communities of people.

In cooperation with largely non-reading Maasai in Northern Tanzania, I developed an approach through which we successfully undertook Q studies with written statements with research participants who cannot read. This research project reflects only a small step in cooperation with Indigenous peoples. For example, guidance on how the research process was executed was still largely in my hands. Consequently, I do not consider this a decolonized practice, but it does reflect a move in the direction of more equitable research relationships. The steps involved have affinity with other variations in Q methodological practice, with some of the steps resembling ways in which Q research has previously been conducted with non-readers. However, most of the existing studies involve young children and/or were executed with objects or pictures instead of statements. Furthermore, adaptations were often not described systematically, especially in those cases in which (cross-cultural) work with non-reading *adults* was involved. My approach in developing and executing Q methodology underlines the importance of empathy and creating trusting relationships in the research process, especially in studies that involve cultural and power discrepancies between researcher and participants. I underline and strategize on the (sometimes enhanced) skills and capacities of non-reading adults and the need for them to be treated as partners who can be valuable teachers in the research process.

Besides Q methodology, my wider study involved ethnographic and video-assisted observations, interviews and focus group discussions, carried out with visiting tourists as well as Maasai hosts at a local cultural tourism project. I interrogated how they viewed "the other", before and after their encounters in the local villages. I also reflexively involved my own visit and my own Q sort to situate my perspectives and analysis. As part of the study, 53 Q sorts were executed in two languages (English and Maa), combining data from literate, semi-literate and non-reading participants. Elsewhere I have written about how to embed Q methodology in ethnographic research designs (Wijngaarden, 2017). Here, I will focus on my work with the eleven Maasai participants who had limited to no reading skills, and highlight the steps we engaged in to execute the Q sorts.

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[3] Although auditory fragments can involve language, when combining results from readers and non-readers the most effective way to work is by using written statements. When designing sorts for both readers and non-readers it must be kept in mind that readers and non-readers have different capacities to deal with statements.

Although implemented with a small exploratory sample, our step-by-step approach proved consistently successful in three ways. Firstly, the non-reading participants responded to control questions regarding the placement of their cards consistently, surpassing the standard test-retest levels of Q studies (Brown, 1980). Secondly, their explanations regarding the statements on the cards were highly consistent with the relative positions they placed the cards in. Thirdly, the sorts of non-reading and reading Maasai showed clear patterns, clustering together so that two clear and distinct social perspectives could be described.

In this article, I will provide an account of the practical steps developed and of the approaches in which they are embedded, in order to make them available for researchers who work with non-readers. Some of these procedures may also be more widely relevant for those who work across cultural and power gaps. I will discuss where these adaptations stand in comparison to standard Q-methodology procedures and what their implications may be. Finally, I will highlight the value of these approaches in producing insight into how literacy and cognition are related, as well as their value for developing Q methodological practices in a time when Covid-19 and calls for cognitive justice are impacting research designs.

Q Methodology and Non-Readers

In a Q methodological study, participants are presented with a sample of items about a topic, which is called the Q set. In most cases, these items are cards with written statements, but they can also be objects, auditory or visual material, for example, photos, paintings, toys or musical fragments. The Q sort procedure consists of participants rank ordering these statements from their individual point of view by placing them on a grid. Subsequently, the Q sort procedure frequently involves participants elaborating on their choices, interpretations, and views. The combined results of the Q sort and interview are analyzed using a combination of statistical and interpretative methods. Q studies are generally used "to examine complex subjective structures like opinions, attitudes, and values" (Müller & Kals, 2004, n.p.).

Q methodology with non-readers has been conducted mostly with young children and with the use of images (e.g. Ellingsen, Thorsen, Størksen, & Chen, 2014; Hempel, 2021). In such studies researchers often use non-standard instructions. However, as the mental capacities of young children are still developing, these studies cannot be compared to those with non-reading adults, and each group will therefore need divergent guidance. Furthermore, Q sorts with images enable non-readers to work more independently and to compare cards more easily, as they do not need the researcher to identify what is on the cards. Q sorts with written statements have rarely been carried out with non-reading participants. There is a mention of a study of stakeholder perceptions that was conducted in India (Dasgupta & Vira, 2005), but the steps involved were not described. Another never officially published study was executed by Cáceres on agricultural schooling in Peru, and is summarized in five pages by Brown (2005) in the context of a World Bank publication. I only found this reference after I had completed my own study and have been unable to contact the researcher. Brown has subsequently explained that in Cáceres study, the strategy adopted by the researcher resembled parts of mine, including reading out the cards (personal communication. July 14, 2014). However, the study was ostensibly far less cognitively demanding, as the Q sort grid only involved five columns (-2 to +2) (Brown, 2005, p. 203), whereas mine involved 11 (Figure 1). As the exchanges with non-reading participants are only

described in two sentences, the exact process followed to achieve results remains unknown. Thus, although similar ways of collecting data from non-readers may have been used in the past, prior to my own 2016 monograph and 2017 article, no extensive Q study with non-reading participants nor any detailed account of the approaches involved have been published.

Q's approach dovetails with the critical, interpretative, and cultural turns. Because it promotes anti-essentialist, constructivist, reflexive, and critical paths of inquiry (Robbins & Krueger, 2000; Shayan, 2013; Stergiou & Airey, 2011). It can be combined with quantitative approaches (McKeown & Thomas, 2013; Sell & Brown, 1984) but can also be of great value to deeply qualitative (Brown, 2008) and reflexive ethnographic studies (Wijngaarden, 2017). A variety of researchers find it attractive because as an interview technique it stimulates the participation of the interviewees (Donner, 2001), while its structure and analytical procedures provide useful windows and opportunities to work with a large variety of qualitative data. Thus, Q enhances the data's systematic handling and comparability, but it is also flexible enough to do justice to the complexities and nuances involved in doing social science research, for example, being sensitive to the fact that the interpretation of the same word or statement can vary from person to person and over time.

Q methodology is especially suitable in "research with respondents who may have difficulties in expressing themselves when more conventional research methods are used" (Ellingsen et al., 2010, p. 395). Non-reading people often sense a large power-gap when participating in academic research. I have observed that people from Indigenous communities, groups with low social-economic standing and especially those who have had little or no formal education, often experience the questions of a visiting scholar who is labeled as coming from 'the West' or from 'the city' not as an opportunity for an open conversation and exploration of their points of view, but as an interrogation in which they have to produce the right answers, or an exam for which they are not qualified. As a result, their responses can be very short, reveal little, and sometimes express what they think the researcher wants to hear, instead of what is relevant in their own views and experiences.

Long-term ethnography is a cure for many of these challenges but one not available to all due to restrictions in the time and budget that can be allocated to fieldwork. With Q methodology, some of these challenges can be addressed in a much shorter timeframe. Even within a long-term ethnographic approach I have seen the great advantages of using Q methodology to stimulate research participants to share their perspectives surrounding more controversial subjects. In the first place, the statements on the cards invited my participants to speak about their ideas for hours, when most of these same people had only produced short reflections during previous interviews. I think the "game" with the cards made them feel less put on the spot, while the statements seemed to stimulate their memory of past events and provoked them to talk about their experiences related to the subject in question. Secondly, having a task to complete diverted their attention from the researcher, stimulating them to speak more freely.

Executing a Q Sort

For a description of how to select statements from the wider available discourse as well as the analysis of Q sorts, I referred to Brown (1993), McKeown and Thomas (2013), Watts and Stenner (2012) and Webler et.al. (2009), who have produced detailed guides with elaborate instructions on executing a Q methodological study. In my case, I used a

Fisher experimental design and selected my statements from semi-structured interviews and (video-assisted) observations together with focus-group discussions collected during a previous fieldwork period with the relevant community (for details see (Wijngaarden, 2014, 2016)). Here I will focus on the procedures involved in the laying out of the cards, because when working with non-reading participants, this is the part that diverges most from the standard sorting procedures.

When participants are presented with a series of objects in Q, they are asked to organize these according to a condition of instruction. In case of working with written statements, they consider each in relation to this condition of instruction. The participant then rank orders the statements on a sorting grid (exemplified in Figure 1) according to their personal opinion. The grid may have anchors such as "most disagree" to "most agree" (as used in my study), "most unimportant" to "most important" or "most uncharacteristic" to "most characteristic". The distribution of the Q sort is usually symmetrical, following the form of a quasi-normal distribution (bell curve), although slightly flatter (Brown, 1993, p. 102). The exact form of the distribution is not of primary importance, but its bipolar nature is. The grid's key function is to force participants to contemplate the Q statements in a thoughtful way, as it necessitates them to reflect on how they perceive the relative ranks of the cards. The participant is assured that there are no "right" or "wrong" answers, and that (s)he can change the position of the cards as often as is wanted.

Figure 1

Example of a Sorting Grid
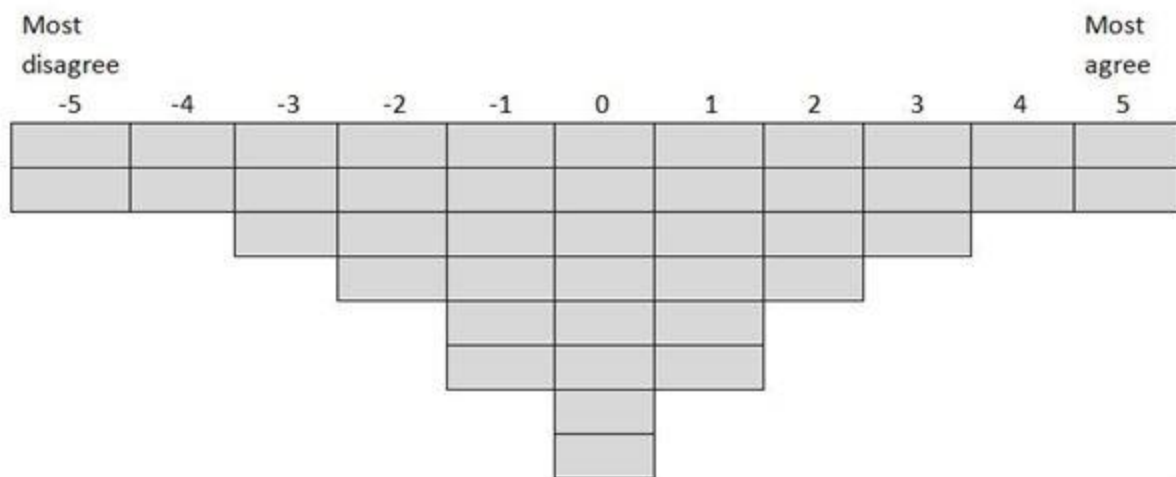
In terms of practical steps, it is common to let participants first read through all the cards and then pre-sort them in 3 piles, in my case "Agree", "Disagree" and "Neutral" (or irrelevant). Subsequently, the sorter will work pile by pile, reading the statements again and rank ordering them by placing them on the grid. When the participant has placed all cards into position (s)he is asked to read over the whole distribution carefully and make any changes in case this is wanted. Subsequently, the placement of the statements is discussed with the researcher in an interview.

A Process for Non-Reading Participants

I will now describe a process to work with non-reading participants I developed in cooperation with my Indigenous Maasai research assistant Paolo Ngulupa. Paolo received minimal formal education but had a basic level of literacy in Maa as well as English. We fine-tuned the steps followed by practicing them on each other and on non-reading participants, engaging in reflective sessions to critically evaluate the reactions to the practical aspects of the Q sort. Finally, we came to the routine described below, which, although labor-intensive, produced reliable, rich and detailed results. I will first discuss two minor adaptations to the overall process and then outline the details of the adapted steps.

First, with non-reading participants, the researcher will be more present. In studies with readers, the participant will often receive face-to-face oral instructions from the researcher, sometimes supplemented with written briefing materials. In some studies, for example, those involving a language gap between the researcher and participants, and increasingly in online studies, instructions are only shared in writing. Subsequently, the participant will engage with the cards independently during the sorting process. In contrast, when working with non-readers, instructions can only be given orally. During the sorting process, statements are read out one by one, in combination with the guiding condition of instruction. The implications of an increased presence of the researcher will be discussed below.
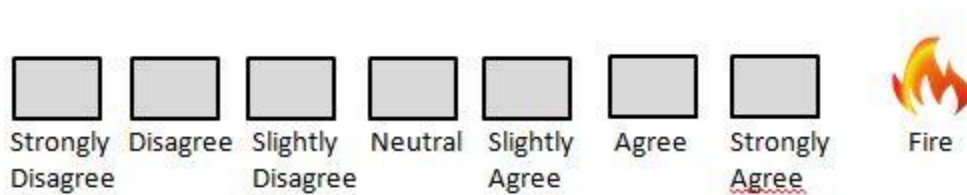
Second, the researcher will increase the consistency of the use of space throughout the sorting process in order to provide visual cues for the participant. For example, the cards more agreed with than others are consistently placed to the left side of those less agreed with, anticipating the further organization on the sorting grid. It is useful to refer to this spatial division explicitly, possibly underlining it by using a practical analogy. For instance, a fireplace (present in many traditional homes) can be used as a point of reference. In this case the researcher can explain that the closer to the fireplace, the hotter it is, so the cards which are most strongly agreed with therefore will be placed closer to the fireplace. The further from the fireplace a card is placed, where it is colder and darker, the more disagreement this indicates. Even though not all participants may see well, an intuitive spatial organization enhances a clear and speedy sorting process, especially in later stages of subdivision, and compensates for the opportunity that readers have to re-affirm which side of the sorting grid indicates agreement.

Extra Subdivision Step

After dividing all cards in three piles, the process for non-readers is significantly different. The "Agree" pile is subdivided by reading out the condition of instruction and every statement again, this time inviting the participant to choose the level of agreement (strong, medium or slight). An analogous subdivision can be achieved with the "Disagree" pile. This results in seven piles or potential levels of agreement in total, as can be seen in Figure 2. In rare cases one or several of the piles may be empty. This extra step also has been used in Q studies with objects and children younger than six years. Especially in the case of large Q studies with non-readers, it is of great value, because any subdivisions at this stage save a lot of time otherwise spent in questioning later in the process. The subdivision also proved efficient as a first control step regarding communication and consistency.

Figure 2

Piles After Extra Step of Subdivion

Strongly Disagree   Disagree   Slightly Disagree   Neutral   Slightly Agree   Agree   Strongly Agree   Fire

Creating a Hierarchy of Six

Next, the researcher takes one of the piles and puts the first six cards on the floor in front of the participant. It is not strictly necessary to start on the Agree side, but it is beneficial to start at one of the extremes of the spectrum, and generally Agree cards are easiest sorted. I thus always started with the "Strongly Agree" pile. From the six cards, the participant is asked to identify the card which (s)he most agrees with. This is done by reading out all cards while pointing to them. In order to give the participant enough time and the opportunity to compare the six options, the questioning and reading out can slowly be repeated several times, leaving the participant some silence to think between repetitions.

When the participant makes a choice, this card is placed at the extreme Agree (fire) side, in my case on the right. To make sure the correct card was selected, the participant is asked to not only point to the card, but also to speak out loud referring to the statement (s)he chooses. Then the participant is asked to select the statement (s)he agrees with most with respect to the five cards left, the researcher pointing again to every card when reading them out. The chosen follow-up card is placed beside the one that was chosen before. Continuing this logic, a line of the six cards is created in their relative order, which my research assistant and I referred to as a "snake" but could alternatively be called a "train" according to what makes most sense in the cultural context.

After experimenting with different numbers of cards, I found that six was the largest that still allowed the participant to remember all statements at once and make an informed choice. This is confirmed by findings in psychology that humans are generally able to remember around seven items in their short term memory (Miller, 1956). Working with smaller groups of cards at a time lengthens the process considerably, because a larger number of cards must be compared individually.

Steps for Combining Multiple Hierarchies of Six

After creating a hierarchy of the first six statements, the researcher takes the next six cards of the same pile (or if fewer are available, then all cards left) and repeats the same process, creating a second line of six cards from relatively most agree to relatively less agree. These cards are placed below the first line (Figure 3). The subsequent step is to compare the two lines, and to integrate the cards of the second line into the first line, so that the "snake" grows, and all cards are rank ordered in a linear way.

Figure 3

Integrating a Line into the "Snake" and Executing a Control Question
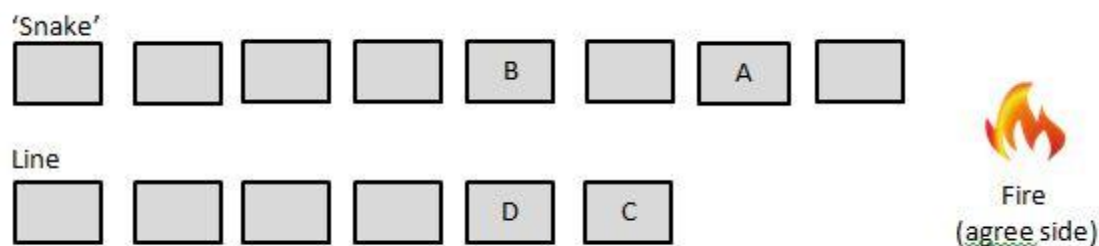
The researcher starts by comparing the two cards which are agreed with most, which lie below each other on the extreme right. Taking the card on the extreme right side of the lower line, the researcher can touch the card on the extreme right, taking care not to bias the informant by placing one card more to the right than the other. Acknowledging that they are both agreed with a lot, the researcher then inquires which one of the two the participant agrees with more. If the card from the lower line is stronger, it is placed on the extreme right. If not, the card is moved one step down the line to touch and be compared with the next card to the left. This is done until the right relative position for the card is found. Card by card, the whole lower line is built into the upper line. If there are still cards left in the "Strongly Agree" pile, the next six (or any smaller number of remaining) cards are spread out to first determine their order relative to each other. Subsequently this second line of cards is integrated into the "snake" according to the same logic, working from right to left until the right place for each card is found. After the "Strongly Agree" pile, the cards in the "Agree" and "Slightly Agree" piles are addressed following a similar process, until all cards that are agreed with are in one long line.

Placing all Cards in Grid

When all cards agreed with have been hierarchically ordered in one line, they can be placed on the right-hand side in the sorting grid according to their order, the two most extremely agreed with in the furthest column, followed by the next two, etc. The process for the cards in the "Disagree" piles is exactly the same, only that the researcher works from left to right, making a line from the statement that is most disagreed with, to the statement that is only slightly disagreed with.

The cards that were placed in the "Neutral" pile often can be placed in the grid by asking the participant to select one or more cards that are a little bit agreed with or a little disagreed with, according to the number of places that are still free in the middle columns in the grid. For example, if on the right side there are still two places left next to the middle column, these two places are filled with the statements from the "Neutral" pile that the participant agrees with most. If only places in one column are left open, all cards that are left can be placed in it.

Control Checks

When developing and working with the above process, I often made use of control questions to determine its dependability. One of my main strategies was to purposefully start the relative comparison of a card that was going to be build into the "snake" at a place in the line where, according to the participant's previous answers, the card could not end up if their logic were consistent. I was impressed that in 95-100% of the cases, the card in question would move down the "snake" until it was exactly at the relative position where it "belonged" according to previous answers (Figure 3). Imagine in the "snake" statements A and B have been compared to each other, with statement A being most agreed with, and thus more to the right. In the line below, statements C and D have been compared to each other, with statement C being most agreed with. Logically, when statement C ends up being less agreed with than B (so the card is placed to the left of A and B), then statement D cannot be agreed with more than statement A or statement B: As it was deemed of lesser magnitude than C, it should be placed to the left of all these cards. So, even though statement D has never been compared directly to A and B, the position of D to the left of A and B is expected, because the position of C relative to A and B is known.

I consider it highly unlikely that in response to my control questions each participant chose the right positions for the cards, because they remembered their answers to the well over one hundred questions which were normally involved in the relative comparison of 42 cards. Moreover, it is also improbable they were constantly and completely aware of the exact position of all the statements, because they could not read them. Furthermore, I worked with some participants who had very bad eyesight or were lying in bed, and thus could not see the cards at all, and solely relied on the spoken words. In addition, in several cases I randomly asked control questions without moving any cards, receiving answers which proved just as consistent.

Normally, in Q, a person who carries out the same sort twice under stable conditions at different points in time is expected to produce two sorts that have a high positive and significant correlation with each other, but it is not necessary to expect identical sorts. The general test-retest reliability has been suggested to be 0.80 (Brown, 1980, pp. 289–292). In some Q studies, higher test-retest factor correlations of 0.89 or test-retest reliabilities between 0.93 and 0.97 have been found (Frank, 1956; Nicholas, 2011), while others found an average value of only 0.72, observing that the reliability seems to decrease when more time is left between the test and the retest (Paige, 2013). In this light, the randomly executed control questions concerning the sorts of non-reading participants strongly suggest that throughout the process, these participant's views were extremely consistent according to a linear logic.

Besides these control questions, the subsequent semi-structured interviews that are part of standard Q methodological practice and which allow the participant to explain his or her choices and views, also made clear whether participants had understood the process and had worked consistently in answering the questions that led to the placement of the cards. The results of these interviews, as well as the data collected from these non-reading participants using other methods, confirmed that they had indeed answered the questions of relative ordering according to their views. In addition, when the Q sorts of all Maasai participants were analyzed, no distinctive differences could be found between the sorts done by reading or non-reading participants: In the main social perspective shared amongst almost all Maasai, their sorts clustered together. This implies that although in certain cases a separate perspective or factor

could exist in the non-reader group, with regard to the topic I researched, literacy was not a distinguishing aspect.

In cases where during the sorting process the researcher was uncertain as to whether a participant had fully understood what is was required of him or her, their sort was excluded from the analysis. It has to be noted that this also happens in cases of literate participants (Webler et al., 2009, p. 25). When working with non-readers, the engagement between researcher and participant is much more intensive, and therefore it is likely the researcher will notice inconsistencies in the sorting process, whereas with literate participants these are more likely to come up only in the subsequent interview. As I engaged in an experimental method of conducting Q sorts with non-reading participants, I made a quite conservative selection regarding the sorts of non-readers which I used for my final analysis. Whenever the sorting seemed to be done inconsistently, for example, when the participant moved many cards from agree to disagree; when explanations of his or her view were absent; or if the answers given were repeatedly unrelated or contradictory to the placement of the cards in the grid, I disqualified the sort.

After I had finished the statistical and qualitative analysis of the total body of sorts of the wider study, I compared the position of the cards in the disqualified sorts, running an analysis using centroid factor analysis and varimax rotation. The results of two of the disqualified Q sorts were positioned within the main clusters belonging to factor 1, which is the general view I found running through the Maasai sorts. A third disqualified sort was close to these clusters. This indicated that the way these three participants had ordered the cards was in fact highly consistent with the main social perspective I had found in the Maasai participants more generally (reading and non-reading). Although this consistency is highly significant statistically, I do feel these sorts cannot simply be included, because of the importance of qualitative data to the Q methodology process (Brown, 1993), and in these cases I felt that the interview data obtained was not substantial enough. A consensus following the similar placements of statements is only taken as an indicator of similarities in perspectives and needs to be confirmed by analyzing interview data. The placement of the cards cannot be used without the accompanying qualitative explanations that the participant provides, because it is only through these explanations that participants' subjective understandings and personal interpretations regarding the statements become clear. Nevertheless, the statistical analysis shows that the steps I developed for sorting the cards with non-readers functioned well, because it cannot be a coincidence that these non-readers rank ordered 42 cards in such a similar constellation as a variety of other members of their community. From the heightened confident position that this process worked, I am encouraged to invest even more time and effort in obtaining the relevant interview data in future sorts executed along these lines.

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Differences From and Comparability with Literate Participants

When comparing the Q sorting process executed with reading and non-reading participants, the latter process is significantly more time consuming, especially when working with many statements and a grid that includes a large number of columns. However, such an approach does make it possible to do more extensive and in-depth studies with non-readers and facilitates the possibility of including them in studies that were pre-dominantly designed for readers, making their results comparable.

Nevertheless, in developing a Q sort that is envisioned for non-readers, some points are of importance. Although (moderately) long statements might be feasible in sorts with literate participants, they make the process exponentially complicated and time-consuming for those who are non-reading. In Q, statements are often collected from "naturally occurring" utterances used in daily life (Brown, 1993). Although I created my statements from discourse collected in the field from my research participants, I used only short statements in simple wording on the cards, which made work with non-reading participants easier. It is common practice for Q methodology researchers to adapt the "in vivo" quotations that originally came from the research participants, in order to make them suitable as Q sort statements. Although it is good practice to stay close to participants' original statements, so that they are as much as possible "indigenous to their understandings" (Brown 1993, 106), simpler, more generalized statements can be an advantage. This is because in Q methodology it is deemed positive if a statement can be interpreted in multiple ways, as it is meant to inspire "multiple and qualitative diverse responses" (Watts and Stenner 2005, 87), just as an interview question does.

When working with readers as well as non-readers, it is very important that the local equivalents of the statements, condition of instruction, and concepts used as anchors in the grid and to pre-sort the cards are identified with care, especially if one works in a language other than the researcher's native language, or even in a context in which the researcher's native language (e.g., English) is used or understood differently. Using the process of translation and backtranslation ensures that translations used carry the connotations that are culturally and locally appropriate, especially in the case of, for example, Indigenous peoples who use varied dialects in different regions, such as Maasai, where words used in daily speech in one area can be offensive in another. In working with non-readers, it is even more important to keep the condition of instruction as short and simple as possible.

Overall, the sorting process might be less flexible for non-reading people, as they do not have the opportunity to evaluate their choices as a whole, by moving cards and making adjustments based on a complete overview of the sort, as literate people would be able to do. As a result, it is also hard for them to point out which column in the sorting grid represents their personal middle (with the cards they disagree with on one side, and the cards they agree with on the other). This "zero point" does not automatically lie in the middle of the grid, and can be of use when analyzing the sorts (McKeown & Thomas, 1988; Webler et al., 2009). When working with non-readers, an alternative is to record the number of cards in the initial "Agree", "Disagree" and "Neutral" piles and thus determine the middle column.

Finally it is important to consider how Q methodology is embedded within the wider research design and the approach the researcher uses. In Q, the lack of engagement between researcher and participant in the sorting process is generally seen as one of the factors which empowers participants to express their own viewpoints. In the process with non-readers, the researcher is much more engaged, and the use of written statements could actually fuel participants' sense of disempowerment. Embedding Q methodology in an ethnographic approach in which the participants are familiar and at ease with the researcher can be beneficial (Wijngaarden, 2017). Below I will discuss a variety of strategies that can help counter this potential problem, and may be used more widely in Q sorting processes.

Working across Cultural and Power Discrepancies

In Q as well as in other research approaches, non-readers can perceive an amplified power-gap as the reading and writing involved in the research process can underline their lack of formal schooling. Especially with non-readers, it is of heightened importance to be patient and sensitive, as they are often more likely to feel uncomfortable with being questioned.

This reflects the awareness that in many cultures and groups, sharing of one's personal opinion is not self-evident, and can be restricted across age and gender divides. These kinds of cultural conventions need to be considered when planning and executing the Q sorting process. It is of great importance to reflect what the researcher's (and if present, research assistant's) relative social position in the eyes of the participant will have upon the process, take into account the effect of anyone else who might be present in the setting, and adapt the context so that the participant is more likely to feel free to speak their mind. It is often beneficial to do the sorts at participants' homes, monitoring and restricting the presence of other people during the Q sort and interview and if a research assistant is necessary, choose one whose background, age and gender allow the participant to act as unrestricted as possible. Furthermore, it is important to bear in mind that a variety of people consider relationships very important, some even having relational ontologies (Tynan 2021; Wijngaarden, 2022). And these different worldviews have to be considered in research methodologies (Chilisa, 2012; Smith, 2012) in order to create well-functioning research practices. It is the responsibility of the researcher to gain an understanding of, and respond adequately to, the social needs and expectations that facilitate an insightful research process. Although traditionally in Q methodology, the relationship between researcher and participant was mainly fostered during the post-sorting interview, with people from different backgrounds the importance of this relationship may be heightened before and during the sorting process.

I found that work with people from a variety of cultural backgrounds and especially those who considered themselves of a low social status, required more preparation. In my research setting, these were especially young to middle-aged women – as they felt most intimidated by my position, and more insecure in engaging with the cards. They benefited from a more extensive explanation of what the goal of the research was with regard to their own local situation, for example by explaining "how it helps" and convincing them that with regard to the specific subject addressed they were in fact the expert or "teacher" as opposed to the researcher, who was engaged in order to learn, like a "student" or a "child" (Wijngaarden 2020). It is good practice to start the sorting process as well as the subsequent interview with the Agree side of the sort, as this builds confidence, so that by the time of speaking about the statements that are disagreed with, the participant is more at ease and speaks more freely.

How questions are asked is of great importance. For example, in many cultural contexts, "why" questions can be offensive, as they are perceived as critical or threatening, blocking an open explanation by the participant. Therefore, instead of asking "why do you (dis)agree with this statement?" or "why did you place this card here?", I referred to the respective statement and asked the participant if (s)he could tell a little bit more about the respective statement, thus inviting them to share their views. The simple and short formulation of the questions also helped make participants feel more confident and at ease.

All types of participants occasionally had considerable difficulties with deciding which card they felt stronger about, and this is inherent in the Q sort process. Gentle encouragement to make a choice even when unsure, taking a short break, expressing sympathy, ensuring the participant that the choice only needs to be valid in this moment, and reminding them that there are no wrong answers, can all help. An added advantage to the process with non-reading participants is that when a choice between two specific statements is exceptionally difficult, there is the option of leaving the two cards lying together on the same hierarchical position in the "snake", and often the situation was resolved because as the process continued, the two cards ended up in the same column on the grid, which meant it was not necessary to determine their rank relative to each other. If not, dealing with other cards in the meantime sometimes resolved the dilemma, so that the participant could finally decide.

I found that non-reading participants were actually more inclined to explain their understandings out loud or give reasons for their choices during the sorting process. Thus, it is even more recommendable to agree on and start the audio recording before the sorting process, and this may fit together with an audio-recorded (instead of written) consent procedure executed at the start of the Q process. Non-reading participants especially showed a remarkable stamina and were happy to continue talking even after many hours, as a result commenting not only on the most important statements at the extremes of the grid, but speaking about every single statement. This is exceptional, because when using other research methods researchers often express difficulties in eliciting comprehensive responses from people who are of low social status and have little formal education.

In my research, there was only one case in which a participant who was in fact literate, became overwhelmed to the extent that she felt unable to complete the sorting process. In the case of non-reading participants, there was sometimes an initial hesitation. However, all participants showed (increased) confidence as the task progressed, and many expressed pride and satisfaction when the sorting was completed, which benefited their engagement in the subsequent interview. The process followed with non-reading participants clearly provided more support, as the questions were shorter and the movement of the cards was executed in cooperation with the researcher. This makes this approach also of value to participants who are literate but may be too insecure to execute the sort independently.

Overall, my non-reading participants indicated that they felt empowered through having completed the process of sorting, and some expressed appreciation for having engaged in such an extensive expression of their views. I often felt that they had stepped into a more authoritative position as a result of being treated as a teacher or expert. As the Q methodological approach motivated them to speak, it made many of them realize that the knowledge that they had was (far) more extensive than they themselves had anticipated. At the same time, the value of their knowledge and voice was confirmed by the researcher, who took the necessary time to carefully listen and record all they had to say.

Conclusion

Q methodology is especially suitable when doing research with participants who have difficulty in engaging in other research methods and have limited opportunities to express themselves. This includes persons from Indigenous or minority groups who are more likely to be non-readers. Therefore, a process for conducting Q sorts with such persons is especially valuable. I have shown how, with some relatively minor

adaptations, Q sorting with written statements can be done reliably with non-reading participants. This enables access to groups and individuals who formerly were largely excluded from such Q studies and makes possible the combination of literate and non-reading participants in one study.

Most prominently, the adaptations constitute ensuring simple and short statements; an extra step of subdivision in piles; consistent use of the space in the sorting process; a step-by-step routine for rank ordering small groups of statements and combining these; and an alternative strategy for the determination of the middle column in the Q sort. Furthermore, a heightened sensitivity to the perceived power relations and impact of asking questions is of importance because non-reading participants are more likely to feel threatened or shy as a result of the research process, which can be experienced as highlighting their lack of formal education or (physical) impairment. Starting from a sensitive reflexive awareness when working with such participants is in line with Stephenson's original approach when developing Q methodology. He took into account the quantum mechanical principles that also lie at the basis of reflexivity, acknowledging the interdependence between subject and object (Stephenson, 1989) and understanding science not as the gathering of facts but as a search for understandings (Stephenson, 1974).

Developing trustful and empathic relations with participants is especially of importance in constellations involving heightened power disparities in order to fulfill Q methodology's objective "to reveal subjective structures, attitudes, and perspectives from the standpoint of the person or persons being observed" (Brown, 1996, p. 565). These are important reminders at a time when online Q sorting has steeply risen as a result of two years of Covid-related restrictions. Awareness of the importance of engaging with participants by interacting and spending time with them is steadily declining, although the value of these engagements for coming to understand participants' personal viewpoints should not be overshadowed by the convenience and efficiency of automated processes and the boom in online sorting software.

The results achieved by the outlined routine proved very dependable. The 95-100% consistency with which the control questions were answered by non-reading participants lies above the levels generally found in research on test-retest reliability in Q. Secondly, the dependability of the process with non-reading participants was determined by the fact that in the Q factor analysis, no significant distinction could be found between the perspectives of reading and non-reading participants, the sorts of non-readers falling right within the main clusters formed by the other sorts. Finally, the subsequent interviews and the wider qualitative data and results of the study (which included a triangulation of methods, consisting of long-term ethnography, semi-structured interviews and video-assisted observations) all confirm the success of the described extension.

In fact, the placement of the statements by non-reading participants generally involved more detailed rank ordering than the placement by literate participants. This is because people who can read are more prone to work using the columns of the grid as categories, the position of the card in the column being irrelevant. The flatter the sorting grid, the more precise the forced distribution. In my sorting grid, as depicted in Figure 1, participants worked with eleven categories or levels of agreement. With non-readers, seven potential levels of agreement were used, after which cards were compared individually to each other. Even if some minor mistakes or inconsistencies would be present in the exact relative position a statement would take in the "snake" that is part of the adapted sorting process, this often would not affect the subsequent statistical

operations, because these are only done based on the column in which a card is placed. Therefore, the process presented here, although more labor intensive, potentially is also more rigorous, and can be applied in situations where this is required.

My results indicate that non-reading participants might employ different mental strategies and are overall more consistent in rank ordering statements, possibly because they are working on a less abstract but more detailed level of organization. Overall, their explanations were more personal and situational, which is consistent with research done in other locations (Luria, 1994; Scribner & Cole, 1981), possibly because formal schooling trains people to engage in abstract modes of thinking more divorced from direct practical experience (Huettig & Mishra, 2014; Luria, 1994). The exceptional performance of non-readers may intersect with the capacity for remembering long utterances verbatim, which has been observed in oral societies, but this would require more research to determine, especially as the relationships found between literacy and performance on different forms of memory tasks has been contradictory and under-researched (Huettig & Mishra, 2014). Finally, the explanations of non-reading participants during the subsequent interviews were almost exclusively centered on a single statement, in contrast to literate participants who engaged more often in continuous relative comparisons of the statements. However, to what extent this difference is significant and how it effects the method would require more research with larger samples and in a larger variety of contexts.

Generally, research concerning the relationship between literacy and cognitive processes is still in its infancy, due to the fact that in psychology and related disciplines most research has been carried out in only a small number of Western countries (Huettig & Mishra, 2014). However, it is of importance because "reading as a recent cultural invention has not been shaped by evolutionary processes [what makes] research on the effect of literacy … a powerful tool to investigate how cultural inventions impact on cognition and brain functioning" (Huettig, 2018). As literacy levels among healthy, socially well integrated adults are improving all over the world, Huettig and Mishra urge us to undertake these research projects now, and they underline the importance of converging evidence from a variety of techniques. Such research may also contribute to identify how non-readers can be teachers of certain sets of cognitive skills that may be underdeveloped in the case of literacy.

With the extension of the approach I have presented here, Q methodology is further opened up as a tool to work with non-reading participants and to compare their results with those who are literate. This may stimulate ongoing research on how literacy and cognition are related, and at the same time make possible more adequate descriptions of and reflections on the perspectives and voices of marginalized groups, a development which has been called for widely in discussions on cognitive justice (Santos, 2018; Visvanathan, 2011). Moreover, the approach's fostering of empathy to build compassionate and trusting relationships between sorter and researcher may benefit Q researchers even if they work with literate participants (especially in situations of power disparities) to enhance the research experience as well as data quality. Specifically, the dedicated quantity and quality of time spent talking and being together; immersing the research practice in surroundings that are safe and familiar to participants; and the creative incorporation of concepts and environmental factors that are part of the lifeworld of the participants, can inspire sorters to feel safe and be stimulated to express themselves more openly and fully, while encouraging researchers to understand their participants' viewpoints in deeper ways.

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