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Q methodology for post-social-turn research in SLA

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Abstract

Q methodology, an approach to inquiry on the subjective views about a complex phenomenon/issue which has been increasingly employed in a wide range of social science fields has not yet been applied in language learning and teaching research. It is a unique approach that has characteristics of both qualitative and quantitative research methods. The purpose of the present paper is to introduce Q methodology as an alternative approach and demonstrate its potential to respond to the needs of the field that has been expanding in its epistemological diversity since the social turn (Block, 2003; Ortega, 2012). The relevance of the methodology for SLA research will be discussed with a particular focus on the parallels between the development of the methodology in the 1930s and current criticisms towards the traditional cognitive approach in SLA. Using a published study (Irie & Ryan, 2014), the author explains how the focus on the holistic understanding of subjectivity is built into the procedure. Suggestions for possible areas of research and teaching in which Q methodology could be applied are discussed.

Keywords: Q methodology, SLA research, subjectivity, qualitative, quantitative

1. Introduction

The expansion of theoretical perspectives in SLA that has been taking place over the last 20 years, referred to as *the social turn* (Block, 2003), promoted

the use of interpretative methods of research such as ethnography, narrative inquiries, and case studies as means to understand "subjective meanings of their [individuals'] experiences" rather than to measure "the objective reality that exists" (Cresswell, 2009, pp. 7-8). The recognition that the variability of success in SLA results from complex interactions between external and internal factors within each learner, and how s/he views the language and the learning, necessitates such approaches. They provide a rich description of the learner and context, and capture his/her stories as they emerge in a process of bottom-up inductive analysis of the data in forms of text typically gained from interviews and open-ended questionnaires. As theoretical perspectives on the process of language learning further diversify with an increasing emphasis on complexity, there may be a corresponding need to expand the range of research methods in order to provide alternative angles and depth to this investigation.

Q methodology is an approach to the investigation of individuals' viewpoints on any matter and has been gaining popularity in a wide range of disciplines in the social sciences such as psychology, education, nursing, journalism, and policy studies. Its systematic nature leads to consistency and comparability across studies, and transparency for the audience. Its ingenuity brings out and maintains the view of every participant intact in the process of identifying the individual views and what is common to them. However, in SLA, Q methodology has been perceived as "a variation of the normal Likert scale questionnaire" in the quantitative tradition (Bartels, 2005, p. 7). It is only very recently that a few researchers have started to explore some of the possibilities of the method (Irie & Ryan, 2014; Pemberton & Cooker, 2012; Rodriguez & Shepard, 2013) for understanding language learners. Q is unique in the sense that it has characteristics of both quantitative and qualitative approaches. It employs a special type of factor analysis to identify views that exist in a group of individuals and an interpretative process that requires the researcher to read through the data in a manner that resembles coding in qualitative studies. The main goal of the methodology is to gain an understanding of the salient feelings and opinions held by individuals, and the core of feelings shared in a group or community. What makes Q methodology distinctive is that this aim, commonly seen in qualitative inquiries, is pursued and reflected throughout the process of data collection, analysis and interpretation. For these reasons, some researchers, such as Ramlo and Newman (2011), argue that Q can be placed in the middle of the continuum between qualitative and quantitative research projects as a mixed methods approach that leans towards the qualitative end of the spectrum due to its focus on subjectivity.

As a researcher, I have often found myself torn between the arguments for a qualitative inquiry into the processes of language learning and my own

intuitions and biases as someone trained within the quantitative tradition. Discussions with colleagues over the years have taught me that I am not alone in this respect and it is for this reason that I began to explore the possibilities of Q as a methodology that incorporates the strengths of both the qualitative and quantitative tradition. In this paper, I aim to share some of that journey and to introduce Q methodology, which is still relatively unknown in the field, and highlight its potential as an alternative strategy of interpretative inquiry. Following a discussion of the history and development of Q, I will consider its relevance for SLA research before demonstrating how the aim of holistic understanding of subjectivity is built into the method using a published study (Irie & Ryan, 2014) as an example. Although the demonstration is not meant to be a manual, given the small number of Q studies in the field, it entails a certain level of procedural explanation. Finally, I will conclude this paper by making suggestions for possible areas in which Q methodology could be applied in research and teaching.

2. The impact of the social turn on the study of the individual mind

One of the major criticisms of the traditional cognitive approach to SLA has been that it does not pay sufficient attention to the individual learner (e.g., Atkinson, 2010; Lamb, 2013; Ushioda, 2009). This tendency was certainly understandable since the ultimate goal of this line of research was to establish universal models that could explain the process of SLA. However, a growing recognition of its limitations has led to the introduction of more socially-oriented approaches. Many of those who advocate alternative views such as sociocultural theory, complex theories, and language socialization, claim that the process of language learning is essentially different for all learners as it cannot take place without interacting with the surroundings (Benson & Cooker, 2013). Moreover, individual difference research, a sub-field of SLA, which seeks "to understand the general principles of the human mind and to explore the uniqueness of the individual mind" (Dörnyei, 2005, p. 1), cannot be exempted from this criticism. In response to Gregg's (2006) support for the cognitive approach, Lamb (2013) points out that "the only individual differences of interest, in this view, are those that systematically identify particular categories of learners and can be hypothesized to have specific effects on the learning process and outcome, such as age, language aptitude, or type of motivation" (p. 32). While such cognitive approaches seek general principles of cause-and-effect based on abstractness and generalizability usually through quantitative methods, alternative approaches seek situatedness and aim to highlight the uniqueness of the learner, often using qualitative methods. The impact of the new paradigms in individual difference research in SLA can be witnessed in the increasing attention paid to the importance of context and understanding learners as

flesh and blood rather than viewing these learners as representatives of large samples (Dörnyei & Ushioda, 2009, 2011; Murray, Gao, & Lamb, 2011).

Another point raised in reaction to the cognitive approach to SLA research is the importance of emotion (subjective feelings) and how it has been dealt with separately from cognition (Schutz & Pekrun, 2007; Swain, 2013). In the cognitive approach to SLA, pursuing the goal of identifying linear cause-effect relationships, the only emotion that has drawn attention in the field is anxiety (e.g., Horwitz, 2010; MacIntyre & Gardner, 1994; see Pavlenko, 2013 for a discussion of the need to expand research on affect). It has been considered as an individual difference factor that negatively affects cognitive learning processes. However, the process of language learning involves a series of emotional experiences. The development of neuropsychology and neuroimaging technology have clearly shown that emotion modulates not only cognitive processing such as attention, memory, and decision-making but also actions through certain parts of the brain such as the amygdala (Phelps, 2006; Schumann, 1997). Swain (2013) states that emotion is an integral part of cognition and that emotions are interdependent, if not inseparable (p. 196). Despite the differences that exist across the methodologies, what is common to all the interpretative qualitative studies is that they tell stories of learners' experiences which reveal how their emotions and cognitions are integrated to bring about (or fail to bring about) changes in their linguistic abilities, as well as attitudes, thoughts, and actions towards the target language. Therefore, how the learner feels about language learning and use is a legitimate research interest that needs to be explored.

3. The emergence of Q in reaction to conventional factor analysis

Interestingly, Q methodology itself emerged from epistemological and methodological concerns occurring within mainstream psychology in the 1930s which are in many respects similar to those currently being expressed in the field of second language learning research. The key figure behind the development of Q was William Stephenson, a protégé of Charles Spearman, the British psychologist known for his seminal work on human intelligence and as a leading statistician on factor analysis as well as the author of Spearman's rank correlation coefficient. Despite the fact that Stephenson had been studying under such a prominent figure in individual difference psychology, he claimed that conventional factor analysis, which had become the standard procedure of the field by the mid-1930s, was not helping researchers to understand individuals holistically and overlooked first-person accounts and subjective feelings. The statistical procedure of conventional factor analysis, in step with the broad direction of psy-

chology research, required researchers to break up people's thoughts and beliefs into a set of components to develop scales. Furthermore, Stephenson was deeply concerned that the conventional approach was providing information about the sample or the population as a whole but not the differences among the individuals being studied (Brown, 1980; Watts & Stenner, 2012).

As an essential step in conventional factor analysis, all measurements must be standardized. Standardized scores represent the positions of the measurements taken within and relative to the overall distribution of sample scores for the variable. The process of standardization dissociates the scores from the very individuals who produced them. All the scores for each item or variable directly reflect the personal characteristics of certain participants, and they only make sense by reference to them. However, the converted, standardized scores demonstrate only the standing of a specific score relative to statistically aggregated scores, no longer representing the individual.

Let us think about this in terms of research in SLA, for example, in an area such as motivation, where factor analysis has been frequently employed. In the traditional cognitive approach, motivation is often measured by a battery of assessments using Likert-type items, a set of constituents identified by the researcher. Factor analysis is then used to confirm the unidimensionality of each scale. Suppose one of the items in the data matrix was Enjoyment with the item *I like reading books in the target language*. On a 5-point Likert scale, Person A chooses 5, Person B 1, Person C 4, and so on. The standardization process transforms these individual scores into relative scores that reflect the variability of the motivational intensity measured by this statement in proportion to the whole population or the whole sample. The fact that this item differentiates Person A from Person B by four points on a Likert scale will be lost in a conventional factor analysis as the factors obtained show not individual differences between the participants but the associations between items; they show nothing about how each person feels about reading books in the target language. Dissatisfied with this standard method of research, Stephenson (1935) proposed Q methodology as an alternative way of studying the subjectivity of individuals in a holistic yet orderly fashion.

The relevance of Q methodology for post-social-turn SLA research is evident in the remarkable resemblance between the line of criticism leveled against the traditional cognitive approach to the study of the human mind in the 1930s and the current wave of criticism aimed at SLA research from scholars seeking a more holistic understanding of language learners. Q methodology identifies the signature stories that exist within a particular group of people in a systematic way that provides a certain level of transparency to the process of interpretation. This

transparency, in turn, alleviates some of the unease researchers from quantitative backgrounds often feel when encountering purely qualitative studies.

4. Q methodology

In this section, I will demonstrate how this seemingly quantitative method actually is designed to capture and find patterns in the subjective views of individuals, which is often the goal of qualitative studies. Since many readers will not be familiar with the procedures associated with a Q study, perhaps the most appropriate way to discuss the theoretical underpinnings of Q is to outline the various steps integral to a study considering the rationale informing each of these steps.

In a typical Q study, participants are given a set of cards, with each card bearing a statement (or a picture) about the topic under investigation. The participants are then asked to rate the statements according to their psychological significance (e.g., most agree to most disagree) based on their feelings, reasoning or simple preference. This is often followed by an interview with the participants about the placement of the statements and the topic. The rankings or scores are analyzed statistically by the use of inverted factor analysis, another of Stephenson's innovations (1935), in which people's views (or the sorts), and not the statements/items, are intercorrelated to produce factors. The factors represent similarities among people's views on a certain topic, not among the items as in conventional factor analysis. This procedure will be explained in more detail later. These factors are, then, interpreted using the information derived from the statistical analysis with the support of interview data and demographic data to construct a narrative account. This process is one of the reasons for Q methodology often being associated with the qualitative research tradition (e.g., Brown & Good, 2010; Shemmings, 2006; Shinebourne, 2009; Stenner, Watts, & Worrell, 2008; Watts & Stenner, 2005).

In the subsections that follow, I will illustrate the procedure using a study on the self-concept of language learners referred to as L2 self (Dörnyei & Ushioda, 2009; Mercer & Williams, 2014), which relates to how one perceives oneself in relation to one's second language learning and use. This is a longitudinal study partially reported in Irie and Ryan (2014). The aim of the study was to explore how the language learners changed their self-concept when they experienced a dramatic change in their learning environment: 19 Japanese university students (14 females, 5 males, age 19-22), who participated in various study-abroad language programs through their university in Tokyo, sorted a set of statements about learning and using their target foreign language before, during, and after their study-abroad experience. For the purpose of illustration of the five main stages, and to point out the distinctive features of the

methodology, I use only the data from the second session taken about 7 months after their departure. The discussion concerns the following, each treated in a separate subsection: defining a research question, developing a Q set, administrating Q sorts, extracting factors and interpreting the factors.

4.1 . Defining a research question

Considering the focus of Q methodology, the nature of Q studies is usually exploratory: Q methodology is designed to discover new ideas (Watts & Stenner, 2012, p. 53). However, this is not to say that Q studies cannot be used for explanatory purposes or testing theories (Ramlo & Newman, 2011, p. 185). The topics suitable for Q studies are complex phenomena that could be considered suitable for qualitative studies and on which people have different views and feelings about.

For the illustrative study, Q methodology was chosen as a method of investigation as the focus was on L2 self, an extremely personal and dynamic concept that is relatively new in the field of SLA. The purpose of the investigation was to explore how the learners incorporate their anticipation of and actual experience of going overseas as part of their L2 self-concept. Therefore, the main question was how they perceived themselves in relation to L2 learning and use, which became the basis for the *condition of instruction*, the actual instruction given to the participants to sort the statements: *How descriptive is this statement about your view of learning and using the target language?*

4.2. Defining and developing a Q set

Developing a Q set, a collection of statements, may at first appear similar to the process of developing a scale in traditional psychometric studies. However, a Q set is an embodiment of *concourse*, a concept proposed by Stephenson: "the universe of subjective communicability surrounding any topic, of the kind found in ordinary conversation, back-fence gossip, commentary deposited on Internet blogs and exchanged in chat rooms, and extending to the high-level discourses of epistemic communities across all the sciences" (Brown & Good, 2010, p. 2). The concourse, therefore, is infinite as there is no limit to how people feel and what people say about the matter, which is deeply rooted in specific historical and cultural contexts. The development of the set becomes the key to the quality of a Q study. The statements in a Q sort should be as heterogeneous as possible yet all about the chosen topic onto which the participant can project their feelings. Brown (1980) refers to the process of making a Q sort “more an art than science” (p. 186). The construction of a Q set

has been criticized (Block, 2008, Kampen & Tamás, 2013) for the lack of systematicity in selecting statements and evaluation of the meaningfulness for the participants. One way to guard against these criticisms is to identify key themes and issues either a priori, based on theories and previous studies or within the statements collected from various sources and to consider the balance and coverage of themes. The latter approach of using emergent themes is familiar in qualitative research. The meaningfulness for the participants can be assessed by how the participants feel: ". . . we have to make sure that our participants emerge from a Q study feeling they have been given the means to successfully model and express their viewpoint" (Watts & Stenner, 2012, pp. 58-59).

For the Q set in the illustrative study, a total of 127 statements were collected from the literature and established questionnaires that have been used in previous L2 motivation and other related research. These were then reduced to a set of 50 statements mainly through piloting and eliminating overlaps and redundancy (see Table 3). In addition to the preservation of the range of the statements, particular care was paid to how realistic and relevant the ideas and wordings of the statements in Japanese were to the Japanese university students who participated in the study.

4.3. Administering Q sorts

The Q sort is at the heart of any Q study. For this step, the participant is asked to place the cards along a continuum between two extremes in a quasi-normal distribution in response to the condition of instruction (see Figure 1). The use of such forced distribution is another point Q methodology is often criticized for, as it can seem to restrict the sorter's expression of their views. However, this step is primarily a device to encourage the sorter to think carefully and compare all items; in fact, this forced distribution has a negligible effect on the results of factor analysis (Brown, 1980, pp. 288-289; Brown, Danielson, & van Excel, 2014). Unlike Likert-type questionnaires, participants can stop at any time and look at the placement of all the other items and make changes which they feel are necessary. This facilitates a greater level of reflection and engagement with the research instrument. Q practitioners tend to carry out a follow-up interview to gain more information about the views of participants. The interview data can be useful in interpreting the results of the statistical analysis. The interview data can also add richness and depth to the narrative construction. In the illustrative study, the participants ranked the 50 statements in each pile of cards following the guidelines of how many cards should be allocated to each score, ranging from -5 (least descriptive of me) to +5 (most descriptive of me).

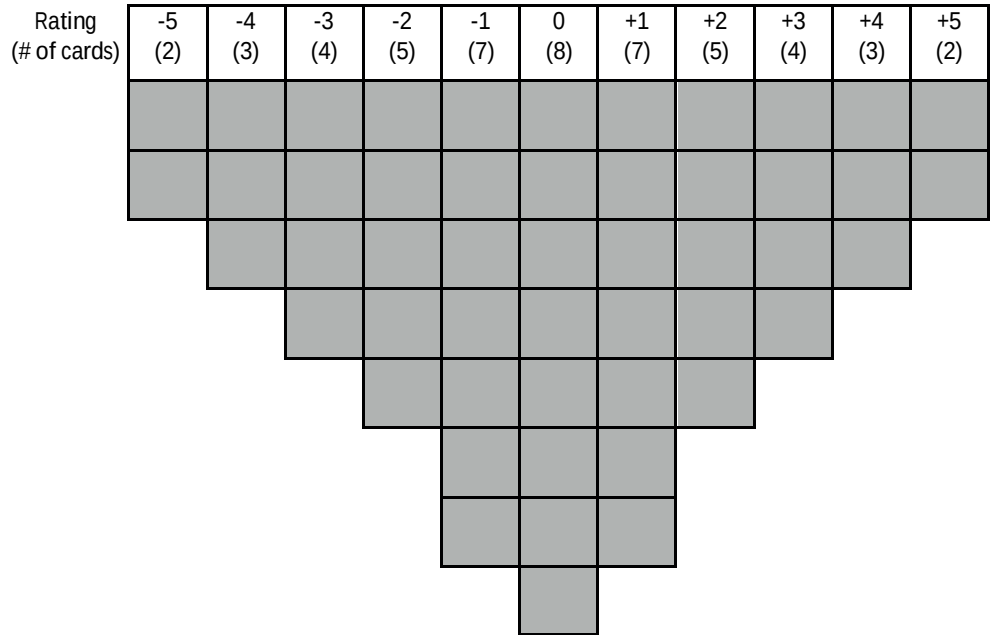

Figure 1 Fixed quasi-normal distribution used for the 50-card sorts used in the illustrative study (Irie & Ryan, 2014). The number in the parentheses indicates the number of cards to be placed at each score.

4.4. Statistical analysis: Inverted factor analysis

The statistical analysis of the data is usually carried out through the use of dedicated software (e.g., PCQ, PQMethod). In Q studies, items (statements) are rated, or "measured" by each person, not the other way around, as is usual in survey studies in which people are measured by items. Therefore, in this inverted factor analysis, unlike in the conventional statistical procedure, the participants are regarded as variables and the Q items as a sample. It is participants' views that are grouped based on the similarity of the rated order of the items, not the similarity of the items. Therefore, the extracted factors represent nonexclusive groups of people who share similar viewpoints (Watts & Stenner, 2012).

Table 1 shows the result of the transition made from the sort done in the shape of the inverted pyramid (Figure 1) to numerical data. For example, for Participant A in Table 1, the data shows that this participant gave a score of 3 to Statement 1. This means that Participant A placed the card under the score 3 in the sort (Figure 1), and there are three other statements with the same score. Going from the left to right in Row 1, Statement 1 (*I would like to try living in a foreign country in the future*) is agreed with more strongly by Participants A and C than Participants F (-3) and G (-5). If we are to compare the sorts manually, we might spread the inverted-

pyramid diagrams on the floor and try to group them visually according to the similarity of the arrangements of the item. Instead, in Q, this is done statistically by inverted factor analysis. Given the complexity of the matter investigated in Q studies, the centroid factor analysis is preferred over principal component or cluster analysis as it allows more room for the researcher to explore solutions by manually rotating factors using what she or he knows about the participants and the topic (Brown et al., 2014). It also allows the participants to load on more than one factor as people cannot be categorized exclusively into one group or the other. This means that we can make copies of a sort and place them in more than one group by looking at different parts. This point is an important one that distinguishes Q from other so-called reductionistic approaches. The purpose of Q methodology is not to identify every single viewpoint (which is infinite) but to highlight the salient feelings shared in the particular group of people.

Three factors emerged in the segment of data focused on in the illustrative study, accounting for 51% of the total variance. In Table 2, the factor loadings with *x* indicate a defining sort, which means that these sorts largely characterize the view that has emerged as a factor. In other words, these sorts define the core of the feeling represented by the factor.

Table 1 Raw data matrix of 8 selected sorts in the illustrative study

	Participants/sorts							
Item	A	B	C	D	E	F	G	H
1	3	1	3	0	0	-3	-5	0
2	-2	-1	-1	1	-1	0	-1	-2
3	-3	-5	-5	-5	0	1	-2	1
4	-1	-1	-3	-2	1	1	0	0
5	1	0	2	0	1	-1	-2	0
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
47	0	0	2	-1	3	+5	1	2
48	0	1	5	1	-5	-1	3	1
49	1	-3	-1	-5	0	-1	1	2
50	-4	-2	-1	1	-5	0	-1	-5

Table 2 Factor loadings of the selected Q sorts (after a varimax rotation)

Sort/participants	Factor 1	Factor 2	Factor 3
A	0.73x	-0.02	0.32
B	0.69x	-0.01	0.31
C	0.75x	-0.05	-0.03
D	0.62x	-0.36	0.00
E	-0.04	0.60x	-0.05
F	-0.24	0.64x	0.30
G	0.04	-0.12	0.59x
H	0.22	0.03	0.69x

The final step in the statistical procedure before interpreting the factors is to produce a *factor array*. This can be considered as a model or composite Q sort for a particular factor. The factor arrays for the three factors with the ranking assigned to each statement in the model sorts are shown in Table 3. Statement 1 *I would like to try living in a foreign country in the future* is given a rating of +2 in Factor 1 but -2 in Factor 2. This means that people who belong to Factor 2 are likely to have ranked this statement as -2. The statements ranked at both ends (+/-5) can be considered to have the strongest psychological significance for those who loaded on the factor and share a similar view.

Table 3 Factor arrays for the selected factors in the illustrative study

No.	Statement	Factor 1	Factor 2	Factor 3
1	I would like to try living in a foreign country in the future.	2	-2	-2
2	Whenever I think of my future career, I imagine myself being able to use English.	-1	0	-1
3	I will be able to use English effectively in the future.	-5	1	0
4	I can imagine speaking English comfortably with foreign friends in the future.	-2	1	0
5	I want to play an active role in a globalized society.	0	0	-1
6	I would like to be able to express my opinions in English.	-4	2	-2
7	I want to be respected because I speak English fluently.	-1	4	0
8	I've wanted to speak English fluently since I was very young.	0	-2	-1
9	English will expand my possibilities in the future.	-1	1	-3
10	If I could speak English I would be a much cooler person.	-3	2	-3
11	I must learn English in order to become an educated person.	-5	0	0
12	Learning English is necessary because it is an international language.	3	0	1
13	I am expected to be able to function in English after I graduate.	1	-1	4
14	In order to get a good job I will need to be able to use English well.	3	-4	1
15	I need to be fluent in English to do the job I want to do.	-1	-4	-3
16	I study English to enjoy travel abroad.	0	0	-3
17	I will feel happy spending a lot of time studying English.	2	1	-1
18	My goal is to be able to speak English like a native speaker.	2	1	2
19	I will continue studying English after university.	-4	0	0
20	I enjoy encountering new ideas in my English study.	-4	4	-1
21	I have an English learner role model.	-2	-4	-5
22	Becoming fluent in English is one of the most important things in my life right now.	0	1	-2
23	To be honest, I have no idea why I'm learning English.	4	-1	5
24	I like learning languages in general not only English.	-2	1	-1
25	I am a proactive English learner.	-3	0	2
26	I regularly study English in my own time.	-2	2	-1
27	I enjoy films or TV programs in English.	4	2	3
28	I enjoy reading newspapers, magazines, or websites in English.	0	-1	1
29	Interacting with foreign people in English is fun for me.	-1	4	2
30	I like myself when I'm speaking English.	1	2	1
31	I feel comfortable in the casual style of communication in English.	-3	5	-2
32	I feel like I'm a different person when I speak English.	1	-5	3

33	I feel good when speaking English.	-3	3	-3
34	I am appreciated by my family because I speak English.	1	-2	0
35	People around me are not interested in the progress of my English learning.	0	-2	0
36	Some of my family or friends may feel let down if I fail to learn English well.	1	-1	5
37	I have close friends that speak English as an L2.	0	3	4
38	People around me don't understand how important learning English is for me.	1	-3	-5
39	I think I'm naturally quite good at learning languages.	-1	-1	1
40	I'm too shy to speak English well.	3	-2	0
41	I don't have the right personality for learning English.	5	-1	1
42	No matter how hard I try, I don't think I'll ever be able to master English.	4	-5	3
43	I'm just not smart enough to learn English well.	3	-2	4
44	If I make more effort, I am sure I will be able to master English.	1	3	-4
45	For people around me learning English doesn't really matter that much.	5	3	-4
46	Speaking English is a part of my everyday life.	2	-3	1
47	I have friends I communicate with in English.	0	5	2
48	I'm the only person I know who is serious about learning English.	2	-4	3
49	These days I feel like English is at the center of my everyday life.	-1	-1	2
50	I don't have opportunities to use English in my everyday life.	-2	-3	-4

4.5. Interpreting the factors

Among published Q papers, it is understandably common to see discussion focused only on the statements ranked at the extreme ends of the factor array; more often than not, this is a consequence of the publication requirements of journals and very similar to the frustrations experienced by qualitative researchers, who are often required to simplify and reduce their data for publication. However, interpretation should be based on the whole configuration of a Q sort following the factor array. It is a story-building process. Although there is no fixed way of interpreting the factors and developing a narrative, which sometimes invites criticism (e.g., Kampen & Tamás, 2013), I find the use of crib sheets as described by Watts and Stenner (2012) useful. It provides a framework for rigorous logical thinking. Following their procedure as a guideline, I now illustrate how studying the entire factor array can bring a much fuller picture and breathe life into the factors that emerge from the statistical analysis. This is the point where the truly qualitative nature of the methodology becomes apparent.

In order to communicate this point, I will focus only on Factor 1 and outline how the process of interpretation may unfold. The process begins with going through the rating of each item in the Factor 1 array (Table 3) and comparing it with that of other factor arrays, writing down the notable items that fit four categories: (a) items ranked at +5, (b) items ranked higher in Factor 1 than in other factors, (c) items ranked lower in Factor 1 than in other factors, and (d) items ranked -5. For

example, Item 1, *I would like to try living in a foreign country in the future*, can be placed under the category (b) as it is ranked only at +2, but -2 at the other two factors. Item 2 *Whenever I think of my future career, I imagine myself being able to use English* is rated -1 and also similarly by the other two factors, so it will not be included in this crib sheet at this initial stage. Item 3 *I will be able to use English effectively in the future* is ranked at -5, which indicates the great psychological significance of this item to those who hold this view, and particularly so when compared to other factors which ranked the item more or less in the middle. Therefore, it is not simply drawing a cut-off line. The researcher needs to make a decision whether the item actually is a crucial element in the view, as if reading through a transcript and deciding if a certain utterance or episode is meaningful or not, and how to categorize it. Table 4, the first crib sheet, provides the result, an overview of what distinguishes this view from the other views. The outline of the mixed, if not self-contradictory, view represented by this factor is already emerging.

Table 4 Crib sheet 1 for Factor 1

Item	Ranking
(a) Items ranked at +5 (2 items)	
41 I don't have the right personality for learning English.	5
45 For people around me learning English doesn't really matter that much.	5
(b) Items ranked higher in Factor 1 array than other factor arrays (11 items)	
1 I would like to try living in a foreign country in the future.	2
12 Learning English is necessary because it is an international.	3
14 In order to get a good job I will need to be able to use English.	3
23 To be honest, I have no idea why I'm learning English.	4
27 I enjoy films or TV programs in English.	4
34 I am appreciated by my family because I speak English.	1
38 People around me don't understand how important learning English.	1
40 I'm too shy to speak English well.	3
42 No matter how hard I try, I don't think I'll ever be able to master English.	4
46 Speaking English is a part of my everyday life.	2
48 I'm the only person I know who is serious about learning English	2
(c) Items ranked lower in Factor 1 array than in other factor arrays (11 items)	
4 I can imagine speaking English comfortably with foreign friends.	-1
6 I would like to be able to express my opinions in English.	-4
7 I want to be respected because I speak English fluently.	-1
19 I will continue studying English after university.	-4
20 I enjoy encountering new ideas in my English study.	-4
24 I like learning languages in general not only English.	-2
25 I am a proactive English learner.	-3
26 I regularly study English in my own time.	-2
29 Interacting with foreign people in English is fun for me.	-1
37 I have close friends that speak English as an L2.	0
47 I have friends I communicate with in English. 0	0

(d) Items ranked at -5 (2 items)	
3 I will be able to use English effectively in the future.	-5
11 I must learn English in order to become an educated person.	-5

In order to make the view more complete, by looking at all the remaining items in the factor array, an additional set of 11 items are selected for the interpreted meaning based on the statement and its ranking to develop the description of the view (see Table 5). This process also requires a great deal of rigor on the part of the investigator to keep asking herself/himself what the rating of the statement means and make decisions on the selection. Together with the items in the first crib sheet, a total of 37 items provides a picture that is more comprehensive than only the four items rated at both ends yet also more coherent than trying to make sense of all the 50 items.

Table 5 Crib sheet 2 for Factor 1 (11 additional Items)

Item (The reason for selecting the item)	Ranking
2 Whenever I think of my future career, I imagine myself being able to use English. (The lack of clear future self image that is usually connected with a career goal)	-1
9 English will expand my possibilities in the future. (The ambivalent feeling about the utilitarian value of English)	-1
13 I am expected to be able to function in English after I graduate. (Indifference to the society's expectation)	1
15 I need to be fluent in English to do the job I want to do. (The ambivalent feeling about the utilitarian value of English)	-1
17 I will feel happy spending a lot of time studying English. (The willingness to study and the frustration of not being able to spend enough time)	2
18 My goal is to be able to speak English like a native speaker. (High expectation)	2
22 Becoming fluent in English is one of the most important things in my life right now. (The lack of commitment)	0
31 I feel comfortable in the casual style of communication in English. (The difficulty of adjusting to the way people communicate in the language community)	-3
33 I feel good when speaking English. (The frustration with the language, conflict in making it as a part of self)	-3
43 I'm just not smart enough to learn English well. (Attribution of failure to a stable and uncontrollable factor)	3
44 If I make more effort, I am sure I will be able to master English. (Limited value of effort)	1

As the final output of the analysis, each view is described in simple and ordinary expressions for the readers to also experience the feelings that guided the people to rank the statements. Let us consider the example of Factor 1 and how it can be summarized (see Table 6).

Table 6 Summary interpretation of Factor 1

Factor 1: I'm interested but English is not my thing
The L2 self identified by Factor 1 is characterized by two conflicting attributes. On the one hand, those who share this view hold a desire to live overseas (1: +2) and are enjoying films and TV programs in English (27: +4); they even consider English as part of their everyday life (46: +2). Their English ability is appreciated by their family to some extent (34: +1). For them, the ultimate goal of language learning is to become like a native speaker (18: +2). On the other hand, when they turn their thoughts to their future, it is very difficult for them to imagine themselves as effective and comfortable users of English (3: -5, 4: -1, 2: -1). This anticipated failure to master the language is attributed to a stable and controllable factor such as their unfit personality (41: +5, 40: +3), and lack of ability (43: +3), which cannot be overcome by effort (42: +3, 44: +1). While they wish to spend more time on improving their English (17: +2), they feel they are alone in their struggle (45: +5, 48: +2, 38: +1, 37: 0, 47: 0). With a fixed mindset, it is understandable that they do not make learning English a priority (25: -3; 26: -2, 22: 0). Their perception of their unsuitable personality may also come from the discomfort they experience in L2 communication (33: -3, 31: -3, 29: -1). After formally studying English in school for at least 8 years, they espouse the discourse of internationalization and the necessity of English (12: +3, 14: +3). However, when it comes to the personal meaning of learning English, they seem to be at a loss (23: +4, 13: +1) and doubt its value in education (11: -5, 7: -1) and even for their future career (9: -1, 15: -1). They certainly do not find enjoyment in the process of language learning (24: -2), including encountering new ideas and values (20: -4) or expressing their ideas (6: -4). Therefore, it is unlikely that they will continue to study English once they graduate from university.

The narrative descriptions of the views identified can be compared to the findings in other studies and used to develop theories, support or cast doubt on them. For example, the view described for Factor 1 complements the ambivalent feelings held by Japanese learners of English pointed out in the literature. Kozaki and Ross (2011) discuss the body of research that suggests these mixed attitudes may be a consequence of Japanese educational policy on English as a foreign language under the framework of internationalization that has a dual aim of developing human resources for international business and developing their sense of "uniqueness" as the Japanese in the largely monolingual nation. Similarly on the ambiguity, Ryan (2009) argues the internationalization discourse is not meaningful enough for the majority of the students to actually make a long-term commitment.

While generalizability based on statistics is not usually relevant to interpretative studies, *analytic generalizability*, identifying concepts at a more abstract level, extends the value of the study beyond particular cases studied (Yin, 2009). The factors described in most Q studies are not of any single person but of a composite picture that can provide a holistic understanding of a feeling.

5. Possible applications of Q methodology in SLA research

Q methodology can be applied to any area of SLA research that requires an in-depth understanding of the learner's situated subjective view of a complex

phenomenon. The most obvious place to start may be the themes related to affect and beliefs as these directly focus on the minds of learners and are areas that have proved challenging using other methods. Researchers adopting socially-oriented approaches and working on concepts such as identity and agency, who have been almost exclusively employing ethnography and narrative studies, may also consider Q methodology. It can identify patterns in the construction of perceptions within a group of learners or within the same person over a period of time in a single-participant design (e.g., Goldstein & Goldstein, 2005). Although the use of single-participant design is still rare, it may be used to explore self-organization and self-similarity discussed in complex-adaptive systems theories (e.g., Larsen-Freeman & Cameron, 2008; Richards, Ross, & Seedhouse, 2012) as it can identify the commonalities or changes in the same person over time.

The use of Q methodology may shed new light and deepen the understanding of aspects of SLA that have been previously investigated within the traditional cognitive framework. It can break down the barriers between cognition and emotion as well as the existing categories so as to overcome "a straightjacket of dichotomous thinking" (Ortega, 2010, p. 170). For example, many categories are identified for personality, learning styles, and strategy use; however, it has been difficult to see how they are orchestrated within each learner in particular contexts. Creating a Q set that covers a range of attributes complemented by in-depth interviews, it may be possible to identify beliefs and perceptions in which various learning preferences and self-perceived qualities are integrated and internalized. These identified views may serve as initial conditions or as a grouping for purposive sampling in longitudinal case studies.

Finally, one of the distinctive and valuable qualities of Q methodology that was mentioned but not elaborated on in the present paper is the participant's active engagement in the research task. Sorting the statements about language learning actually provides the learner with valuable opportunities to reflect on their own learning (Cooker & Nix, 2011) and this ecological dimension has led Pemberton and Cooker (2012) to propose that it can be used also as an educational task to facilitate learners' autonomy and self-awareness. The full or partial involvement of students to generate Q statements should enhance their meaningfulness. This immediate pedagogical usefulness is also in line with the recent call for more ethical considerations in second language research (e.g., Ortega, 2005, 2012).

Q methodology represents a highly original research method that can paint an emotional and cognitive landscape of a particular context by connecting the core feelings and thinking of individuals about a complex subject matter. It can do so without polarizing the view of each person into components

that are fixed a priori. Q methodology offers an alternative strategy of inquiry, responding to the demands of the ever-diversifying theoretical perspectives and complexity of the subject matters in the field.

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