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Subjectivity objectified: The origins, development, and implementation of
Q methodological single case studies

Jeffrey M. Meier

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Thesis Submitted for the Degree of M.Sc.

University of Durham

Department of Psychology

2004



04 NOV 2005

Abstract

This thesis explores the origins, development and implementation of Q methodology and Q methodological single case (QMSC) studies. The thesis begins by first establishing the historical and methodological background from which the later procedural and theoretical discussions of these investigative approaches sprang. These discussions initially revolve around a collection of both published and unpublished works utilizing Q methodology and QMSC studies by William Stephenson, the developer and primary champion of these methodologies, and by some of his students and colleagues. The application of QMSC studies to the objective investigation of subjectivity is then established, both as utilized in studies conducted by Stephenson and as employed by other researchers in academic fields such as sociology, psychology, and political science. Through the presentation of this QMSC work, the flexibility of Stephenson's approach is demonstrated. This flexibility is a product of the methodology's ability to aid in the objective investigation of behavioral influences on an individual from the perspective of nearly any individual in essentially every field of social science, both when used alone and when combined with Q methodology and other research procedures. What is more, QMSC studies are shown to demonstrate sensitivity to the uniqueness of each case while maintaining a concern for statistical rigor. Particular attention is paid to some of Stephenson's unpublished QMSC studies. Examples of the use of QMSC by other researchers are also presented, and the current revival of interest in single case work in fields such as the study of personality and cognitive neuropsychology is also noted. Some limitations of the research are discussed. The thesis concludes with an assessment of the significance and future potential of QMSC studies in a variety of

applied and research fields—including marketing, criminal justice, and in my own work in medicine.

This thesis is a product of my own work, and the material contained herein has not previously been published.

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Acknowledgements

The composition of this thesis could not have proceeded without the contributions of a variety of individuals and organizations. First and foremost, I thank my supervisor, James Good, for his insight, teaching, and guidance throughout the course of my research and writing. My gratitude also extends to his wife, Halusia, who, with Mr. Good, provided the hospitality that brightened my stay in Durham. To my parents, sister, brother, and fiancée, Melissa, I express love and thanks for their support, words of encouragement, and editing services. My appreciation also goes out to Robert Mrtek, PhD, of the University of Illinois at Chicago, for introducing me to and fostering my interest in Q methodology and QMSC studies.

Many thanks, also, to: the United States-United Kingdom Fulbright Commission, who funded and administered my research grant, thus allowing me both to pursue this intensive interest and to explore the United Kingdom; the Department of Psychology at the University of Durham and its faculty and staff for providing an ideal environment in which to conduct my research; and the Western Historical Manuscripts Section, Ellis Library, University of Missouri-Columbia, for access to documents that proved critical to the completion of this thesis.

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Chapter 1

Introduction to the objectification of subjectivity



In her novel, *To Kill a Mockingbird*, the American novelist Harper Lee (1960) explains, “You never really understand a person until you consider things from his point of view...until you climb into his skin and walk around in it” (p. 30). Since having read Lee’s novel in an American high school English course, I have tried to remember this assertion in my day-to-day interactions with individuals of backgrounds and opinions different from my own. Upon undertaking my collegiate studies, however, I soon learned that Lee’s perspective on dealing with others is applicable far beyond typical daily encounters.

Background and Interests

With my sights set on attending medical school after earning my undergraduate degrees, my undergraduate coursework was, first and foremost, designed as a premedical education. As I progressed through my undergraduate studies, I tried to apply what I was learning to medicine. While my studies of the “hard” sciences helped me appreciate the inner workings of humans, from the level of the entire body down to the level of cellular organelles, psychology reminded me that beyond those hard facts, medicine involved working with and on thinking, feeling, interacting people.

The existence and importance of this softer side of medicine was reinforced through my experiences while acting as a volunteer in the Department of Pulmonary and Critical Care in the University of Illinois Medical Center. The physicians in this department treated patients with a range of pulmonary illnesses, from relatively common and controllable disorders like asthma to more uncommon and acute conditions like lung cancer. Although patients were grateful that state-of-the-art pharmaceuticals—as well as highly invasive and advanced techniques like lung

transplantation—helped some of them control and live with their diseases, the efficacy of the treatment for a condition is only as good as the compliance of the patient with the recommended medical procedures. Restated, the most powerful, advanced, effective treatment is rendered essentially useless if the intended target of its virtues (i.e., the patient) does not abide by the guidelines recommended for successful treatment. Some people may be tempted to throw their hands in the air in the face of patients with advanced heart disease who refuse to exercise and modify their diets, despite the demonstrated and understood influence of these factors on their prognosis. I saw this patient resistance to compliance, however, as a perfect venue for merging my premedical education with my interest in psychology.

As such, I began working with Robert Mrtek and Medha Joshi at the University of Illinois at Chicago College of Medicine, studying the reasons for noncompliance with recommended medical treatments of individuals with Type II diabetes. By and large, the individuals within the small group of diabetic patients with whom we worked displayed resistance to accepting the lifestyle changes necessary for the successful maintenance of their health and to slow the progression of their disease, despite being informed by their physicians as to the behavioral modifications and procedures involved and likely progression of the disease if left unchecked. However to understand behavior like this noncompliance that, to medical professionals and students, seemed nonsensical, we needed to conduct an objective investigation of patient subjectivity using a methodological tool that would provide us insights as experienced by and from the perspectives of the patients themselves. That is, we needed, as Lee (1960) might articulate, to climb into the patients' skin and walk around in it.

To study objectively the thoughts, beliefs, and other subjective experiences of the diabetic patients that contributed to and resulted in this noncompliance, we employed an intensive (i.e., involving prolonged, thorough investigations of each participant, as opposed to more extensive, cursory experiments) investigative approach called Q methodology. Developed by William Stephenson (1935a), Q methodology is designed for the objective study of subjectivity from the standpoint of and as experienced by participants (i.e., rather than researchers). Using it, Drs. Mrtek and Joshi and I found several common behavioral patterns (i.e., behavioral patterns called “factors,” as described later in this chapter) associated with patient interpretations of and behavioral approaches to Type II diabetes. Some of the behavioral patterns that emerged from the study proved particularly intriguing as they were relatively unexpected by us. Beyond providing a clue to the influences motivating the patients’ behavior, though, these unexpected results demonstrated to me the power of insight offered by Q methodology.

Enthused by the capabilities of this methodology to elucidate behavioral influences as manifested by a group of diabetic individuals, I began to wonder about its application in the study of the subjective experiences of a specific group of patients who regularly visited physicians in the Department of Pulmonary and Critical Care. Namely, I wondered if Q methodology could be utilized to study the thoughts, beliefs, feelings, and similar subjectivity of lung transplant patients. These patients typically undergo extensive treatment prior to receiving a transplant, and they must effectuate behavioral changes starting directly before and continuing permanently after the transplant operation to minimize the likelihood of tissue rejection, disease recurrence, and the like. Thus, the ultimate success of such an organ transplant as measured in added years of healthy life is highly dependent upon

a patient's willingness and ability to follow recommended lifelong behavioral guidelines. An investigation into behavioral and other subjective influences that may contribute to either increasing or decreasing the likelihood that a patient will adopt such behavioral modifications may help physicians tailor their consultations with the patient to address specific patient concerns and stress pertinent information. This customized treatment, especially when provided across the long treatment duration associated with such transplant patients, may aid in maximizing the probability of patient compliance with suggested behavioral protocol.

I realized that while Q methodology was ideal for studying such behavioral influences and subjective experiences, the methodology is designed for use with small groups of participants. So, while Q methodology is well suited to study diabetics, far fewer patients undergo lung transplant operations than live with diabetes. In fact, even at an urban medical center, such transplantations are quite infrequent. Thus, research focused on behavioral influences in transplant patients would need to operate with far fewer participants—and perhaps even only one.

Dr. Mrtek suggested that Q methodological single case studies (hereafter QMSC), a variation of Q methodology that was also developed by Stephenson, may provide the approach necessary for such investigations. In an effort to gather a better understanding of the methodology's application within medical research, I asked Dr. Mrtek for examples of such QMSC studies that he could recommend I read. He responded that he knew of no instances of such research having been performed—and published—within medicine.

This lack of QMSC research in medicine perplexed me and prompted me to ponder several questions. For instance, I wondered what was involved in conducting QMSC studies. Also, what differentiated QMSC studies from standard Q

methodological investigations while still maintaining enough similarities that both shared a heightened ability (i.e., over traditional experimental endeavors) to study and gain understanding about behavioral influences and subjectivity in individuals?

Beyond these questions of the current form of QMSC studies, though, I noted Brown's (1968) contention that a researcher performing such a Q methodologically-based investigation needs first to understand the roots of Q methodology before reaching conclusions about its appropriateness and use. This call for a return to fundamentals was another important part of the motivation for my research, and it compelled me to question why and how Stephenson developed Q methodology and QMSC studies. Additionally, how did the wider research community react to the development of these Q methodological approaches? Lastly, given the procedural and theoretical background of QMSC studies, along with their development and reception by researchers, I was curious as to how and in which fields both Stephenson (i.e., the person who originally envisaged the need for and use of such an approach) and others have applied the single case methodology.

With these questions answered, I hoped to be able then to judge the appropriateness and suitability of applying QMSC studies to the investigation of behavioral motivation and subjectivity as experienced by transplant and other similar patients. Although my questions regarding QMSC studies seemed relatively straightforward and simple when coursing through my mind, I soon found that a great deal more than cursory research was required to understand fully this intensive investigative approach. Thus, my motivation for conducting the current research fully emerges.

Approach to Research

With the limited, positive exposure that I had to Q methodology, I began this research with cautious optimism for the potential of QMSC studies to enable researchers to dig deeper into and help cultivate an understanding of behavioral motivations and subjectivity as experienced by an individual. As such, I did not conduct extensive research into more traditional investigative approaches in an effort to pit them against QMSC studies. Rather, I simply looked at Q methodology and QMSC in their own right, gathering together a diversely spread collection of papers—both unpublished manuscripts and published works—of Stephenson and other researchers. In the process, I learned some of the specific benefits and problems associated with the intensive investigative approaches as compared to their traditional, extensive brethren.

Research Aims

With this research, I plan to introduce the reader to Q methodology and QMSC studies, establishing a historical and methodological background from which to proceed through later procedural and theoretical discussions of the investigative approaches. I also aim to bring together a collection of both published and unpublished works on Q methodology and on QMSC studies in particular to trace the origins and development of QMSC studies as fostered by Stephenson and supported by others. I then intend to demonstrate the application of QMSC studies, both as envisioned by Stephenson and as employed by other researchers. Through the presentation of the QMSC work of these other researchers, I will assess the significance and future potential of QMSC studies in current research. Finally, I mean to use these studies as a base from which to suggest future topics of

investigation for the methodology, both in general research endeavors and in my own work.

Overview of thesis

Before embarking on an examination of the origins and development of Q methodology and QMSC studies, I decided that I should first establish for myself a solid foundational understanding of the procedural aspects of the two methodologies in their current permutations. From this even footing, I then felt that I would be better equipped to understand and relate the principles and theory that contributed to the evolution of Q methodology and QMSC studies. Mirroring this approach to my research, Chapter 2 includes a preliminary discussion of Q methodology and QMSC studies as researchers employ them today. This introductory outline introduces terminology and procedures associated with both Q methodology and QMSC studies and elaborates on debates that exist between various researchers who utilize the methodologies; it also provides a short biographical description of William Stephenson, the pioneer of Q methodology and QMSC studies.

After establishing this methodological basis and understanding, I then look back to the origins of Q methodology in Chapter 3, reviewing the influences on Stephenson that prompted him to propose the new investigative approach. After then working through Stephenson's introductory papers on Q methodology (i.e., Stephenson 1935a, 1935b, 1936a), I present the work of some of Stephenson's contemporaries. The ideas presented by these other researchers focused as they were predominantly on objective features of human behavior likely reinforced for Stephenson the need for an rigorous single case methodology focused on

subjectivity. They thus contributed to his refinement of Q methodology into QMSC studies.

Then, in Chapter 4, I discuss Stephenson's first major and detailed presentation of QMSC studies in his 1953 book, *The Study of Behavior*. In this book, Stephenson discusses general questions and criticisms posed by researchers regarding Q methodology since Stephenson's introductory papers on the topic. In the process of solidifying the merits of Q methodology, Stephenson also introduces and demonstrates the application of QMSC studies, unveiling to the research public his solution to the by-then established conundrum of intensively studying the subjectivity of an individual from the individual's perspective while constantly maintaining a high degree of objectivity and scientific worth.

In *The Study of Behavior*, Stephenson introduced an investigative approach that was fundamentally different from methods widely employed by his contemporaries. While his peers in psychology generally championed the use and need of large numbers of research subjects when performing tests in order to arrive at results that could potentially be considered significant, Stephenson eschewed such an extensive, "large group" mentality. Rather than looking at a group of people in a cursory or superficial fashion like many of his contemporaries, Stephenson proposed a more intensive, probing approach to conducting scientific inquiries.

Although the notion of using as few as one participant when carrying out research was hardly new (e.g., Ebbinghaus, 1885/1964; Lasswell, 1938; Burgess, 1941; Stouffer, 1941; Baldwin, 1942; Boring, 1942; Primoff, 1943; Breuer & Freud, 1955), Stephenson envisioned a variation on such preexisting single case studies. This newly devised means of inquiry was based upon Q methodology, an investigative methodology initially proposed by Stephenson (1935a), but differed in

its use of only one participant or few participants. Termed “Q methodological single case studies,” Stephenson’s investigative approach was designed as a means of identifying and operationalizing patterns of behavior in an effort to objectify more fully the study of an individual’s subjectivity.

This methodology is ideally suited for studying topics influenced by or generally associated with subjective experiences. Since such subjectivity is inherent in nearly every field devoted to the study of some aspect of human thought and behavior (e.g., psychology, political science, sociology, marketing, etc.), this approach is widely applicable. The reception of this and other concepts within Stephenson’s book by researchers shaped Stephenson’s approach to his next QMSC study installments.

Stephenson’s next significant contributions to the development and advancement of QMSC studies (i.e., Stephenson, 1972, 1974) are then dealt with in Chapter 5. In these works, Stephenson addresses critics’ assertions specifically regarding QMSC studies. Furthermore, Stephenson also expands on his 1953 discussion of the single case approach, referring to single case research and other potential applications of QMSC studies. Combined, these Stephenson papers proved to be his definitive statements on QMSC studies and were generally well received by his Q-methodology contemporaries.

I then look at one of Stephenson’s most favored means of championing QMSC studies. Specifically, I present Stephenson’s own applications of the single case approach within a variety of fields (e.g., psychology, marketing, literature) in Chapter 6. Beyond using QMSC studies to understand the behavioral influences and subjective experiences of others, however, Stephenson also applies the methodology to himself, attempting in the process to understand his own views toward retirement

(Stephenson, 1992, published posthumously), his personality (Stephenson, 1990, published posthumously), and old age (Stephenson, 1989).

In an effort to contextualize QMSC studies in contemporary research, I present several applications of the methodology by researchers since Stephenson's death in 1989. In addition to demonstrating further the power of insight offered by the approach, these QMSC studies are conducted within a variety of fields. As such, this section (i.e., Chapter 7) of other researchers' recent applications of Stephenson's brainchild displays the broad usefulness of QMSC studies.

Finally, I conclude in Chapter 8 with a review of the origins, development, and implementation of QMSC studies. I look at the possible reasons for and sources of biases amongst researchers that have caused QMSC studies to be relatively underutilized. Following this discussion, I then discuss limitations of my research. After then outlining the prospects for QMSC studies in research by addressing in which areas it has particular potential for future application, I close by discussing my hopes for my own use of QMSC studies. I also note the growing interest in the human sciences in single case studies, especially in cognitive neuropsychology. Such studies seldom make any reference, however, to William Stephenson's pioneering work in this domain.

The process of arriving at QMSC studies as practiced today was hardly straightforward. Although some of the described characteristics and processes of QMSC studies are implemented today much as they were when Stephenson originally introduced them, other traits of the investigative approach are executed somewhat differently than envisioned by the methodology's developer. Regardless of whether any given aspect of QMSC studies is exercised today in a form largely similar to that initially propounded by Stephenson, nearly every facet of the

methodology has been criticized and faulted by some while being defended and endorsed by others. This constant debate amongst individuals in a variety of research fields has led to a development and refinement of QMSC studies across time.

A Look Ahead

In the next chapter, I will present a brief biographical sketch of William Stephenson and outline the three distinct phases that are generally involved in conducting a QMSC study—preparation, administration, and analysis and interpretation.

Chapter 2

William Stephenson and the practices of Q methodology

William Stephenson: A Budding Scientist

Stephenson was born on May 14, 1902, in Chopwell, a small village in the northeast English county of Durham (see Appendix A for an outline of principal events in Stephenson's life). He grew up in the village, attending school nearby and acquiring an accent tinged by the twang of the region. Stephenson concentrated on physics upon finishing secondary school and beginning his undergraduate courses at the University of Durham. While earning his bachelor of science in physics from Durham, Stephenson obtained his diploma in the theory and practice of teaching, an academic progression common in his times. Bucking the traditional track into teaching, though, Stephenson immediately returned to the University of Durham upon graduation, pursuing postgraduate work in physics.

Having earned his doctorate in physics from Durham, Stephenson enrolled in University College London and explored his developing interest in psychology. At University College, Stephenson began working as a research assistant under Charles Spearman, working on problems in psychometrics. After two years of further studies, Stephenson earned his second doctorate (i.e., a PhD in psychology from University College London) and continued working as a research assistant, first under Spearman and then under Sir Cyril Burt. Spearman and Burt both exposed Stephenson to what was at the time cutting-edge research methodologies, with Spearman gaining fame for his factor theorems and Burt for his advancement of factor analysis (e.g., Burt and Watson, 1951). In 1935, while still at University College London, Stephenson was selected by the British psychoanalytic movement to participate in psychoanalytic sessions with Melanie Klein, the Austrian psychoanalyst renowned for her work in developmental psychology and play, with

the expectation that Stephenson's participation might help raise the research profile of psychoanalysis in the United Kingdom.

In 1936 Stephenson moved from the laboratories of Spearman and Burt at University College London to the University of Oxford as Assistant Director of the newly formed Institute of Experimental Psychology at Oxford. This assistant directorship marked the beginning of a 12-year affiliation by Stephenson with the University of Oxford. In 1942, Stephenson became Reader in Experimental Psychology at Oxford, and three years later Director of the Institute of Experimental Psychology, succeeding the departing William Brown. In 1947, Stephenson helped establish the combined degree in psychology, philosophy, and physiology at Oxford, most likely drawing upon his multidisciplinary background as inspiration for the new degree.

While at Oxford, Stephenson simultaneously participated in a number of activities that, although related to the realm of psychology, were outside the confines of the University. For instance, Stephenson began working for the Royal Air Force at the start of the second World War as a consultant to the Central Trades Test Board. He later moved to the British Army, where he acted as a consultant psychologist for the War Office, evaluating soldiers to ascertain their potential for specific positions (e.g., pilot). Then, just months after being appointed Director of the Institute of Experimental Psychology at Oxford, Stephenson left for India for a few months as a consultant psychologist for the Indian Army.

In 1948, Stephenson reached a major crossroads in his life. Despite his contribution while at Oxford, Stephenson failed to secure the position of Oxford Chair, a position to which he felt entitled. Feeling that this snub portended a stifling of his career in England, Stephenson took his experiences and abilities, along with

his family, and moved to the United States. There, Stephenson served as a visiting professor of psychology at the University of Chicago and later at the University of California-Berkeley. While in Chicago, Stephenson's first book, based on some of his pre-war educational research, was published (Stephenson, 1949). In 1953, Stephenson began a brief stint as Walker-Ames Professor at the University of Washington-Seattle. When it was clear that a permanent post at Chicago was not forthcoming, Stephenson accepted a position in 1955 as Director of Research at Nowlands & Company (a leading market research firm). In 1958, Stephenson began a long association with D'Arcy Advertising as a Marketing Consultant to the New York, St. Louis and Chicago offices. These positions in the United States brought Stephenson into contact with eminent psychologists like Carl Rogers, whose support for Q technique and advocacy of client-centered approaches to psychology (e.g., Rogers, 1951) likely reinforced the potential of Q methodology and encouraged Stephenson to apply it in clinical settings.

Another important influence dating from Stephenson's first decade in America is that of the Budapest-born psychologist Egon Brunswik, who spent the final 20 years of his life at the University of California. Stephenson had been aware of Brunswik's work while still in England, and the two exiles became acquainted in the late-1940s when Stephenson spent six weeks at Berkeley; their paths crossed again when Stephenson was a Visiting Professor at Berkeley. Brunswik makes reference to Stephenson's work in his *Systematic and Representative Design of Psychological Experiments* (Brunswik, 1949), and Stephenson later incorporated this concept of representative design and ecological universes in *The Study of Behavior*. Good (2002) points out that Brunswik was the University of Chicago Press reader for Stephenson's work, *The Study of Behavior*, and that when Brunswik had completed

his favorable review of the manuscript, he wrote a letter to Stephenson congratulating him on his “stupendous manuscript.” Although very supportive of Stephenson’s work, Good explains that Brunswik did direct criticism at, amongst other things, Stephenson’s handling of the relation between the particular and the general in his writing about single cases.

These new associations joined nicely with Stephenson’s experiences while in the various positions associated with the military both during and after World War II. Although these tours through the military certainly interrupted Stephenson’s career in academic psychology, the consultancy experiences regarding both the formation and administration of tests and the evaluation of the capabilities of soldiers for special duties likely drew on his passion (i.e., as seen with his development of Q technique) for studying individuals. Furthermore, his need to measure psychological aspects of individuals associated with particular duties intensively most likely demonstrated to him the need for a greater availability of investigative tools for conducting thorough research at the level of the individual.

In 1958 Stephenson finally secured a tenured position in the United States, accepting the post of Distinguished Professor of Advertising Research in the School of Journalism, University of Missouri-Columbia, where he remained until his retirement in 1972.

Methodological details regarding QMSC studies.

Preparation

Typically, the initial step in carrying out the preparatory phase of a QMSC study is the collection of a concourse (i.e., a population of statements that can be made about or items that can represent a domain). A concourse is a compilation of

items that generally consist of opinion-based statements, although nearly anything that is self-referential (i.e., with regards to the participant) or about which opinions can be drawn (e.g., paintings, photographs, advertisements, musical selections, etc.) can be used if desired. Factual items, in that they are not subject to having opinions formed about them, are seldom used in QMSC study concourses.

The items that make up a concourse can be drawn from a variety of sources. Those concourses established using information collected by a researcher (i.e., noting statements made) during interviews with the individual who will participate in the QMSC study are referred to as naturalistic (e.g., Stephenson, 1953; Ricks, 1972). Notations made about a study participant's dreams (as discussed, perhaps, during psychotherapy) and entries made in the participant's diary or personal journal can also serve as fodder for naturalistic concourse items. The items composing such a naturalistic concourse closely mirror the beliefs and values of the participant and thus are likely to be significantly and predictably meaningful to the participant.

Those concourses culled from sources other than the anticipated participant are generally categorized as quasi-naturalistic. These less personalized concourses may be derived from any number of sources, ranging from pictures gathered from magazines (e.g., Goldman, 1991) and cartoons pulled from newspapers to transcripts of interviews conducted with individuals other than the participant and items extracted from standardized scales (i.e., scales designed to measure generally relevant topics). Baas (1979) pulled out items for his investigation from such a standardized scale. Concourses derived by researchers using a combination of the naturalistic and quasi-naturalistic approaches are also feasible, as are concourses composed of items taken from standardized, pre-fabricated samples (e.g., Block, 1961) specifically collected for use with such methodological approaches.

Stephenson (1953) notes, however, that while the items used in a non-naturalistic concourse may have an intended meaning to the researcher, this meaning may be contextual. Furthermore, other people may view such terms as having altogether different meanings. As such, the meaningfulness of the items to the participant may be diminished and less predictable. A researcher conducting a QMSC study using any such non-naturalistic concourse would thus necessarily need to acknowledge the possibility that while an item might be interpreted as possessing one or another meaning, a potential research participant may or may not concur. In essence, items used for a concourse may not have a generalized connotation; rather, meaning is established via reflection on an individual level and within the confines of potential situational influences.

Given this array of potential sources and meanings, a nearly infinite number and variety of items can be collected for use in a QMSC study concourse. The actual content of a concourse, however, is determined entirely by the nature of the topic under investigation. Beyond differences in subject matter, the scope of the source of concourse items depends largely on the focus and sophistication of the area under discussion. For example, a researcher studying a relatively focused and uncomplicated topic (e.g., the public's perception of comparative automobile reliability amongst competing automotive brands) could fashion a concourse by drawing from a narrowly defined source (e.g., names and trademark symbols of the automobile brands available to the public). A more sophisticated study may require a more broadly characterized source for concourse items. For example, a researcher investigating the perceived merit of increased governmentally imposed automobile average fuel economy requirements would likely need to interview and gather statements from officials in the government office contemplating such legislation,

representatives from automobile manufacturers associations, members of environmentalist organizations, and automobile safety advocates. Public opinion could also contribute to the concourse by means of having a researcher record statements made during interviews with individuals who would likely be affected by the proposed changes and have opinions relevant to the matter.

From this potentially large selection of concourse items, a researcher conducting a QMSC study must then select a sample for use in the study itself. This sample, called a “Q sample,” acts as a miniaturized representation of the values, beliefs, or other ideas relevant to the investigation.

The specificity of this representation varies depending on the goals and approach of the investigator. Researchers using an unstructured technique select items that represent and gauge simply a single, broad topic. In doing so, the researcher essentially minimizes the effort inputted into assuring that items included in a Q sample represent and cover all of the variety of subtopics included within the broader variable. McKeown and Thomas (1988) suggest that while unstructured Q samples generally offer fairly accurate representations of the range of items relevant to the issue under investigation, researchers using such a Q sample run the risk of over- or under-representing aspects of the phenomenon being studied. This inaccurate representation can introduce bias into the Q sample and thus potentially, albeit inadvertently, affect the QMSC study as a whole.

Conversely, items selected by a researcher for use in a structured Q sample are equally intended to represent various categorizations. To select these categories and identify the intended meaning of the items within them, researchers using the more systematic structured approach rely variously on theory, exploration, and common sense. McKeown and Thomas (1988) note that structured Q samples can be

ideal for testing theories. For Stephenson, testing took place through variations in the conditions of instruction (Stephenson, 1953).

Kerlinger (1986) also asserts that theory can suggest to a researcher the identity and classification of categories (an investigative approach referred to as “deductive design”), while an exploratory flair can also direct categorization. For example, Kerlinger (1986) notes that a researcher may have a theory regarding political ideology in the United States and wish to explore the interaction of object abstractness with this philosophy. Using a structured Q sample to investigate this interplay of political ideology and object abstractness, the researcher would need to select from the concourse for the Q sample an equal number of items that are representative of each of four relevant categories (i.e., liberal and abstract ideas, such as social equity; liberal and concrete ideas, such as the Supreme Court; conservative and abstract ideas, such as competition; and conservative and concrete ideas, such as private property). Restated, a graphic representation of this example would result in a four-celled table: political attitude (with two values) by object abstractness (with two values). Items would then be selected to represent equally the ideas represented by each cell of this table.

A researcher endeavoring conduct this QMSC study would then select items from the concourse for inclusion in the Q sample with the expressed intent of including an approximately equal number of items for each cell. Brown (1970) notes, however, that a researcher can never be certain with which cell an item is most closely associated, especially given the contextually-contingent nature of Q sample items discussed above. Whatever the case, this attempt at equal representation, an effort to gather as complete a chronicle as possible of the phenomenon under investigation, is an extension of Fisherian experimental ideals (i.e., in its intention of

producing a balanced investigative design) and creates what is sometimes referred to as a balanced block design.

The number of items ultimately included by a researcher in a Q sample is determined fairly arbitrarily. While some researchers contend that a minimum of 60 items must be used (Kerlinger, 1986), others advise that far fewer (often as few as 20) items can be sufficient (Stephenson, 1953; Brown, 1993). While Kerlinger (1986) argues that Q samples composed of greater numbers of items are more statistically stable, large Q sample sizes can complicate the administration of a QMSC study (Brown, 1993). Specifically, a participant in such a study may experience fatigue or disinterest when working with a large and thus potentially cumbersome Q sample. Whatever the source, content, and number of items eventually included in a Q sample, the items are then individually placed onto separate cards (e.g., standard 3-inch by 5-inch note cards), and then the cards are randomly numbered. Thus, a Q sample containing 30 statements would result in a pack of 30 cards randomly numbered 1 through 30, with one statement written on each card.

A participant would then need to be selected by the researcher conducting the study (although, if necessary to secure a source of Q sample items, a participant may already be selected). Random selection of a person from a population to act as a study participant is rare in QMSC studies. Rather, the participant chosen by a researcher for use in a QMSC study typically embodies many of the characteristics that the researcher feels may be important in or influential on the phenomenon under investigation (McKeon & Thomas, 1988). A researcher may determine those participant attributes that are considered most important by using relevant theory, general expertise, or common sense. Although some critics of QMSC studies

question the ability of a researcher conducting such an investigation to select such a “correct” or “typical” participant, Brown (1974) responds that while a chosen participant cannot necessarily be assumed to be typical of any population, the behaviors or responses elicited from him or her during the course of the study can be assumed to be typical of those that would be expected from similar participants. When necessary, however, a researcher may forgo considering some or all of the applicable theory and simply choose a participant based on convenience (McKeown & Thomas, 1988).

Administration

After selecting a participant, the researcher conducting the QMSC study would then situate the participant in front of a relatively large, clear, flat surface in a distraction-free environment and administer the completed Q sample to the study participant. Administration of a Q sample involves a sophisticated rank ordering (called “Q sorting”) of the Q sample items by the participant according to a guideline imposed by the researcher.

This imposed guideline, referred to as a “condition of instruction,” is a self-referential (i.e., with regard to the participant) rule or principle imposed by the researcher on a participant according to which the participant operates. In the first step of the administration, this condition of instruction is introduced to the participant by the researcher. (An example of a condition of instruction that could be used in a QMSC study designed to investigate an ill participant’s beliefs about his or her disease is, “Regarding my disease, I believe....”) A condition of instruction can be selected by a researcher for use in a QMSC study for any number of reasons. For example, McKeown and Thomas (1988) suggest that a condition of instruction can

act as a replacement for a separate test of a behavioral hypothesis. This replacing is achieved when the researcher conducting the QMSC study selects a condition of instruction with the goal of drawing out participant sorting behavior (i.e., particular patterns of sorting items within the Q sample) that may either confirm or reject any such behavioral expectations or theories held by the researcher.

Other theories can also be tested and utilized through the use of a relevant and appropriate condition of instruction. By selecting a condition of instruction that would elicit responses that may demonstrate influences expressed in the theories, researchers can assess the degree to which the theory applies to the given situation. For example, Stephenson (1954) used Sullivan's (1947) notion of me-you dynamisms in self-identity when choosing a condition of instruction under which his participant conducted a Q sort (e.g., to operationalize the "you" aspect of self-identity—i.e., the participant's perception of what others thought of him—Stephenson used the condition of instruction, "How my sister thinks of me..." and so on). The use of such theory, know-how, hunches or other insights in the preparation, manipulation, or interpretation of research is termed "abduction," a notion introduced and championed by the American pragmatist philosopher Charles Peirce (1934).

After providing the participant with the condition of instruction, the researcher then presents the Q sample (i.e., the pack of cards, each card containing an individual item of the Q sample) to the participant, instructing the participant to look through all of the items in the Q sample. This perusal is intended to give the participant a rough estimate of the range of topics included within the items with which he or she will operate. Brown (1993) adds that this introductory period also allows the participant a brief period in which to focus his or her attention on the task (i.e., the QMSC study) at hand.

Upon reading through the Q sample, the participant is instructed by the researcher conducting the study to examine further the Q sample, this time dividing the items therein into three, roughly equal piles. Stephenson (1953) notes that this and later placement of Q sample items is governed solely by the discretion of the participant: no right or wrong way exists for a participant to perform a given Q sort. Thus, when forming the first pile, the researcher instructs the participant to place in one pile (typically toward the right side of the sorting surface) those items that, in the participant's opinion, are most characteristic of the condition of instruction provided by the researcher. Those items that the participant considers to be most uncharacteristic of the condition of instruction provided by the researcher are placed in a second pile (typically toward the left side of the sorting surface). The remaining items of the Q sample (i.e., those about which the participant feels relatively neutral or ambivalent) are placed in a third pile (typically between the abovementioned right and left piles).

The researcher conducting the study must carefully select the wording used to describe the extremes of the continuum in this and later sorting stages. For example, in a QMSC study looking at the influences on a participant's purchasing habits as they relate to food purchases, an investigator may present to the participant a Q sample containing items that are examples of packaging designs. In such an inquiry, the researcher may present the participant with a condition of instruction like, "Regarding the appearance of the packaging, I believe...." The participant may then be asked to sort the Q sample items into piles designating those that that he or she finds "most pleasant," "most unpleasant," or "neutral," as described above. Note that the continuum anchors are described as "most pleasant" and "most unpleasant" rather than "most pleasant" and "least pleasant." While some researchers (e.g.,

Kerlinger, 1986) rely on scales anchored by characterizations of “most” and “least” characteristic, many others present such continuums as ranging from “most characteristic” to “most uncharacteristic.” In the former scheme, the wording of the anchors as being “most” or “least” pleasant implies that every item placed into the continuum during the course of Q sorting must possess some degree of pleasantness. This assumption eliminates the possibility that the participant will find one or more items altogether unpleasant. What is more, using a scale of “most” to “least” implies that the opposite of the opinion characterized by one anchor is that characterized by another anchor. This characterization would thus suggest that, for example, the opposite of “most attractive” would be “least attractive” rather than, say, “most unattractive” or “most ugly.” Thus, as McKeown and Thomas (1988) note, such a characterization of opinion would disallow the utter dismissal of an item by the participant. Conversely, the use in a QMSC study of a continuum spanning from “most characteristic” to “most uncharacteristic” of the condition of instruction imposed by the researcher allows for a participant to profess opinions that span the gamut of potential responses relevant to the situation.

Following this division of the Q sample by the participant, the researcher unveils and explains to the participant the rating scale and distribution requirements of the QMSC study. Such a rating scale typically ranges from a negative number (usually on the left-hand side of the sorting surface and indicating items that the participant feels are most uncharacteristic of the condition of instruction) through zero (generally centered on the sorting surface and indicating those items about which the participant feels relatively neutral) to a positive number of a magnitude equal to that of the previously mentioned negative number (usually on the right-hand side of the sorting surface and indicating those items that the participant believes are

most characteristic of the condition of instruction). Such a scale may, for example, range from -5 through $+5$. Although some researchers (e.g., Kerlinger, 1986) prefer to use rating scales spanning from zero through a positive number, the labeling and range of such scales is arbitrarily determined and has no consequence with regard to the eventual analysis of data (Brown, 1993).

To this rating scale, the researcher typically adds a distribution requirement. The participant is then instructed to turn his or her attention typically to the most positive number (i.e., $+5$ in the above example). The researcher directs the participant to review the Q sample items previously placed in the “most characteristic” pile. From that set, the participant then selects a certain (generally researcher-determined) number of items that he or she believes are the most characteristic of the condition of instruction. The chosen items are then placed in a column under the most positive number. The researcher then shifts the participant’s attention to the most negative number, asking him or her to look now at the “most uncharacteristic” items and select a (usually researcher-determined) number of them that are the most uncharacteristic of the condition of instruction. Next, after redirecting the participant’s attention back to the remaining most positive number, the researcher instructs the participant to look again through the items placed in the “most characteristic” pile. After the researcher typically clarifies the number of items to be placed in this positive column, the participant identifies the determined number of items that, in regard to the condition of instruction, are the most characteristic of those that remain in the “most characteristic” set. The attention of the participant is then directed to the remaining most negative number for selection of the “most uncharacteristic” remaining items. In this way, the researcher guides the participant back and forth between “characteristic” and “uncharacteristic”

columns. As the “most characteristic” and “most uncharacteristic” piles are exhausted (i.e., as all of the items previously sorted therein are distributed in columns), the participant begins drawing items from the previously made “neutral and ambivalent” pile. The items that remain unsorted into either “characteristic” or “uncharacteristic” columns upon reaching the zero column are set in this column as neutral.

The number of items that a researcher asks a participant to place in each column is a matter of some contention. One suggested approach when performing a Q sort, first advocated by Stephenson (1935b), is the use of a symmetric, forced, quasi-normal distribution. This approach to Q sorting forces the participant to fill in columns with Q sample items to form a symmetric distribution that generally resembles a somewhat flattened normal, bell curve (see Appendix B). While researchers conducting QMSC studies have used shapes other than a quasi-normal distribution (e.g., normal, rectangular), a greater, and according to Kerlinger (1986) more important, debate exists amongst researchers regarding the forced aspect of the distribution.

Specifically, some researchers assert that unforced sorting is a superior approach because forcing participants to sort into a certain distribution not only masks differences in mean and standard deviation amongst sorts (i.e., by forcing the participant to arrange his or her items to create equal statistical profiles) but also imposes a generally unnatural constraint that returns results that may not reflect the true sentiments or beliefs of participants (Jones, 1956). Others support Stephenson’s preference for forced distribution, finding that forcing participants to differentiate between Q sample items according to specific distribution guidelines produces finer

results (Block, 1956) as participants may view the forced distribution as a sort of guide in sorting.

Brown (1971) moderates questions regarding both distribution shape and the utilization of forced sorting, explaining that his research has shown neither sorting characteristic to exert particular influence on the results of investigations using Q sorting. Rather, Brown finds that the statistically significant conveyor of critical information in a sort is contained not within the distribution shape but instead within the order of the items within a distribution. Thus, Brown concludes that Stephenson's (1935b) initial push towards the use of a forced, quasi-normal frequency distribution for sorting in Q methodological investigations, while not totally necessary, does not at least introduce any inherent error into the studies' results. As such, and as with the rating scales discussed previously, the distribution shape and forced character of QMSC study Q sorts can essentially be arbitrarily determined by the researcher.

Even given this statistical equality amongst various distribution shapes, symmetric, forced, quasi-normal distributions (i.e., as advocated by Stephenson) are amongst the most commonly utilized distribution approaches in QMSC studies. This high frequency of use may be due in part to certain benefits thought to accompany the use of forced, quasi-normal frequency distributions. For example, when conducting sorts in Q methodological investigations, participants generally only feel strongly about a relatively few number of items (and thus feel neutrally about relatively many items). As such, since the quasi-normal distribution suggested by Stephenson requires only a few items to be sorted as containing strong associated feelings with more being identified as being neutral, this sorting shape is more natural than other shapes. At the same time, participants may appreciate the presence

of a specified distribution shape to help guide the sorting process, thus making Stephenson's suggested use of forced sorting a helpful attribute.

As this Q sorting proceeds, the researcher alerts the participant to the fact that the participant may make changes to the placement of Q sample items within completed columns as he or she wishes. This ability to change the placement of items within the distribution, which is retained by the participant until the completion of the Q sorting, minimizes the lack of (statistical) independence between items (i.e., the placement of one item has less direct bearing on the placement of another item than it would if the position of items that had been sorted was unalterable; Kerlinger, 1986). Even with this diminished degree of dependence, though, items in a QMSC study Q sample are sorted in comparison with each other and, thus, full independence cannot be achieved.

After the participant has completed both the Q sort and any adjustments in item placement, the researcher records the final location of each item relative to the other items (i.e., typically by transcribing the numbers on the cards in the appropriate spot of a distribution grid whose shape corresponds to the distribution used during the QMSC study). This recording is then set aside. The researcher then collects the Q sample, reforming the full, original pack.

In a QMSC study, the entire Q sort procedure is then continually repeated, with the researcher issuing new conditions of instruction under which the participant is instructed to sort the same Q sample. In relation to the above mentioned example of the investigation of a participant's beliefs about his or her disease, such multiple conditions of instruction may include statements like, for example, "Regarding my disease, I *should* believe..." and "Regarding my disease, I believe my doctor feels..." and so on. The use of multiple conditions of instruction increases the scope

of conditions of instruction and helps researchers investigate the structure of a participant's subjectivity (Ricks, 1972) by uncovering aspects of motivations and behavioral influences that may not have been noted otherwise by either the researcher or the participant.

The various Q sorts performed by a participant in any given QMSC study, while likely differing in the condition of instruction under which each was performed, share certain traits. For instance, each sort is anchored by items identified by the participant (i.e., from the standpoint and in the opinion of the participant) as having high degrees of psychological significance (McKeown and Thomas, 1988). This psychological significance (i.e., as attributed to those items sorted into the most positive and the most negative columns) is attached to all items sorted into the most positive and most negative columns, regardless of the condition of instruction under which the participant placed them there. What is more, those items placed in the central (i.e., zero) column, regardless of the condition of instruction under which they were thusly sorted, are noted as being neutral and having little or no psychological significance. This commonality across Q sorts later aids researchers conducting QMSC studies in that it allows them more easily and completely to perform comparisons and analysis of the study's results given the common unit of measurement (i.e., the participant's self-reference).

The content of these multiple directives can be based upon extensions of the previously mentioned theory used in selection of the original condition of instruction or can use abduction to tap other, predetermined areas of interest. Beyond being preplanned, however, the multiple conditions of instruction used in QMSC studies can be determined as the investigation progresses. Thus, if a researcher conducting such a test happens upon an interesting discovery during the course of administering

a condition of instruction, he or she may choose, in a somewhat impromptu manner, to further clarify and develop that emergent corollary by imposing an appropriate condition of instruction in a following phase of Q sorting. Whatever a researcher's motives for including conditions of instruction and regardless of when a given condition of instruction is conceived by a researcher in a QMSC study, the various Q sorts are administered independently of each other and are generally spread out over the course of several days. This temporal separation of Q sorts helps prevent participant fatigue and the likelihood that Q sorts conducted under previous conditions of instruction will influence later administrations.

Analysis and Interpretation

After the participant has conducted Q sorts under all of the conditions of instruction, and after the researcher has recorded the final placement of items within the distribution for each condition of instruction, the researcher can then either analyze the data by hand, enter the recorded data into a general statistics package such as SPSS, or use a dedicated Q methodological computer program such as PQMethod (Schmolck, 2002) or PCQ (Stricklin, 2004). Before such computer programs, researchers conducting QMSC studies would necessarily calculate and rotate the data by hand, a laborious process that undoubtedly reduced the utilization of this methodology by researchers.

Briefly, the programs proceed through a sequence of steps. First, each Q sort is correlated with every other Q sort in an effort to identify common sorting patterns within the data. The resulting inter-correlation matrix is then subjected to factor analysis using the Principle Components method (as when using SPSS) or the Centroid method (in the case of dedicated Q methodology packages). When using

the dedicated packages, up to eight or nine unrotated factors may be extracted. The relationship of each Q sort to each factor is expressed in terms of a factor loading. Factor loadings are, effectively, correlation coefficients and represent the strength of the association of that sort with the factor. The statistical significance of such a factor loading is determined by calculating the standard error of factor loadings ($SE = 1/\sqrt{N}$, where N is the number of items included in the Q sort). Loadings in excess of $2.58(SE)$ are statistically significant at the .01 level. At the initial stage of factor extraction, PCQ employs a default significance level of .45. At the next stage, factor rotation takes place. This may be carried out either in terms of statistical criteria (e.g., varimax) or theoretical or judgmental criteria.

Factors can be presented graphically (although such graphical representation is generally omitted when using the varimax option in the aforementioned factor analysis programs). For instance, if the Q sorting performed by a participant in a QMSC study seems to have been largely influenced by two separate behavioral themes, then each Q sort would likely correlate highly with one or the other theme. Thus, these two behavioral tendencies or patterns would serve as factors. When graphing the data from such an experiment, each Q sort's correlation with each factor would be graphed (e.g., if the Q sort conducted under the first condition of instruction demonstrated a correlation of $r = 0.64$ —its factor loading—with Factor A and a correlation of $r = -0.12$ with Factor B, then those two correlation values would act as coordinates for the data point in a two-dimensional graph with one axis defined as "Factor A" and the other as "Factor B"). Q sorts can be represented as clusters of data points around axes (i.e., factors) when presented graphically.

A researcher conducting such a QMSC study could then use various abductive tools to help clarify the groupings and component sorting of these factors.

For example, if the researcher believed that two conditions of instruction focused on a sufficiently similar aspect of participant behavior and that the resultant Q sorts should therefore exhibit similar patterns (i.e., fall within the same factor), the researcher could then alter the alignment of the entire set of data points such that this particular relationship was clarified. Such alteration involves theoretical or judgmental rotation and when conducted using abduction can help to reduce the number of factors loaded upon by Q sorts by changing the vantage point from which the researcher can examine the study's results. This rotation generally clarifies the results of the study without fundamentally changing the data, while its statistical imprecision and indeterminacy made it Stephenson's preferred method of rotation (Brown, 1997).

Whether or not a factor is significant can be determined either statistically or theoretically. The most frequently used criterion in the former approach is the eigenvalue, where a factor's significance is estimated by the sum of its squared factor loadings. Factors with eigenvalues greater than 1.00 are considered significant. Brown (1980), however, contends that the use of this criterion may lead investigators to extract fewer than the number of potentially significant factors: such a criterion may lead one to overlook factors that, although unimportant in terms of the proportion of variance explained, are of theoretical interest.

The process of judgmental rotation is generally employed by a researcher conducting a QMSC study with the aim of better elucidating relationships among Q sorts and factors in terms of the theoretical basis or focus of the investigation. For example, a researcher who theorizes that a participant is maladjusted may perform a rotation of the participant's Q sorts with the intent of loading the participant's "self" onto one factor while the participant's "ideal" loads onto another. The process of

rotation may also alter the degree to which any given sort loads onto a factor. Thus, in the example provided above, although the first Q sort had a factor loading of 0.64 for Factor A prior to rotation, that factor loading may significantly increase (or perhaps decrease) as a result of any rotation performed by the researcher conducting the study.

Once the factors have been rotated to produce a satisfactory solution, a factor array is produced for each factor. This array, which is a composite, hypothetical, prototypic sorting that embodies the essence of the Q sorts that contributed to the factor, is established by first calculating the weight (i.e., relevance and importance) of each Q sort within a factor. Each Q sort that loaded heavily onto a given factor is weighted according to its degree of loading (e.g., if one Q sort contributing to Factor A had a factor loading of 0.82 while another had a factor loading of 0.60, then the former Q sort would have a greater weight given its higher correlation with the factor).

Once the specific weight for each contributing Q sort is determined, the researcher then focuses on an individual Q sample item. The weighted score for this item in a given Q sort (i.e., the score given to this item when Q sorted multiplied by the calculated weight for the Q sort) is added with the weighted score for that item in the other contributing sorts, forming a sum that expresses the item's salience to the factor. Importantly, the items placed within the same column in any given Q sort are considered to be of equal weight and importance (i.e., equally characteristic or uncharacteristic). This process, which produces a value called a "factor score," is repeated for each Q sample item.

Then, based upon their degree of saliency to the factor, the items are entered into a distribution grid that is the same shape as that used during the original Q

sorting. Restated, those items with the highest positive factor score would be placed in the most highly positive column of the grid, while those whose factor scores were slightly less positive would be placed in the next most positive column. Similarly, the items whose salience grew progressively more negative would be set in the progressively more negative columns of the distribution grid. In this way, the entire distribution grid is filled in, creating the composite, prototypic factor scores for that factor. This process is then repeated for each factor, and the completed factor arrays can be used to identify those Q sample items that best represent the spirit of the factor. The aforementioned factor analysis programs also compute these factor scores and arrange such factor arrays.

The ability to form these factor arrays is, according to Kerlinger (1986), the single greatest use of this research methodology. The usefulness of factor arrays, in his opinion, extends first from the ability of factor arrays to describe and offer an interpretable representation of a factor and second from the use of factor arrays as prototypes for comparison with results derived from future research. Regardless of their utility in future research, a researcher conducting a QMSC study can directly interpret the factors identified in the study using these factor arrays as general conceptions of the spirit of a factor.

Brown (1970) and Baas and Brown (1973) assert that one of the other strengths of factor analysis is that regardless of the theory or know-how (via the use of abduction) that originally contributed to the structure of a QMSC study devised by the researcher (i.e., both in the selection of the items included in the Q sample and in the selection of the conditions of instruction provided to the participant), the participant, who is unaware of this underlying structure, may perform the sort in a way totally unexpected by the researcher while nonetheless delivering interpretable

data. Restated, despite a participant's deviation from the theoretical structure incorporated into a QMSC study by a researcher, factor analysis, in its focus on data as actually manipulated by the participant rather than preconceived theoretical underpinnings, can extract significant results (i.e., factors) from the Q sorts for interpretation by the researcher. This flexibility of factor analysis reflects the goal of QMSC studies as frequently described by Stephenson: to discover behavioral phenomena rather than verify researchers' hypotheses. Restated, a researcher conducting a QMSC study may not necessarily know what aspects of the participant's behavior the study is actually measuring until after identifying and interpreting the factors.

According to Brown (1993), this interpretation can and should be augmented by interviews of the participant conducted by the researcher following the administration of the QMSC study. Brown also points out that a researcher conducting such interviews can use the results of the study to focus the discussion on those topics that both are most salient and merit particular elaboration by the participant. The potential illustration provided by these interviews continues the discovery process inherent in the entire QMSC study.

Following the completion of the participant interviews, and after fully interpreting the results of the investigation, a researcher conducting a QMSC study ideally would later, if possible, replicate the study. In selecting participants (i.e., for replicate studies) whose relevant characteristics systematically differ from those of previous participants, the researcher may gain more insight into the possible influences on previously obtained results while increasing the overall generalizability of the study's findings. Of note, the ability to generalize to a larger population is typically not the foremost concern of a researcher conducting a QMSC study. Rather

than looking at such inter-individual applications, such researchers are generally more interested in studying and understanding intra-individual significance and lawful regularities in people's views about the world. Single case studies may reflect these lawful regularities that are described by Stephenson (1974) as his "laws of subjectivity" (e.g., Rogers' law of self-ideal congruity, Sullivan's me-you dynamism, Freud's law of identification-with, etc.).

A Look Ahead

In the next chapter, I will discuss how the original methodology—that which sparked and was the source of academic infighting but offered a valuable new tool with which to conduct behavioral science research—arose from and was a product of Stephenson and his unique background and influences.

Chapter 3

Rising to the occasion: The context of Q methodological single case studies

While the investigative approach now known as QMSC studies was not fully described until the publication of Stephenson's 1953 book, it is clear that Stephenson had had in mind from the outset the possibility of employing Q methodology with a single individual. QMSC studies were born from the confluence of a variety of academic influences, personal interests, and other life experiences of William Stephenson.

A Nascent Methodology

In 1935, Stephenson submitted a letter to the editor of the journal *Nature* (Stephenson, 1935a), commenting on the statistical procedure of factor analysis. In this letter, Stephenson noted that other researchers (e.g., William Brown, who was later to become Stephenson's boss at Oxford) had written about the use of factor analysis when looking at a population of n individuals who had each been measured by m tests. Generally speaking, researchers utilizing such an approach use relatively few tests administered across a large sample of individuals. In this traditional approach, Stephenson noted that a total of $[m*(m-1) / 2]$ intercorrelations describe the relationships between the m variables (i.e., tests), and these relationships can be investigated using analytic guidelines suggested by Spearman for factor analysis.

Stephenson (1935a) then suggested a new approach to factor analysis. Rather than intercorrelating m tests measuring n individuals, he proposed inverting the variables. Restated, the population of n items would describe tests, each of which is acted upon and scaled by m individuals. Although others (e.g., Cyril Burt, Godfrey Thomson) had previously suggested such an inversion of variables, the innovation specific to Stephenson (1935a) is his suggestion that self-reference (i.e., with reference to the individuals under investigation) acts as a common unit of

measurement, a notion later supported by Burt and Watson (1951). Intercorrelations are then calculated as described above, with the resultant values descriptive of the relationships amongst individuals (i.e., rather than tests or items, as is traditionally the case).

This approach, contends Stephenson (1935a), is better suited to laboratory work than are more traditional techniques in that traditional techniques require the administration of a small number of tests (i.e., a small number of a fairly compact and manageable variables) to a relatively large number of people sampled, during the course of fieldwork, from an even larger population of people. Stephenson's newly proposed "inverted" approach, however, draws its large sample from a population of tests and thus utilizes samples that contain less unwieldy items with which a researcher conducting such a study must work. These tests are then manipulated and scaled by a few individuals, thus minimizing the resources necessary from which to draw and, during the course of the investigation, required to control the involved participants.

Stephenson asserts that this inversion carries added benefits as compared to traditional uses of factor analysis. Citing aesthetics and educational psychology as two examples, Stephenson (1935a) argues that although some areas of research interest are beyond the reach of traditional methodological approaches, they can be investigated using his proposed technique. He also posits that the products of Spearman's work, such as the central intellectual factor (i.e., g) and the two factor theorem, can be reevaluated or more effectively manipulated using this new approach. Although Stephenson offers other examples of potential applications of this inverted technique of factor analysis, he directs interested readers to a later paper (Stephenson, 1935b) for a more complete illustration of the new technique.

Opting to introduce a broad picture of his new technique rather than immediately bogging down interested researchers in statistical details, Stephenson (1935b) focuses on a general comparison of traditional factor techniques and his inverted form, having already briefly introduced the two techniques in his letter to the editors of *Nature*. He then follows this comparison with a sample application of the new approach in an effort to illustrate the abilities and power of the technique.

Traditional factor techniques, as Stephenson (1935b) describes them, measure large groups of individuals using tests. These tests are then correlated and the resultant correlations analyzed using factor theorems (e.g., Spearman's two factor theorem). While such analyses, in Stephenson's opinion, can serve only to verify (or refute) existing scientific hypothesis, all individuals (i.e., of all psychological states and demographic affiliations) can be tested using such techniques.

Despite these benefits, Stephenson (1935b) asserts that such traditional approaches contain inherent flaws. He notes that, since robust populations of individuals are needed for such experiments, the quality of the investigation may be degraded (i.e., by limiting populations available for study and by requiring more energy investment by the researcher in the study's administrative components). What is more, Stephenson contends that the large population size sets limits on the types and variety of tests that a researcher conducting such an experiment could use. The ability of a researcher to perform experiments in the controlled environment of a laboratory, so crucial a feature for extracting data when potential experimental effects may be subtle or intricate, is also lost when using a traditional factor technique, another casualty of the expansive population of individuals required in such pursuits.

Experiments that rely on traditional factor techniques can also become quite cumbersome. Stephenson (1935b) notes that, unlike chemistry, in which experiments can be reworked and refined as often as necessary to test hypotheses, a distinct rigidity accompanies many traditional experiments. Stephenson attributes this lack of flexibility to the sheer massiveness of the experimental population (i.e., the individuals) in such traditional investigations, combined with the traditional researcher's need to merge a series of controls and hypothesis tests into a single experiment. While such approaches can address research questions that may be beyond the reach of other techniques, Stephenson rhetorically asks whether or not a similarly scientific and viable method is available to researchers that relies instead on fewer individuals and can thus be conducted with greater pliability and within a laboratory setting.

Answering his own question, Stephenson (1935b) begins directly comparing characteristics of his solution (i.e., his new technique) with those of traditional factor techniques. He notes that whereas the standard approach to experimentation involves the administration of a small number of tests to a large group of people, from which scores are drawn for the subjects, his suggested means of investigating relies on a few individuals, each of whom scores or ranks a group of tests or items. Continuing with this line of reasoning, Stephenson adds that this new experimental avenue allows researchers to correlate persons and associate the related tests or items accordingly, unlike in traditional approaches where tests were correlated and subjects are assigned scores.

Although Stephenson (1935b) claims that his new technique is applicable to investigations of phenomena within all realms of psychology, he provides a sample application of his approach within what he sees as the field of personality.

Specifically, Stephenson uses tastes (i.e., predilections) as a topic, asserting that a person's tastes for items are matters of opinion that are inherent aspects of his or her personality. For the investigation, he assembled his sample from a population of sheets of colored paper (i.e., each sheet was of a different, homogenous color). Upon presenting this sample to his 20 participants, he instructed them to sort the colors into a symmetric, forced, quasi-normal distribution (in an effort to simplify the calculations required during later analysis) and then submitted the results to analysis using his suggested inverted factor technique. For the resultant factors, Stephenson established factor saturations using, as a matter of convenience, Spearman's theorems.

Stephenson (1935b) then interpreted the factors, using his in-depth knowledge of the participants from previous interactions to elaborate more robustly on possible implications of the findings. From these results, Stephenson proposes a series of follow-up investigations that, using his new technique, could be performed both to investigate new hypotheses (i.e., by altering the demographic composition of the participant pool or by providing participants with different conditions of instruction under which to perform future sorts) and 2) to form tests for possible later use (i.e., in investigations using either traditional techniques or his new approach). Regardless of the immediate possibilities for extending the sample investigation, Stephenson points out that the example shows the control and power inherent in his new technique in not only exploring existing hypotheses (especially, he asserts, in "type" psychology), but also in discovering aspects and details of factors that were previously unexpected or unknown.

In 1936, Stephenson published a series of articles that provided a more detailed account of his new factor technique (Stephenson, 1936, a, b, c, d). In one of

these, Stephenson begins by asserting that the methodology described therein may revolutionize both general and type psychology, much as Spearman's contributions influenced individual psychology (Stephenson, 1936a). Although this article resembles its predecessor in its championing of Stephenson's new technique, this later article differs in that it relies only minimally on generalized comparisons between traditional factor technique and Stephenson's variation. Instead, Stephenson (1936a) delves into the statistical and theoretical underpinnings of inverted factor technique, beginning with an exploration of correlations in both traditional and his new techniques, progressing through some of the theory behind various components of his new approach, and ending with a clarification of some of the details of his proposed method, both through the use of straightforward explanation and by illustrating applications of the technique using brief, sample investigations.

Stephenson (1936a) reiterates that Spearman and others, in their use of the traditional factor technique, focus on interindividual differences. The investigation of such differences generally involved the classification of tests or items as the research variables and groups of individuals as the research population. As we already have seen, by his inverting this approach, Stephenson recommends the study of intra-individual significance as found through the designation of groups of individuals as research variables and tests or items as research populations.

Regarding correlations in the two techniques, Stephenson then expands on the analysis offered in his letter to *Nature* (Stephenson, 1935a). Stephenson explains that the shift in focus from correlations between tests to correlations between persons results in a slight modification of the traditional $[m*(m-1) / 2]$ correlations. Whereas, m refers to the variables of tests or items in that traditional formula, Stephenson's new approach, in its inversion of variables, inserts M to represent the variables of the

study's participants (i.e., $[M*(M-1)/2]$, where M refers to the individuals participating in the investigation).

Presenting this inversion graphically, Stephenson (1936a) shows a matrix of data with "tests" shown across the horizontal, x-axis and "persons" occupying the vertical, y-axis. Traditionally, correlations are calculated between columns of tests. This correlation coefficient, when describing the relationship between tests 1 and 2 and interindividual differences, could be noted as r_{12} . Stephenson, in illustrating his suggested inversion, notes that the rows of data (and thus the investigation's participants) could, in essence, also be correlated, providing a correlation coefficient of its own that speaks more to intra-individual significance. Here, Stephenson introduces the designation of a correlation between such rows (e.g., A and B): Q_{AB} . He further distinguishes the two approaches, asserting that the traditional approaches, as promoted by Spearman and others, should be classified as utilizing "r technique" while his suggested factor technique should be termed "Q technique." This introduction of nomenclature marks, I believe, the first recorded instance in which Stephenson offers "Q" as a title for his unique factor technique, borrowing this terminology from Godfrey Thomson (Thomson, 1935).

Stephenson (1936a) notes that some researchers doubt the comparability of individuals in a method like that advanced by Stephenson. This alleged incomparability arises from the differing units generally used in different tests. Restated, when correlating or otherwise comparing two individuals, a researcher must look at the sum total of the tests associated with each of those individuals. When comparing scores within a given individual (i.e., across a row in Stephenson's above mentioned data matrix), each test entry in that row may likely have a different unit of measurement associated with it. As such, some researchers contend that this

unit difference inhibits the compilation of data for a given individual and thus thwarts attempts at drawing correlations between two or more individuals.

The results of graduate school entrance exams as administered in the United States offer an example of the above comparability dilemma as it exists within a given individual. As they approach the end of their undergraduate schooling, many U.S. undergraduate students bound for graduate and professional school take one or more of the major aptitude tests (e.g, Graduate Record Exam, or GRE; Medical College Admissions Test, or MCAT; Law School Admissions Test, or LSAT, etc.) required for entry into various graduate and professional programs. The grading scales for the tests are entirely different from each other, and the tests measure generally different skills. For example, students sitting for the MCAT (i.e., those intending to enter medical school) are judged primarily on their factual knowledge of science topics, with some additional importance placed on general comprehension skills and writing ability. Conversely, students sitting for the LSAT (i.e., those intending to attend law school) are tested primarily on their abilities to analyze situations creatively and problem solve. Critics of Stephenson's Q technique would likely point out that one could not directly compare scores obtained by an individual on those two tests to say, for instance, that the individual performs better on one than the other.

Stephenson (1936a) offers a remedy for this criticism. He accepts that, within the confines of individual psychology, such dissimilar test results are impossible to compare. However, he contends that the disparate tests can be made homogenous through standardization and then evaluated. Specifically, Stephenson suggests that, using theories borrowed from type psychology, a type of person (e.g., one who is considered creative) may be expected to have more of the traits measured

in one of the tests (e.g., the LSAT) than those measured in another (e.g., the MCAT). In essence, Stephenson proposes that viewing unequal or otherwise heterogeneous tests or items according to their relative importance or relevance to the individual in question can standardize the items. In this way, the tests or items are made alike and comparable in reference to the individual with whom they are associated. Within the realm of data present in a matrix, such standardization of data should, according to Stephenson (1936a), progress first within columns (i.e., standardize data gathered from various individuals regarding the same test or item) and then within rows. Variance can then be calculated as it exists within the individual under consideration.

Stephenson also notes that such Q technique standardization can also be accomplished with items that, unlike the above data, cannot necessarily be organized into data matrices. This homogenization of unlike data could, again, be accomplished by ordering it according to its importance or relevance to an individual. For instance, an estate agency may try to investigate the importance of each of several dozen housing characteristics to potential homebuyers. To ascertain the importance of the many undoubtedly dissimilar items included amongst the characteristics in such a situation, Stephenson suggests that individuals participating in such a study could be asked to rank the items by placing them in a preset frequency distribution. In this forced distribution, the individual placing the items would rank highly those items that are more relevant or important to him or her while assigning a lower rank to those items that are less relevant or important. These ranks, now standardized in relation to the sorting individual, can be correlated. Stephenson notes that many fields of research deal with tests or items whose units are already or naturally homogenized (e.g., scores of color intensity as provided by different

people). He explains that, in such instances, the data requires no standardization and essentially can be used “as is.”

Having sorted out the difficulty of correlating data accumulated for one individual (or within one row), Stephenson (1936a) then addresses the issue of drawing correlations between individuals or rows of data in a matrix. He notes that if an individual were asked to perform an operation repeatedly and performed equally well each time, and another individual was asked to perform the same tasks and also performed equally well each time, albeit at a different level than the first individual, then the correlation between the two individuals would be zero (i.e., graphically represented as two parallel lines). If, however, the performance of one of the above individuals varies across tests, then a Q correlation can be calculated to relate the two participants.

The first step in this correlation process involves standardizing the columns of data in the matrix. Stephenson (1936a) notes that, after the columns are standardized with each other, the sum of the scores for each column will equal the sum of the scores for every other column, and each of these sums will be equal to zero (since the scores were standardized with respect to themselves and their own averages). Then, Stephenson explains that the rows must be standardized, with the sum of the scores for each row equaling the sum of the scores for every other row. Again, each of these sums of scores will equal zero. Given the unequal test performances discussed above, if a number of participants returned “negative” performances on a group of the administered tests or items, then another number of participants would necessarily return “positive” performances on these same tests (i.e., in order to balance the scores to the required sum of zero).

This balancing of scores is present for all tests taken, creating a system wherein certain groups of individuals tend to perform similarly or oppositely. Restated, those individuals who collectively performed “positively” on certain tests and “negatively” on other tests would likely exhibit a positive correlation amongst themselves. Similarly, those same individuals would likely display a negative correlation with other individuals whose performance on tests “balanced” the positively correlated group (i.e., those individuals who performed “negatively” on tests on which the first group performed “positively,” and vice versa). Overall, this second group would likely score similarly amongst itself, and thus the individuals included therein would display a positive correlation amongst themselves and a negative correlation with those individuals within the first group.

These two opposed groups of individuals form what Stephenson (1936a) terms “families.” While members of one family in the above discussion may generally relate positively amongst themselves and negatively amongst members of the other family, a few individuals may, perhaps, fall into neither of those families. Such individuals may thus correlate highly amongst themselves while being altogether unrelated to the other two families. In such a setting, the first two families may, in their relation to each other through their opposite performances on the same tests or items, act as anchors at the opposite ends of a single factor. However, the third family may function as a sort of orthogonal factor (i.e., a second factor falling outside the realm of the single, bipolar factor) if the distinguishing performances of its members on the tests or items are unrelated to the performances of the members of the other families. Such occurrences (i.e., of bipolar and orthogonal factors occurring simultaneously in a situation), according to Stephenson, are common throughout a variety of test and item populations.

Once correlations amongst data are established and factors are objectively arrived at (as discussed above), Stephenson (1936a) asserts that the correlations and factors themselves can be analyzed using inverted variations of traditional factor theorems (i.e., such as Spearman's two-factor theorem, etc., although avoiding the relatively indeterminate—as compared to principal components and other such approaches—standard centroid method for what Stephenson describes as a sort of insurmountable artificiality). Stephenson explains that, by using inverted factor theorems to analyze the correlations, researchers can establish the saturation of participants in a given factor. Saturation levels, however, must be interpreted differently when using Q technique than when relying on more traditional means of interpretation. In traditional factor approaches, an individual's ability is considered fixed and, from that, a high saturation for a test indicates that the test is the best measure of the specific ability under investigation. However, the tests or items used in an investigation utilizing Stephenson's inverted factor theorems have set values, while the saturations of individuals vary. What's more, a high saturation for an individual as found within the context of Q technique indicates that the individual is the most typical example of that factor. Restated, rather than saying that a person with a high saturation in a factor is the "best" of the group as might be the case with traditional factor techniques, the highly saturated person in Q technique is in fact the most typical of the group or type of individuals represented by the factor.

Stephenson (1936a) explains that the inverted factor theorems used in Q technique provide not only a means for conducting statistical manipulations for experiments within the confines of type and general psychology but also an encouragement of sorts for a reunion of type and individual psychologists who, according to Stephenson, have been long and needlessly separated (academically

speaking). Furthermore, Stephenson contends that only by self-referentially assessing an individual's characteristics (i.e., with regard to and within the individual rather than with regard to a population of people as a whole) can a researcher hope to successfully and entirely capture the relevant essence of an individual as experienced by the individual. By looking at a trait in reference to its relationship to the individual's whole being, Stephenson notes that Q technique may also provide a tool with which to pursue investigations based on Gestaltist theories. Whatever its potential uses in these and other fields of psychology, Stephenson claims that no other psychologist before him (on record) has fully seen and utilized the benefits and power of the inverted factor approach as utilized in Q technique.

To demonstrate this utility of Q technique, Stephenson (1936a) presents brief examples drawn from four experiments he conducted using his new approach. In the first experiment investigating aesthetic opinion as represented by tastes for vases, Stephenson instructed his small group of participants to rank-order postcards picturing different types of vases into a symmetric, forced, quasi-normal frequency distribution. This process of rank-ordering highlights three key issues introduced by Stephenson in his drive to refine and champion Q technique. First, the items composing a population (i.e., to be rank-ordered by participants) need not be words or statements and can instead, as is the case with the pictures of vases, be illustrations, diagrams, or other forms of media as deemed appropriate or necessary by the researcher conducting such an investigation.

Second, Stephenson notes that certain questions may arise as to the sampling process undertaken by a researcher using Q technique when compiling tests or items to ensure that all permutations of the tests or items are represented therein. In this example, for instance, Stephenson explains that a degree of uncertainty surrounds

whether or not he actually presented his participants with a sample including all available vases. Although he promises to address issues surrounding such sampling matters later, he counsels ease of mind in that he made certain, in the above example, that the sample did not consist entirely of one type of vase. Furthermore, in a general sense, Stephenson contends that both Q and r technique rely on sampling of populations, although in r the population consists of individuals while in Q it consists of tests or items. Whatever the case, to the degree that sampling techniques can be trusted in traditional approaches, so too, claims Stephenson, can they be relied upon in Q technique.

Last, this illustrative experiment marks the first time that Stephenson justifies the use in Q technique of a frequency distribution that is both symmetric and quasi-normal as a means of simplifying later calculations (Stephenson, 1936a). The use of symmetric, forced, quasi-normal distributions has remained more or less the norm in Q technique ever since for reasons discussed in Chapter 2.

After instructing the participants to rank-order the items according to the relative degree of pleasure they receive from them, Stephenson correlated the results and then analyzed those correlations using an inverted factor theorem (as described above). Stephenson displays the resultant factor saturations, along with the original correlations, in a large table in this and two of the later experiments, but notes that the reporting of results from future investigations using Q technique need not provide such a correlation table. Rather, he asserts that researchers publishing the results of such studies need only report factor saturations. He also reiterates the need for correct interpretation of factor saturations (i.e., those individuals with high saturations for a given factor are thus the most typical representation of that factor and are not the “best” or “ideal” individual included therein). Using background

information that he had about several of the participants, Stephenson concludes with a brief interpretation of some of the results and provides ideas of potential applications of Q technique in future research.

The second illustrative experiment that Stephenson presents is much the same as the one just discussed and, as such, offers few new insights into his new Q technique. The fourth sample study is similarly short on new insights, in part because Stephenson notes that he has no data associated with this example. Importantly, though, Stephenson does stress as part of the fourth example that Q technique is generally insufficient when standing alone. He acknowledges that *r* and Q techniques should be used in unison when conducting investigations. As such, he suggests that researchers looking to study a phenomenon fully, rather than trying to pit one technique against the other or replace either with the other, should view *r* and Q techniques as complementary approaches to conducting robust and complete research.

Stephenson's third example is more fully formed than the second and fourth, and it uses an item sample whose composition harks back to that of the sample used in the Stephenson (1935b) study. In this later rendition, Stephenson instructed participants to rank-order personality characteristics as they related to their own personalities (i.e., as they saw themselves). This second personality-related investigation differed slightly from other, previously mentioned investigations conducted by Stephenson in that the symmetric, forced, quasi-normal frequency distribution used by him in this study was significantly more flattened (i.e., when rank-ordering, participants could place relatively fewer items in the middle columns than previously). From these self-assessments of personality by the participants, Stephenson constructed a correlation table and calculated factor saturations. He then

interprets the results and again offers suggestions for possible extensions of this work in the future, concluding that this and the preceding three illustrative investigations demonstrate the ease with which Q technique (and its factor analysis) can be utilized in a laboratory setting to identify and clarify types and groups as discussed in and related to psychology.

Notions of Intensive Analysis

In these early accounts of Q methodology, Stephenson presents no data from any single case study. In his “Foundations of Psychometry” paper (Stephenson, 1936b), Stephenson does clearly allude to the possibility that only a single person might be involved, indicating that he will in due course provide examples of factor analysis performed on himself (p. 207).

Any notion that Stephenson had regarding the usefulness and power of studies utilizing single individuals may have been influenced by the long-standing use of such case studies in various areas of psychology. The earliest psychologists often relied on case studies when conducting research, in part because of the insight provided by such investigative approaches. Hermann Ebbinghaus (1885/1964) conducted landmark research on memory using himself as the only subject, while Sigmund Freud’s substantial influence on psychology stemmed almost entirely from his work with single cases (e.g., Breuer & Freud, 1955). Boring (1942) provides examples of a host of other scientists (e.g., Peirce, Weber, Newton, etc.), from psychology and from other sciences, who relied on single case studies to perform research that has formed the foundation upon which much later work was based.

Another likely source of influence on Stephenson came from the United States at about the time that Stephenson was developing his ideas about Q

methodology and single case studies. Namely, in his *Personality: A Psychological Interpretation*, Gordon Allport (1937), another pioneer of psychological methods for the study of the uniqueness of human individuality, introduced to Stephenson and other English-speaking readers a distinction that was to be at the center of much subsequent debate in psychology: that between idiographic and nomothetic approaches. Allport employed the distinction—derived from the views of the German philosopher, Wilhelm Windelband, as expressed by him in an address given in 1894—to contrast the approach of general psychology (nomothetic) to that of his own focus on the uniqueness of the single individual (idiographic). (See Lamiell, 1998, for a recent translation of and contemporary commentary on Windelband's address.) Allport probably had become aware of these terms through exposure to the personalistic psychology of William Stern while studying in Germany.

Significantly, some of the work of William Stern (e.g., Stern, 1936) was regularly cited by Stephenson in several of his papers written during the 1930s. What is more, Egon Brunswik was later to employ this distinction in a personal letter he wrote to Stephenson following the completion of his report on *The Study of Behavior* for University of Chicago Press. In this letter, Brunswik (1952) suggested to Stephenson that his use of the distinction was perhaps too sharp and that one of the most potent features of the idiographic approach was the fact that it was in intent nomothetic about an individual.

Some of Stephenson's other contemporaries were also starting to latch on to the idea that intensive studies (i.e., those using only one participant or few participants) could provide certain insights that were unmatched by those offered using more traditional approaches, although few endorsed Q-technique's focus on individual subjectivity. Primoff (1943) asserts that both traditional and inverted

(e.g., Q-based) techniques are inadequate means of studying an individual's abilities and the like. Lasswell (1938) instead focuses on the positive attributes of single case studies, noting that methods of intensive analysis (i.e., as opposed to those of extensive analysis traditionally used) provide researchers with tools to uncover the underlying patterns that constitute a person's behavior. Part of this superior power to expose behavioral influences, according to Lasswell, arises from the fact that, unlike traditional research techniques that rely on an external standpoint when attempting to process the data presented by subjects, intensive analyses are better suited to allow for interpretation of participant data from his or her own viewpoint, thus minimizing the influence of a researcher's personal or cultural biases that may skew the study's results. Cottrell (1941) agrees, asserting that researchers who are overly removed from the level of the individuals contributing the data (i.e., as is frequently the case in traditional, extensive approaches) gain only an inadequate understanding of the human experience under investigation. Only with an intimate appreciation of participants' points of view can a researcher begin to understand fully the behavioral influences of individuals (Cottrell, 1941; Lundberg, 1941).

Lundberg (1941) and Stouffer (1941) also advance the use of case studies in investigations, saying that such intensive approaches serve as excellent and necessary complements to traditional techniques. Stouffer (1941) echoes Lasswell's (1938) assertions regarding the critical role of an interpretive perspective, noting that conducting research using as few as one individual allows a researcher to understand better the data reported by a participant as experienced by the participant (i.e., from the participant's own view). Burt and Watson (1951) add that some of this added understanding, derived through the use of reliable data and factor analysis in intensive analysis, can even help a researcher separate internal and external (e.g.,

biologic and environmental, respectively) influences on a person's character.

Stouffer (1941) contends that researchers that instead rely on extensive, statistically oriented investigations (i.e., that typically must use large numbers of subjects) lose significant and sometimes vital information about the individuals involved, especially given the dynamic characteristics and patterns central to individuals' behavior (Rogers, 1951).

Not only is the interpretation of data by researchers using such extensive approaches generally in the context of what is important to the researcher (i.e., as opposed to what is important to the subjects; Rogers, 1951), but a loss of personal detail also results from the statistical manipulations that accompany the analysis of large groups of subjects and their associated data in traditional techniques (Stouffer, 1941; Primoff, 1943, Burt & Watson, 1951). For instance, one type of such a statistical tool (i.e., averaging) often results in the glazing over of individual differences of individuals in pursuit of a more statistically convenient description of or value for a group (Primoff, 1943). As such, extensive experimentation can provide insights into and predictions of behavior as it applies to groups of people, but they are relatively unable to provide penetrating details of individual behavior (Burgess, 1941). Burt and Watson (1951) add that, when conducting intensive analyses, using factor analysis allows a researcher to understand the fundamental character of any observed behavioral effects. Even so, Burgess (1941) reiterates that studies using extensive techniques are of some use and should be used in unison with intensive approaches. He points out that the life insurance industry, in its assessment of individuals seeking to purchase insurance policies, uses the two approaches in a complementary fashion in its relying on both actuarial tables (derived through large

group, extensive measurements) and personal physical exams (a decidedly intensive procedure) to arrive at appropriate premium structures for the policies.

The ability for researchers using case study methods to focus on individual details that may often be overlooked when using traditional techniques speaks to a further benefit of intensive investigative approaches. Specifically, Cottrell (1941) and Stouffer (1941) explain that this ability of researchers to shift their attention to relevant information as it becomes available also demonstrates the inherent flexibility of intensive analysis: rather than having to abide by rigid, predetermined investigative plans, a researcher conducting a case or other similar study can follow leads or interesting avenues as they present themselves. This flexibility, in allowing researchers to determine their research course dynamically, also adds to the ability of intensive analyses to serve as tools of scientific discovery (Rogers, 1951).

Some critics of intensive analysis contend that generalizations of results to larger populations cannot be made from single cases. Lundberg (1941) explains that this argument, as typically applied to single case studies, is founded on the critics' misinterpretations of the nature of the "cases" in questions. Specifically, he notes that a researcher engaging in intensive analysis generally uses for his or her study a single person who is repeatedly displaying some behavior or other phenomenon. As such, the "case" under investigation and from which generalizations may be drawn is not the individual used as the variable but is instead the recurring behavior. The researcher can then advance generalizations about this behavior or begin to align the behavior with certain classifications, given that the generalizations would be based on multiple events and occurrences.

Cottrell (1941) expands on the uses of intensive analysis in forming classifications (i.e., what Burgess, 1941, and Stephenson, 1935b, term "types" as

defined in type psychology). Cottrell suggests that both situationally descriptive words and excerpts from personal documents can serve as fodder for manipulation and factor analysis. From this factor analysis of intimate material, a researcher utilizing intensive analysis may then be able to identify and clarify interactional patterns and group structures objectively (i.e., mirroring Stephenson's factor analytic families and factors, as previously discussed). Burgess (1941) adds that interviews conducted with individuals possessing, displaying, or otherwise associated with the phenomenon in question can sometimes provide robust sources of data for later use in the intensive analysis. Through these varied sources, Burgess adds that a researcher using such an intensive approach may identify patterns that he claims are integral to a person's behavior and can shed light on the individual's probable future behavior.

Baldwin (1942) concurs that personal documents (e.g., diaries) can serve as fruitful sources of investigative materials. He cautions, though, that the validity of the insights gleaned from such documents is limited by the techniques of interpretation used by the researcher. Suggesting that researcher bias can cloud results, Baldwin (1942) and Burt and Watson (1951) thus support the drive for an objective means of intensive analysis, an assertion supported by Burgess (1941), Lundberg (1941), Primoff (1943), and Rogers (1951), amongst others.

Attempts at Objectification

However, in his attempt at creating and implementing a detailed, standardized, and objective method with which to assess research materials (e.g., interviews) commonly associated with intensive analysis, Burgess (1941) encountered several stumbling blocks. The weighting and rating system he proposes

is quite complex, requiring the input of multiple raters regarding multiple participants. These raters must provide detailed accounts of their rationale for rating participants as they do (e.g., noting whether a statement contributed by a rater in regards to a participant was based on an event actually witnessed or merely inferred by the rater), and these written evaluations have then to be accumulated and reviewed. This review process involves the gathering of all raters and the comparison of the various raters' scoring for the same individual. In an effort to enhance interobserver reliability, ratings would then be modified according to the impression of the raters upon leaving the review session. Streaks of such subjective influence, common in this purportedly "objective" approach, prompted Burgess (1941) to declare the approach largely invalid.

Baldwin (1942) proposes a methodology of his own, called personal structure analysis, for objectively assessing data collected from intensive analyses. His protocol is designed around the analysis of information as gleaned from personal letters and other such written personal sources from an individual whom he uses as an example for his article. Baldwin divided the series of letters, written over the course of 11 years, into five chronological groups representing five phases of the participant's life that he viewed as distinctly different from one another.

According to Baldwin (1942), three types of "evidence" are necessary within the personal material in a single case study to allow for appropriate and thorough interpretation: frequency (i.e., of a behavior or phenomenon, as reported therein), insight (i.e., of the participant into his or her own characteristics), and contiguity (i.e., the physical placement of ideas relative to other ideas). Two assumptions were then drawn from these bits of evidence. First, ideas that appeared with greater frequency within the letters were considered to be of greater significance to the

participant. Second, items that are commonly found within close proximity to each other (i.e., within the letters) were considered related, at least within the mind of the participant.

To simplify the processes and interpretation of the content of the letters, Baldwin (1942) then categorized each main idea within the personal accounts into one of 15 researcher-determined categories. These categories are specific for each individual. Although Baldwin notes some difficulty in selecting the 15 categories to be used, he also explains that the assigning of main ideas was troublesome, as some topics (e.g., “women”) seemed to be sufficiently generalized to include a significant portion of the participant’s life while remaining specific enough not to lose an excessive degree of detail. At the same time, other topics (e.g., “men”) seemed inadequate, as much important detail was lost about some particularly important characters in the participant’s life.

After sorting out these troubles, Baldwin then subdivided each of the 15 categories into what he termed “attitudinal categories.” These attitudinal categories, like the 15 broader ones, are individual-specific. Although such specificity preserves the ability to uncover unique aspects of a participant’s personality by minimizing the likelihood of having to slot an individual’s personality into essentially generic and possibly incompatible categories, this hyper-personalized process can be labor- and time-intensive as it must be repeated for each participant.

What is more, Baldwin (1942) notes that the researcher delineating these categorizations can bias them through the application of personal theoretical leanings. For example, Baldwin notes that a researcher opposed to Freudian ideology may explicitly omit any categorizations associated with sexual behavior even if the content of the letters suggests that such a category should be included. To

combat such potential bias, Baldwin made sure to include a large number of categories, including both those that were specifically drawn from the participant's letters and those that the researcher considered to be important. He also included the opposite of each category listed to ensure that researchers could properly record the presence of either extreme of a participant characteristic. The compilation of this large set of categories adds to the preparatory time necessary when utilizing this approach to analyzing single case studies. Baldwin also asserts that the need to have detailed knowledge of the case (i.e., to prepare the various categories completely) limits the ability of the approach to tease new information out of the materials or otherwise act as a particularly adept tool of discovery. Thus, Baldwin's approach is essentially left to verify his hypothesis regarding the participant's behavior.

After the process of categorization was complete, Baldwin (1942) then sorted the content of the letters into the categories and subcategories. This sorting required a further classification of information, including, for example, whether the information was part of a common incident (i.e., whether it happened at a similar time or was placed together within a letter) with something else, or if the information shared a category with another bit of data (i.e., they share common substance or content). Frequencies of presence of each category were recorded, and the statistical significance of the difference in frequency between categories was calculated. Baldwin also looked at contiguity, employing both statistical (i.e., using correlations) and graphical (i.e., using clusters) means to analyze relationships amongst categories of data. These clusters formed during the graphical representation resemble the factors derived from factor analysis as used by Stephenson.

Baldwin (1942) continues, describing the analysis of the data and interpretation of the results. He then contends that his procedure can be used either

as a complement to other forms of analysis or as a stand-alone technique. However, he admits to the approach's time-consuming nature (made particularly prohibitive given that the wheel, so to speak, must be reinvented for each participant). This substantial investment of time also limits the flexibility of a researcher in that any change in course from the original plan (i.e., as may arise when categorizing data) would require a return to the first stage of forming categories. Also, in addition to needing to construct categories that tread a thin line between being too inclusive and overly specific in order to return interpretable results, researchers performing a personal structure analysis must gather and review reams of written material for each participant. Finally, Baldwin notes that a researcher employing his approach must be willing to accept the assumptions (i.e., of frequency and contiguity) upon which the entire analysis is based. These limitations, especially for researchers looking for investigative flexibility or for those grappling with even minimally restrictive time constraints, likely minimize the applicability of this approach in most research settings.

Attempting to account for some of these methodological hindrances, Primoff (1943) suggests a methodology of his own for correlating and interpreting single case studies. Using this methodology, a researcher would engage in a mathematically involved process for correlating various characteristics and then subject these correlations to centroid factor analysis. Although he then briefly outlines an approach to data rotation (i.e., for purposes of clarifying relationships), Primoff seems to not fully comprehend and thus inadequately expand on the potential applicability of his method. Primoff's methodology also somewhat incompletely addresses the diverse needs of researchers (i.e., as seen by the fact that he directs it

toward those researchers interested in abilities) while touching upon only a small aspect of human existence.

Thus, praise for intensive analysis was growing, with researchers celebrating the approach's potential power of insight into the experiences of individuals from the standpoint of those individuals. Some researchers even presented single case studies as essentially the only means of understanding the entirety of human existence (Primoff, 1943; Burt & Watson, 1951). Others noted the inherent manageability and flexibility of intensive analysis when applied to a variety of research questions. Even so, researchers had not been able to successfully harness that methodological muscle in a way that could be easily implemented, interpreted, and reproduced. So, revisiting Stephenson's (1935b) ponderings, could intensive analysis, with its insight, uniqueness, and flexibility, actually be objectively and scientifically utilized in such a way as to maintain and exploit its associated strengths and virtues when studying single cases?

A Look Ahead

In the next chapter, I will discuss Stephenson's (1953) exposition of Q methodology and its application to single case studies. Also, although Stephenson's advocacy of such QMSC studies is impassioned and compelling, I will show how much of the research published in the years after his 1953 book was focused on investigative approaches other than those using Q methodology. Even so, other forms of single case studies continued to gain acceptance—and journal space—in psychology.

Chapter 4

World premiere: The debut of Q methodological single case studies

Addressing the question of the feasibility of developing a methodology that scientifically and objectively investigates human behavior, experiences, and other subjective phenomena, Rogers (1951) discusses the state of behavioral research. For instance, Rogers asserts that in order to fully and clearly understand the experiences and behavioral influences of an individual, a researcher must overcome the tendency to view observed behaviors through the filter of his or her own frame of reference or experiences. Instead, Rogers suggests that researchers must attempt to comprehend and interpret an individual's behavior from the vantage point of the individual. This necessity, explains Rogers, is a result of the fact that only the individual involved in such an investigation completely and accurately understands the interpretation and effect of his or her experiences.

Singing the praises of client-centered intensive analysis, Rogers (1951) claims that such analyses provide an ideal foundation upon which to conduct research into the influences and significance of an individual's behavior. He adds that such investigative approaches can also find applications in attempting to predict relevant future behavior. The appropriateness and power of single case studies in research like this, adds Rogers, extends from the ability of single case studies to extract meaning from observed behavior in the context of and in reference to the experience of the individual participating in the study.

Rogers (1951) mentions Stephenson's Q technique as a potential methodology with which to study an individual's perception of self. In his brief discussion of Q technique, Rogers outlines some of the benefits imparted to researchers utilizing such an approach when conducting research. One benefit of Q technique (i.e., as opposed to more traditional investigative methods) is its use of powerful statistical processes to evaluate a potentially large population of items

across a small group of individuals. Through the use of these statistical procedures, Q technique is better able to maintain what Rogers describes as the individual significance and depth of the data collected during the course of such an investigation.

Rogers (1951) also alludes to a new use of Q technique that he ascribes to Stephenson, perhaps gleaned from the British expatriate in their interactions at the University of Chicago. Specifically, Rogers outlines the application of Q technique as used with a participant pool of only one. In such an investigative arrangement, a researcher would present statements or other items to the participant for rank ordering according to a specific condition of instruction. The participant would then sort the items into a forced, quasi-normal distribution, the results of which would be recorded just as in a normal study using Q technique. In the newly suggested approach, however, the researcher would collect and again distribute the statements to the participant, this time instructing him or her to sort the statements according to a new and different condition of instruction.

In this way, Rogers (1951) notes that the imposition by a researcher onto a participant of several conditions of instruction across a series of sorting procedures may yield a uniquely insightful look at the underlying behavioral influences significant to the individual. What's more, the combination of the positive attributes of Q technique and the powers of perception offered by single case studies allows this insight to be thoroughly and accurately captured from the standpoint of the participant. Rogers thus concludes that single case studies that utilize Q technique offer a uniquely capable and powerful tool with which researchers can conduct behavioral research. He laments, however, that no satisfactory account of either Q

technique or its application in single case studies exists for the benefit of the general research public.

Merger and Acquisition

Having ascertained the need for greater clarification of the technique he introduced nearly 20 years prior (and suggesting that few researchers had earnestly considered the approach in that time), Stephenson published his second book in 1953. In it, Stephenson (1953) addresses critics' comments and questions about Q technique, walking step-by-step through the details of the approach that, upon its introduction, offered researchers an alternative to more traditional investigative methods. From the selection of a concourse and the administration of a Q sort to the analysis of results and the interpretation of factors, Stephenson thoroughly explains the procedure involved in and the theory supporting Q technique, thereby systematically defending the validity and importance of Q technique as a means with which to study an individual's thoughts, opinions, beliefs, verbalizations, psychological mechanisms, experiences, and other subjective aspects of behavior.

Simultaneously, and perhaps more significantly, Stephenson (1953) uses his book as a means for formally introducing and demonstrating the methodological and scientific value of Q technique (with its use of factor analysis) when applied to single case studies. The justification and benefit of the merger of these two formerly separate permutations of intensive analysis to form QMSC studies is woven into Stephenson's championing of Q technique. By also including sections of details specific to the utilization of single case studies (e.g., selection and imposition of multiple conditions of instruction, correlating data, etc.), Stephenson thoroughly illustrates the procedure and nature of this new methodological approach. The net

effect of this combined defense and introduction is the strengthening of an already well-established and acknowledged methodology (i.e., in Q technique) and the acquisition by science of a powerful tool of insight and discovery (McPherson & LeGassicke, 1965) for use in behavioral research and other such investigations of subjectivity (i.e., in QMSC studies).

Stephenson (1953) begins by explaining that his focus, although previously centered on introducing the research tool of Q technique, is shifting. His energies are now directed at incorporating an expanded set of notions, from philosophy to psychological theory, into a newly molded methodology for studying the entire individual. With Q technique as its centerpiece, Stephenson's new methodology is termed "Q methodology."

In general, the main purpose of both his past efforts associated with Q technique and his current work with Q methodology is, Stephenson (1953) claims, to promote the methodology's use in single case studies. Stephenson asserts that his methodology is a superior tool of discovery (i.e., more aptly suited to develop and explore theories than is R methodology) that can be applied to analyze practically any individual to look not at individual differences (i.e., as in traditional approaches to research) but instead to investigate the near-entirety of a person's subjective experiences. Such QMSC studies, he adds, can yield valid and appropriately generalizable results without a need for large and sometimes unwieldy numbers of participants. In sum, Stephenson presents an argument for placing individuals at the center of psychological research while suggesting a means of achieving that end.

Specifically addressing contentions of many of his critical contemporaries, Stephenson (1953) first counters arguments that Q technique is essentially a superficially different but substantially unchanged form of more traditional

investigative approaches. Although providing a summary of these differences in his book, Stephenson also details the points of separation between the two investigative approaches. He notes, for instance, that some researchers criticized the minimization in Q methodology of the importance of correlations, a departure in and of itself from traditional techniques. Stephenson denies this minimization, explaining that Q methodology still relies upon correlations for extracting patterns for interpretation. However, Stephenson stresses the mathematical deviation between Q and traditional methodologies, providing data matrices to present graphically the different types of correlations involved (i.e., between persons, as in Q methodology, and between tests, as in traditional approaches).

Stephenson (1953) expands on this explanation of correlational differences to clarify a point of seeming confusion and contention amongst his contemporaries arising from previous discussions of Q methodology (e.g., Stephenson, 1936a). Stephenson explains that no single data matrix could realistically provide data for use in both traditional (i.e., R methodological) and Q methodological approaches. Rather, whereas R methodology is concerned with correlating the scores assigned to individuals on different tests, Q methodology looks at the relative ranking of the tests (or items) within a person and then correlates that with other individuals. In this way, R methodology could never, according to Stephenson, be applied to conduct single case studies, whereas Q methodology is ideally suited to enable such investigations.

Using a sample Q methodological experiment as his medium, Stephenson (1953) changes focus and begins his first substantial discussion of one of QMSC studies' most significant features: multiple conditions of instruction. Stephenson explains the meaning and general purpose of multiple conditions of instruction,

noting that the use of such varied principles for governing successive sorts generally helps researchers using QMSC studies to investigate a participant's behavior and experiences more deeply and fully. Intra-individual patterns of sorting are identified in QMSC studies much as factors are established in "normal" Q methodological studies. Stephenson explains that the various sorts performed under each condition of instruction in a QMSC study are all performed with reference to the participant's experiences and are thus relatable (an assertion later supported by others, including, for example, Herbst, 1970). These sorts are correlated with each other, and these correlations are then subjected to factor analysis. The resultant factors, adds Stephenson, offer points at which to start interpreting and explaining the application of the collected data to the participant, given relevant background information about the participant as established through previous contact, later interviews, and other avenues.

Theory plays a critical role in four stages of QMSC studies, according to Stephenson (1953). First, Stephenson notes that researchers engaged in the preparation of a single case study can draw upon relevant theory to identify the population from which the items used in the study are drawn. Next, theory governs the selection of variables for use in the study. Specifically, for any given participant involved in a QMSC study, the researcher conducting the study may use relevant theory to select the conditions of instruction imposed during the various sortings as discussed in Chapter 2. Third, as noted in Chapter 2, theory plays a central role in judgmental rotation. Finally, theory enters into QMSC studies in suggesting to researchers certain information and details that may emerge from or act to explain some of the factors extracted through factor analysis. Stephenson stresses, however,

that the validity and applicability of theories used in such a single case study can influence the quality of the insight derived from the study.

Researchers conducting QMSC studies must rely then upon a phenomenon that Stephenson (1953) contends governs much of human behavior. Specifically, Stephenson asserts that a general lawfulness underlies behavior both within an individual and across similar individuals. This lawfulness, as such, allows a researcher conducting such an intensive analysis to generalize from the results of the study for two purposes: the researcher may use the results to predict the participant's future behavior while also using the study's findings to provide an estimate of how other, similar individuals would respond or otherwise behave in given situations or when presented with specific stimuli. QMSC studies, in Stephenson's eyes, allow a researcher to extract and operationally define such laws and habits governing behavior for later scientific analysis and interpretation.

Stephenson (1953) adds, however, that, as in more traditional approaches to research, the ability to generalize, confidently and reliably both to other situations within a participant and to other individuals, is augmented with increased replications of the investigation across time and using different participants. However, Stephenson claims that this need for generalization of data to others besides the participant is less substantial in QMSC studies than in traditional approaches. He suggests that researchers who build investigations around Q methodology can retain and utilize the intricacy and usefulness of their studies by instead determining the applicability of their results to the study's participant (or participating group). Restated, QMSC studies assist researchers in studying the influences and behaviors of actual individuals rather than hypothetical, generalized populations.

To reach these results from which to generalize, researchers conducting QMSC studies must subject their raw data to factor analysis. Stephenson (1953) explains that the type of analysis used in QMSC studies fundamentally differs from that utilized in the course of conducting experiments using more traditional techniques. He elaborates, noting that while both methods use a type of multivariate analysis, R methodological approaches use traditional factor analysis, a form of interdependency analysis, to discover associations amongst the data. Interdependency analysis assumes no prior significance for any aspect of the collected data and, according to Stephenson, deals with matters that may be purely theoretical (i.e., with little relevance to real-life happenings). Stephenson suggests that researchers, in general, regard interdependency analysis as somewhat more poorly representative of the scientific approach than dependency analysis.

This generally higher stature of dependency analysis as compared to interdependency analysis extends from the fact that dependency analysis involves the manipulation of an independent variable to elicit alterations in a second, dependent variable. In QMSC studies, the sample of items used in sorting and the conditions of instruction imposed upon the participant are independent variables, whereas the placement of the items within the forced, quasi-normal frequency distribution and the factors extracted from that sorting (i.e., via factor analysis) are dependent variables. Stephenson (1953) notes another difference between the two analyses, explaining that dependency analysis, by focusing on effects that are assumed prior to analysis, does assign prior importance and weight to variables under investigation. Dependency analysis then typically subjects its data to variance and covariance analysis, using Fisherian principles to ensure thorough examination of the data.

QMSC studies incorporate such Fisherian methodology into its process of analysis. Additionally, Stephenson (1953) notes that, as previously mentioned, factor analysis is also a tool of analysis that is of primary importance in investigations using Q methodology. Interestingly, Stephenson asserts that although factor analysis is typically categorized as a tool of interdependency analysis, factor analysis as used in Q methodological investigations is actually a form of dependency analysis. As such, Stephenson sees Q methodology (and its single case studies) as a bridge between two otherwise separate forms of dependency analysis (i.e., Fisherian methodology and factor analysis).

Stephenson (1953) then begins comparing details of interdependency and dependency analysis as they relate to R and Q methodologies. He explains, for example, that psychologists who typically use centroid rotation to clarify factors extracted through factor analysis can rotate essentially without end, thus resulting in an analytic situation that Stephenson likens to statistical chaos. He also notes that the notion of simple structure (i.e., where each variable essentially loads purely on one factor, thus offering a clarified view of the data for interpretation) is rarely achieved, contributes to the potentially endless rotating just mentioned, and, in its reliance on induction for interpreting data, limits the applicability and usefulness of the results of studies relying upon it.

Rather than abandoning centroid rotation as described above, Stephenson (1953) contends that researchers conducting QMSC studies should alter their approach to centroid rotation to instead look for simplest structure (as distinct from simple structure discussed above). Achieving simplest structure requires that researchers use their own know-how, theories, and experiences (i.e., abduction) to progress through the rotational process, looking for the factor structure that best suits

their data. The ideal result of such an abductive approach to rotation is, in Stephenson's opinion, a simplest structure that includes only a few factors, which together with their combinations, cover the data. He notes, however, that in many instances, data may suggest a simplest structure that includes an orthogonal, singly loading (i.e., either positively or negatively) factor altogether independent of other factors. While such an orthogonal factor may not be considered ideal, the notion of simplest structure allows for such "imperfections" when the researcher conducting the QMSC study deems them appropriate for the investigative situation in question.

Stephenson (1953) then delves into the processes involved in forming a sample for use in a QMSC study. Regarding the often-cited requirement of using random, representative samples when conducting investigations, Stephenson explains that such samples are difficult to achieve in their pure forms regardless of the methodology used in the study. This difficulty can arise, for instance, from investigator bias and experimental limitations that may skew the representation of certain segments of a population in a study's sample.

Although this perceived methodological confound can affect studies using either Q or R methodological approaches, Stephenson (1953) asserts that the more salient aspect of the sample, at least in terms of Q methodological investigations, is that a participant be able to sort each item of the sample independently of any other item. Stephenson contends that a participant in such a study necessarily should assess and assign value to an item without thereby influencing the evaluation of any other item. This assertion of independence by Stephenson effectively mandates that items used in a Q methodological study be sufficiently different from each other as to be judged as such by participants. Stephenson notes that if a participant believes multiple items to be alike, then his or her assessment of one of those alike items

would essentially apply to the other similar items, therefore resulting in an evaluation of the items in the sample that was not wholly independent.

One method advocated by Stephenson (1953) for constructing a sample for a QMSC study (or for any Q methodologically-based investigation) involves the use of a balanced block design. With this approach a researcher would use relevant theory to establish different categorizations along which to select items for a sample. Stephenson cites an example using a theory of psychology in which an aspect of an individual's behavior is broken down into three "independencies:" attitudes (including either "introversion" or "extroversion"), mechanisms (i.e., either "conscious" or "unconscious"), and functions (such as "thinking," "feeling," "sensation," and "intuition"). In this example, these various behavioral levels combine to present 16 character groups for a researcher to take into account when attempting to represent the entirety of a person's behavior. As such, a researcher conducting such a Q methodological study would select an equal number of items representative of each character group for inclusion in the sample, effectively addressing the need for a selection of items that is representative of the population of items relevant to the phenomenon in question. As discussed in Chapter 2, the sources of these items can vary (e.g., interviews with relevant individuals, personal journals, etc.) depending upon the requirements of the investigation.

Stephenson (1953) notes that some critics question the process by which a researcher conducting a QMSC study ascertains and proves that a given item "belongs in" or is representative of a particular character group (i.e., when forming a structured sample). Stephenson responds to this challenge by explaining that the theories according to which the various character groups are formed are themselves unproven. As such, the items that a researcher places in any such group cannot be

formally shown to be “properly” or “improperly” assigned. Rather, the theory used to structure the sample is sometimes applied to later explanations of factors that arise from the investigation. The factors extracted from data at the end of a QMSC study may be explained, at least in part, by applying the theory used to form the sample at the beginning of the investigation. Even so, a researcher conducting such a study may opt to use a panel of judges to form the investigation’s sample as a way of reaching a sort of consensus that the items included do, in multiple individuals’ opinions, broadly represent the categories to which they have been assigned.

The level of randomization inherent in a sample can be formally tested, though. Stephenson (1953) explains that with respect to structured samples, analysis can be carried out for a distribution of scores derived from a single Q-sorting. The replication variances provide the error “expectancy,” and these can be tested for homogeneity. By this means, the investigator can determine whether the experimental conditions have been grasped by the participant.

As a whole, Q methodology, specifically as it applies to single case studies, provides a means of objectively studying subjectivity. Such subjectivity, asserts Stephenson (1953), is present in all aspects of life in which human beings are involved. By making operant an individual’s behaviors (a term that Stephenson contends encompasses both external and internal events—like actions and thoughts, respectively), QMSC studies allow researchers to test and probe subjectivity in a systematic and repeatable (and thus scientific) manner. By conducting this testing and probing in such a way as to extract data from the perspective of the participant involved rather than as filtered through the eyes of a researcher, QMSC studies minimize the influence of researcher bias in the interpretation of results. Finally, through the use of modified factor analysis and centroid rotation, researchers

conducting QMSC studies can thoroughly and scientifically evaluate data to return results that may offer profound insights into the behavioral influences of the participant (or participants) involved in the investigation.

Mixed Response

Considering the need and calls for elaboration and clarification of QMSC studies to which Stephenson responded in his (1953) book, the reaction to his methodological treatise was disappointingly mixed and, in some instances, decidedly hostile. Good (2002) notes that many leading psychologists of the day (including Egon Brunswik, Stanley Estes, Donald Fiske, Ernest Hilgard, Jacob Kantor, Fred Kerlinger, Carl Rogers, and Robert Yerkes) expressed their delight with the book and praised Stephenson in their personal correspondence with him; however, the public response, especially from psychologists, was frequently rather hostile. Among those critical of Stephenson's achievements were Charlotte Banks (1954), Raymond Cattell (1951), Lee Cronbach and Goldine Gleser (1954), Hans Eysenck (1954), and Quinn McNemar (1954). The value of single case studies was often questioned, especially by McNemar. Stephenson commented in an unpublished note that McNemar's review was "most critical and probably damaging...his criticisms ...those to be expected of a Newtonian positivist, believer in large samples, never questioning his own premises" (Stephenson, 1988). Brown (1997) points out, though, that members of other professional groups such as Bernard Glueck (psychiatry), Russell Ackoff (operations research), and David Riesman (sociology) received Stephenson's book much more positively. Even so, besides Brown (1968), who noted that some researchers were actually retracting previous criticisms regarding Q methodology in general, and a handful of researchers such as Shapiro

(1961), Ricks (1972), and Baas and Brown (1973), few other researchers even acknowledged, elaborated on, or otherwise made mention of Stephenson's advocacy of QMSC studies.

According to Brown (1974), most behavioral scientists continued to conduct research using extensive as opposed to intensive approaches. This apparent lack of response to and utilization of Stephenson's (1953) work does not imply that the research public had forgotten single case studies in general. Rather, researchers in a variety of fields associated with psychology published a flurry of articles deriding extensive approaches to experimentation while extolling the virtues of single case studies. Although this post-1953 praise of intensive analysis largely did not specify QMSC studies as a means of objectively studying individual behavior and experience, the advancement of single case studies in general helped enlighten and convert some previous doubters of the applicability and efficacy of single case studies, progressively warming the audience of researchers to the notion that investigations using only one or few participants may not only be scientifically valid but also, at times, preferable to experiments relying upon more traditional, extensive investigative methods.

Extensive Drawbacks

Chassan (1960) asserts that clinical psychological investigations focus on subjects that, generally speaking, are inherently difficult to study. He elaborates on his assertion, explaining that researchers initiating such investigations, which are usually conducted within clinical settings (e.g., in the confines of a psychiatric hospital), have only limited financial and personnel resources at their disposal with which to tap a limited participant population (1960, 1961). Along with other

populations also including only relatively few individuals, this population of psychiatric patients, already limited, is further limited when applying investigative criteria for participant selection (i.e., relevant, necessary participant characteristics as specified by the researcher conducting the study; Chassan, 1960; Leitenberg, 1973). Further complications arise in such clinical psychological investigations, notes Chassan (1960), in that the patients within this population are often undergoing psychopharmacological treatment, meaning that any researchers conducting drug studies and using these patients as participants would have to attempt to account for potential interactions between the experimental pharmaceuticals and a slew of current drugs for a large group of patients.

Researchers also require flexibility when carrying out clinical psychological investigations in order to adjust treatments or dosages throughout the course of the study as appropriate to address any relevant research questions that may arise (Chassan, 1960; Shapiro, 1969). Shapiro (1969) adds that human behavior and experiences are too dynamic to be adequately investigated using traditional methods, which are typically bound by an inherent rigidity. The results of such studies, continues Chassan (1960, 1961), must also provide relevant information. Specifically, researchers conducting studies in clinical psychological settings generally look to achieve results that are directly applicable to the patients involved in the studies. Chassan elaborates that such researchers are therefore more interested in results that are of clinical significance (i.e., as opposed to results that are merely of statistical significance), a distinction also supported by Shapiro (1961).

Given these situational limitations and investigative criteria associated with clinical psychological studies, Chassan (1960), Barlow and Hersen (1973), and Leitenberg (1973) contend that traditional experimental approaches are poorly suited

to conducting such work. The reliance of extensive analyses on large pools of subjects derived from even larger populations makes them inappropriate for the limited patient populations available to researchers in clinical psychological settings (Chassan, 1960, 1961; Leitenberg, et al., 1969). Even if a researcher could gather a sample as massive as that often required for experiments designed using extensive investigative approaches, samples on such a large scale require extensive commitments of finances and personnel, two resources that, as previously mentioned, are frequently in short supply in such clinical settings. The financial and personnel requirements of extensive experiments would grow further for psychopharmacological studies, where most (if not all) of the patients included therein would need to be monitored carefully for possible drug interactions, a potentially laborious process when working with large groups.

Beyond such constraints on resources, extensive analyses have other shortcomings when applied to clinical psychological investigations. For instance, such traditional approaches, as previously mentioned, lack the flexibility sought by clinical psychological researchers. More importantly perhaps, though, is the fact that the results obtained from traditional investigations are not applicable at the level of the individual (Chassan, 1960). Bellak and Chassan (1964) note that researchers conducting traditional experimentation are removed from and thus generally unaware of the goings-on at the level of the individual amongst the studies' participants. This inability of extensive approaches to monitor individuals then translates into an inability for them to return results that speak to the effects of experimental treatments at the level of an individual. This inability is attributable in part to the fact that researchers conducting such work cannot, by virtue of the required population and sample sizes, know or sufficiently limit the relevant characteristics of each subject

(Herbst, 1970). Thus, such a researcher would be unable to assess confidently those patient traits that may interact with or contribute to whatever treatment effects are observed.

An additional hindrance in garnering results applicable at an individual level when using extensive analysis is that the statistical procedures typically employed in such traditional approaches obfuscate individual differences (which can be substantial and variable within a large group) and significance, instead returning results as averaged for the entire experimental group (Shapiro, 1964, 1966; Barlow & Hersen, 1973; Gottman, 1973). The use of standardized, impersonal scales by researchers conducting traditional investigations further diminishes the appearance of individual differences as participants are instead slotted into and forced to respond to generic, predetermined categories. Such standardized approaches can confuse participants and oversimplify the complexity of human experiences, resulting in irrelevant and insignificant findings (Shapiro, 1964; Gottman, 1973). Such results, while ostensibly descriptive of the whole sample, in fact fail to describe any single individual included therein in all but those rare investigations wherein the participants display little variability amongst themselves (Brown, 1974). Thus, a researcher engaged in such work would be unable to establish to what degree any specific patient involved in the study would benefit from the treatment in question (Chassan, 1965; Svenson & Chassan, 1967). As a result of this combined inability to identify either important patient traits or those patients who could benefit from the experimental treatment, a researcher conducting a clinical psychological experiment using extensive analysis would likely be unable to either directly apply the results of the study to treat any of the participant patients or understand which patients and populations to which to apply the results (Chassan, 1960, 1961).

Furthermore, the statistical manipulations associated with more traditional approaches seek to ascertain whether or not results are statistically—as opposed to clinically—significant. Chassan (1960, 1961) and Barlow and Hersen (1973) explain that, with large samples, even minor changes in expression of a phenomenon under investigation can translate into a statistically significant variation. However, Chassan (1960, 1961) contends that clinical researchers generally conduct studies with the intent of improving patient care. Thus, such researchers are more interested in observing large treatment changes that may, due to smaller sample sizes, be considered statistically insignificant but that demonstrate clinical significance (Chassan, 1960).

Statistically speaking, traditional approaches, when applied to clinical psychological research, are additionally flawed. Chassan (1960) and Gottman (1973) explain that traditional statistical procedures rely on an assumption of independence between the treatment effects demonstrated by different participants in an investigation. Under this assumption, for example, an improvement in condition for one individual is considered to be unrelated to any improvement noted in the condition of a second individual and is instead attributed to a treatment effect. However, Chassan (1961) notes that clinical psychological (and other) settings often place multiple participants (including those within both the treatment and control groups) within close contact of each other during the course of investigations. With this contact, contagion effects can skew data (Chassan, 1960, 1961). Restated, in the confined quarters of clinical settings, participants may interact with each other. Thus, if one participant demonstrates an improved condition, other participants may also show improvement simply through contact with the improved participant and regardless of whether or not the treatment (or placebo) is actually imparting any

direct benefit. This generalized, communicable improvement renders void the assumption of independence upon which traditional approaches rely and thus minimizes the degree of significance of any treatment effect and reduces the value of extensive approaches to research (Chassan, 1960, 1961). Taken as a whole, Ricks (1972) expresses a desire and need for an investigative methodology that is designed to assist a researcher in gaining a valuable, interesting, and effective understanding of complex, human experiences.

Intensive Benefits

Herbst (1970) provides an explanation for the faults of traditional, extensive approaches and the virtues of intensive approaches to research as they relate to studies focusing at the level of the individual. He explains that three types of laws can explain all phenomena in the universe. Type A laws are commonly found within the confines of physics and chemistry and involve relationships and parameters that are constant. For instance, Herbst notes that the ideal gas law describes that the number of moles (i.e., a unit expressing quantities of a large magnitude) of an ideal gas, the gas's pressure, and the gas's volume are related in a necessarily fixed ratio. This relationship remains true for any and all ideal gases. As such, a researcher conducting an experiment on an ideal gas could subject a random sample of the gas to experimentation and reach this same conclusion (i.e., fixed ratio). However, this fixed, invariable relationship, according to Herbst, is unlikely to occur within the confines of behavioral sciences. Thus, the random sampling that is appropriate for conducting studies of substances governed by Type A laws is inapplicable in behavioral science settings.

The second type of law, a Type B law, involves constant relationships whose parameters are specified. Herbst (1970) illustrates this type of law using the relationship between the length of a metal rod and the temperature of the rod. Specifically, metal expands and contracts with changes in temperature; however, the degree to which a given temperature change alters the length of a metal rod differs according to the composition of the rod. Thus, given the type of metal used in the rod, temperature and rod length will fluctuate in a predictable and constant manner with respect to each other. A researcher conducting an investigation of such a law could not randomly sample a variety of rods to arrive at the appropriate relationship, according to Herbst; instead, such a researcher would likely only find a correlation of zero between metals. Herbst says that such relationships, although likely rare, may exist in the behavioral sciences. Whatever the case, he notes that only through studying single cases could a researcher adequately understand phenomena governed by Type B laws.

Herbst's (1970) Type C laws (i.e., his third type), which Herbst asserts come into play most commonly in the behavioral sciences, involve relationships wherein each behavioral entity is governed by laws unique to itself. He discusses, as an example of Type C governance, that each individual responds to and experiences events according to filters established through his or her own background and interpretation. These experiential filters direct the individual's behavior in a relatively constant manner, but the filters vary from individual to individual and must be investigated accordingly. Thus, as with Type B laws, general population sampling is an inadequate means of assessing phenomena governed by these laws (e.g., human behavior). Rather, single case studies are required for garnering a thorough understanding of the influences involved in Type C laws. Thus, overall,

phenomena associated with the behavioral sciences must necessarily, according to Herbst, be investigated using single case studies.

The uniqueness of individuals' behavioral influences as outlined by Herbst (1970), combined with the aforementioned limitations associated with traditional, extensive approaches as found in clinical and other psychological settings, provides a number of reasons for intensive analysis in studies involving human behavior and subjectivity (Chassan, 1960; Dukes, 1965; Edgington, 1972; Ricks, 1972). First, single case studies require only one or few participants. With so few participants, such intensive analyses generally require a reduced commitment of personnel, less space for administration, and an overall lower financial obligation than that required in traditional experiments (Chassan, 1961; McPherson & LeGassicke, 1964; Brown, 1974).

Second, researchers conducting single case studies perform observations of participants on a continual and frequent basis throughout the duration of the study (Chassan, 1961; Barlow & Hersen, 1973). From these observations, a researcher conducting a single case study can continually interpret results as reported by a participant rather than as calculated via averaging at the end of an investigation (i.e., as is often the case in traditional experiments; Edgington, 1967). This regular, ongoing analysis of an individual participant's reports injects a degree of elasticity into single case studies in that researchers can continually monitor participant progress and, if necessary, adjust and tailor treatments to investigate systematically and safely the phenomenon or treatment in question (Chassan, 1961; Gottman, 1973).

Third, single case studies are further tailored to the participant in that any scales used within the study can be constructed with reference to the individual's

own standpoint (Shapiro, 1966), thus maximizing the likelihood that the study will gather and yield results that express the phenomenon under investigation as experienced by the participant (Ricks, 1972). This ability to fine-tune the progression of an investigation when and as seen fit by the researcher infuses single case studies with a degree of flexibility and rapid adaptability that leaves them well suited both for investigating new researcher questions and to act as a tool of discovery (i.e., of theories, behavioral influences, etc.) for researchers to use (Shapiro, 1961; Brown, 1974), while demonstrating the importance and appropriateness of the input of professional judgment on the part of the researcher (Bellak & Chassan, 1964; Shapiro, 1964).

While this inclusion of such abductive procedures within single case studies is generally a virtue, Bellak and Chassan (1964) caution that it can also present another avenue for researcher bias to enter into and influence a study and its results. Such bias can affect nearly every other aspect of an investigation as well, from the selection of samples to the interpretation of results. Shapiro (1964) suggests that single case studies include a sort of natural guard against such bias, though. He explains that since researchers conducting single case studies focus on the participant and progress through such investigations attentive to the participant's perspective and experiences, the possibility of the experimenter's own biases entering into the investigative equation is lessened.

Even with the seeming resolution of the potential problems associated with investigator bias, Bellak and Chassan (1964) note that troubles can arise when unusual or extraordinary variables unduly influence the investigation's data. Whereas these atypical variables present themselves as unusually behaving subjects in extensive analysis, insufficiently long periods of observation contribute to such

variables in single case studies. As such, the frequent and extended observations that Chassan (1961) explains are common in well-conducted single case studies carry the added benefit (i.e., in addition to increasing the elasticity of an investigation) of minimizing the skew interjected into studies by unusual data. In this way, frequent and extended observations help to increase the inherent validity of single case studies (Bellak & Chassan, 1964).

Single case studies offer yet other benefits resulting from this intensive observation schedule. Specifically, the higher frequency of observation in single case studies can boost the test-retest reliability of the results (Chassan, 1960; McPherson & LeGassicke, 1965; Shapiro, 1966), an investigative trait that Payne and Jones (1957) contend is essential for conducting meaningful, scientific inquiries. Moreover, the augmented frequency and degree of observation present in single case studies can provide results that are more detailed, significant, and relevant than traditional approaches that include only cursory and superficial analyses of subject behavior (Bellak & Chassan, 1964; Chassan, 1965; Shapiro, 1969). Part of the significance and relevance of single case studies is derived from the fact that a researcher conducting such an investigation can collect detailed background data about a participant, often by extracting information from personal sources like interviews and diaries (McPherson & LeGassicke, 1964; Ricks, 1972). Such robust background knowledge allows the researcher to have a more thorough understanding of relevant participant characteristics and behaviors for the formation of investigative measures and the interpretation of results (Shapiro, 1964).

Chassan (1965) notes a limitation of single case studies associated with the collection of this detail that he contends is unlikely to affect many extensive experiments. Specifically, he asserts that single case studies, given their more

intensive nature and the longer durations necessary to gather participant details, suffer from a higher rate of dropouts amongst their participants. Chassan claims that the extended time commitment required of participants in single case studies as compared to traditional approaches results in a higher percentage of single case study participants prematurely leaving the study. Although such an early departure of a participant in a single case study limits the ability of a researcher to draw conclusions related to that study, Chassan reminds that such a departure would have no effect on any other single case studies being performed simultaneously. Thus, any disruption caused by participant dropouts in single case studies is highly localized. He explains that such a dropout in a traditional experiment can create methodological and statistical ripples that may affect (albeit perhaps less drastically) the results drawn from the entire investigation (i.e., as arrived at from data obtained from numerous subjects).

When not truncated by mid-investigation participant dropouts, the high detail found in single case studies can provide the researcher with specific guidelines and participant parameters that help later to interpret the results of the study (Chassan, 1960). Bellak and Chassan (1964) and Gottman (1973) note that such personalized detail increases the practicality of single case studies in that it helps researchers conducting such studies apply the data directly to and thus develop treatment programs specifically tailored for the participant involved in the study. Svenson and Chassan (1967) assert that with this ability to apply the results of, and thus treat participants involved in, single case studies directly, such investigations are more ethical than traditional approaches. This enhanced ethical stature follows from the fact that participants are not merely inconvenienced by the investigation (i.e., by undergoing investigative manipulations without necessarily being helped by them) or

denied treatment for the sake of following scientific protocol; rather, individuals participating in such intensive research may often benefit from the studies (Svenson & Chassan, 1967). Whatever the source, Herbst (1970) contends that this elevated degree of ethics is an essential characteristic of any legitimate investigative approach.

Chassan (1960) explains that such specificity in identifying participant characteristics also aids in the application of a study's results to other individuals. For example, he notes that a researcher who finds a statistically (and clinically) significant change in the condition of a participant following administration of a treatment can then rule out the influence of random error on the results obtained. As such, the researcher can confidently conclude that the treatment administered was the primary contributor to the changes seen in the participant. This researcher thus not only uses the research to benefit the study's participant directly (i.e., establishes results that are of clinical relevance; Shapiro, 1961), but he or she also has specific participant characteristics from which to draw when looking to achieve similar, significant results in future cases (Chassan, 1960, 1961).

Some researchers argue that single case studies lack such generalizability, in part because of their use of only a single case per investigation. Baas and Brown (1973) note that this argument stems more from a misconception about the identity of the "case" in question rather than any substantiated shortcoming of the intensive analysis. Specifically, single case studies often use only one individual, but researchers utilizing such an approach look at a behavior that is repeatedly occurring. Researchers then draw conclusions (and possibly generalize) from their observations of this recurring behavior. Thus, such interpretations and generalizations may be valid since they are based not on one individual but rather on multiple occurrences of

a behavior (Baas & Brown, 1973). Chassan (1960, 1965) contends that the argument that results derived from studies using traditional investigative approaches are somehow more generalizable than those found during the course of single case studies is further disproved in that the superficial awareness of participant characteristics and near-total reliance on traditional statistical procedures (e.g., averaging) in extensive analyses glaze over individual differences and actually render their results less readily generalizable.

Shapiro (1961, 1966) and Herbst (1970) approach the argument differently, asserting that certain laws (i.e., typically Herbst's Type C laws) universally influence behavior. This omnipresence of behavioral laws is evidenced, according to Shapiro (1961), in the confirmation of results of single case studies in later, large-scale traditional investigations. As such, a law or governing principle found to influence an individual participating in a single case study could also be reasonably expected to influence other, similar individuals in the population. The goal of a researcher conducting a single case study then is to produce results that, in effect, identify these governing principles (Baas & Brown, 1973). With this universality, results from single case studies can be applied to larger populations, given the parameters of the population as specified in the intensive analysis. Whatever the source of the generalizability of results in single case studies, Shapiro (1966) and Ricks (1972) note that replication of such studies is crucial in determining the extent to which the results apply to larger populations. More importantly, though, is the ability of researchers using single case studies to study intra-individual significance effectively rather than necessarily relating the results to others, a sentiment echoing Stephenson's (1953) own views about the power of QMSC studies to reveal the "laws of subjectivity" (as noted in Chapter Two).

The methodological advantages associated with single studies extend further. Specifically, participants in clinical psychological single case studies (Chassan, 1960, 1961; McPherson & LeGassicke, 1964) and those involved in other, general psychotherapeutic intensive investigations (Leitenberg, et al., 1969) can act as their own controls. This ability to combine treatment and control groups within the same individual eliminates the need to balance important patient characteristics between experimental and placebo groups. The elimination of this necessity to balance is crucial in that, as Chassan (1960, 1961) contends, actually accounting for and balancing all relevant participant characteristics is difficult given the inability of researchers to understand completely those traits that may contribute to or interact with treatments.

Also, even if balance is initially achieved between treatment and control groups in a traditional experiment, Brown (1974) notes that some such participant characteristics may be dynamic and may thus fluctuate unevenly between groups. In single case studies, however, where the participant acts as his or her own control, all such characteristics remain stable throughout the investigation, thus allowing a researcher to attribute changes in participant condition to treatment effects more confidently. Additionally, removing the need for separate treatment and control groups carries the added benefit of acting to reduce the size of the population required when drawing samples to conduct such an investigation.

Even with these benefits associated with clinical psychological single case studies, Chassan (1960) and Shapiro (1961, 1966) note that researchers have largely and unjustifiably disregarded single case studies and other forms of intensive analysis. Chassan (1961) notes that, to be certain, intensive analysis is not the most aptly suited approach for every investigative focus. Even so, Shapiro (1961)

contends that the only legitimate reason a researcher has for relying solely upon traditional investigative approaches for a given research question is if he or she has previously tried and failed to apply intensive analysis to the situation.

Bellak and Chassan (1964) and Shapiro (1966) moderate this assertion slightly, suggesting that in some situations, single case studies should play a complementary role with more traditional, extensive approaches rather than a central role. Despite this qualification, Chassan (1961) contends that single case studies can function as proper and complete methodologies in their own right, and they are often the most powerful and appropriate methodology available for researchers to utilize, given specific pragmatic limitations associated with participant populations, investigative settings, and the other such research attributes. Although Barlow and Hersen (1973) echo Chassan's (1961) assertion that single case studies are not a panacea for traditional investigative woes, they also join an array of other researchers in extolling the flexibility and power offered for psychological investigations by single case studies. Shapiro (1966) adds that only by using single case studies can researchers hope to realize substantial advances in psychological knowledge and sophistication.

Dukes (1965) presents a brief, historical overview of numerous single case studies, demonstrating that many well known and thoroughly substantiated advances in general psychology were realized using single cases. Dukes (1965) and Leitenberg (1973) also note a marked increase in the number and variety of psychological journals that have included reports of research completed using single case studies. Brown (1968) expands the applicability of intensive approaches to investigation slightly further, noting that researchers in fields as varied as sociology, communication, and political science have started applying intensive analysis to their

studies. This growing acceptance of single case studies reveals that, in Duker's (1965) opinion, single case studies, although not widely embraced by the general research public at the time, were at least further progressing from what he saw as their status as a historical curiosity.

Even so, much of this increasingly published work was relatively unavailable to other researchers hoping to conduct similar intensive analysis (especially using Q methodology) because such studies were often accepted for publication in journals unfamiliar to most researchers (Brown, 1968). Edgington (1967, 1972) suggests that editors of more mainstream journals must progress a bit further in their acceptance of single case studies for publication before the number of researchers who will invest time and money into conducting single case studies will grow substantially. Also, textbook editors tend to omit references to single case studies or include only cursory (and sometimes inaccurate) discussions of such intensive analyses (Edgington, 1972; Brown, 1974), a trend that would have to be reversed in order to introduce more novitiate psychologists to the potential usefulness of single case studies.

Barlow and Hersen (1973) and Leitenberg (1973) provided a look into such single case work, outlining in moderate detail some of the various single case designs that researchers can utilize to achieve these advances in clinical settings. In general, the single case designs described involve systematic variations of conditions across time and within an individual. Offering an example of one such approach, called an "A-B-A-B reversal design," Barlow and Hersen (1973) describe the implementation of an enuresis treatment following an observational, baseline period. After this treatment phase, the researchers in the cited investigation then removed the treatment, tracked changes in participant behavior, and reinstated the treatment. Noting that variations on such reversal designs can be constructed to investigate

interaction effects and other such areas, and adding that other approaches (e.g., multiple baseline designs) can be used to investigate topics not easily amenable to other types of single case designs, Leitenberg (1973) concludes that single case studies in general offer approaches to a variety of research questions.

Pressing On

While this discussion regarding single case studies progressed, so too did Stephenson's career and research endeavors. Stephenson resigned from the University of Chicago in 1955, moving first to a research post in Greenwich, Connecticut, and then to the University of Missouri-Columbia as a distinguished research professor in advertising in the School of Journalism in 1958. Before retiring from Missouri-Columbia in 1972, Stephenson published his third book, *The Play Theory of Mass Communication* (Stephenson, 1967). Sanders (1974) notes that Stephenson's retirement was only in name, however, as Stephenson expressed plans to continue publishing articles and books for years to come.

One of these planned books was going to be co-edited by Stephenson and Steven Brown. In a letter to an editor for a potential publisher of the proposed book, Brown (1973) explained that the purpose of the proposed book was to promote the use of single case studies in both general and applied social science research. Contributors to the text, as indicated by Brown, were to include scientists from a variety of fields both within and outside the social sciences who had successfully used single case studies in their own research. Brown noted that the book would have provided an historical account of the advancement of single case studies, acknowledging the presence of intensive analysis in early science and presenting moments of both its acceptance and its rejection by researchers since then.

Further, Brown (1973) and Stephenson intended the book to demonstrate the superiority of single case studies over more traditional, extensive approaches in arriving at results that offered genuine insight into the motivations of and influences on human behavior. Traditional surveys, Brown explained, were costly to produce and administer. As such, researchers without the financial backing of large universities often found such survey work impractical. What is more, Brown asserted that surveys generally returned results that were inconsequential and, as such, contributed little to the advancement of the sciences. While some researchers understood these shortcomings of traditional investigative approaches and appreciated the comparatively low cost and significant results associated with single case studies, Brown claimed that many lack the training and exposure necessary to implement such investigations.

With such exposure, Brown (1973) contended that researchers would use single case studies more frequently, thus ushering in a period of brisk advancement in the behavioral and social sciences. Despite these lofty expectations of Brown for the book, it ultimately was not published. Although perhaps this result indicates that the editor may not have shared Brown's and Stephenson's enthusiasm for single case studies as they related to the proposed book, Stephenson was not dissuaded. Determined to persist in his advancement of single case studies as applied to Q methodology, Stephenson continued composing a detailed examination of the intensive analysis that he had started, forming and publishing (the following year, as an article) what was to be his mature reflections on QMSC studies.

A Look Ahead

In the next chapter, I will discuss Stephenson's (1972, 1974) writings on QMSC studies. Beyond answering critics' questions with these papers, Stephenson also consolidated his advocacy of QMSC studies, providing a foundation from which support for and use of the intensive investigative approach sprung. As such, the response to Stephenson's mature papers on QMSC studies is more positive about and concerned specifically with Stephenson's single case methodology.

Chapter 5

A restatement and consolidation: Q methodological single case studies examined

In 1972, several prominent behavioral and social scientists collaborated in the publication of a *Festschrift* volume dedicated to Stephenson, honoring him for his decades of contributions to science, psychology, and communication. Although this recognition of Stephenson's work was due in part to the scientists' appreciation of Stephenson's tireless advocacy of Q methodology and QMSC studies, Stephenson's mature discussion of QMSC had yet to be published. In these statements, Stephenson (1972, 1974) attempts to answer criticisms leveled at QMSC studies in an effort to lessen the distrust expressed by many researchers toward the methodology. In the process of defending his methodological brainchild, Stephenson also elaborates on the procedural and theoretical underpinnings of intensive analysis, clarifying the basis of QMSC studies.

Restatement: An End to Questions

Stephenson (1972, 1974) addresses questions and doubts posed by his contemporaries since his earlier (1953) work, while also attempting to remedy the relative lack of response to that book. This discussion was later reinforced by Stephenson in his posthumously published book, *The Quantum Theory of Advertising* (1986/1994). This defense initially manifests itself in his (1972) manuscript, a paper that he intended as an introduction to the proposed book described by Brown (1973). Although never published in this form, this manuscript did act as a foundation for Stephenson's (1974) article on QMSC studies. As such, the two papers share many ideas.

In explaining the need for and usefulness of QMSC studies, Stephenson (1972, 1974) relies largely on discussions reintroduced from some of his previous publications (e.g., Stephenson, 1953). Stephenson (1972, 1974) begins, for example,

by contending that the hypothetico-deductive methodology used by many researchers and stressed in most textbooks is an incomplete approach for conducting studies of only objective phenomena. As such, this methodology has started to lose a bit of the sheen that he claims it once had. The study and understanding of subjectivity through objective means, in Stephenson's eyes, is fundamentally more important than that of objectivity. Stephenson notes that he and others who prioritize studies of subjectivity over those of objective topics have started to understand the need for a methodological alternative to traditional investigative approaches that is applicable across a broad range of topics dealing with human behavior and other aspects of human subjectivity. To implement successfully a study of such topics, Stephenson (1974, 1994) stresses that researchers must necessarily base their work on the study of single cases while always referencing the self (i.e., always interpreting results from the standpoint of the participant).

Some researchers, explains Stephenson (1972, 1974), claim that single case studies are not adequately scientifically valid. Such critics suggest that scientific credibility is achieved in experimentation only through the use of large groups of subjects. Stephenson counters that argument, noting that both he and other scientists have regularly gleaned interesting, useful, and scientifically important information from studies utilizing such intensive analyses. The validity of the results of QMSC studies is a less important issue since only opinions, which cannot be declared either true or false (or thus valid or invalid), are at issue in such investigations. Furthermore, many scientists have also expressed a growing dismay with traditional approaches to research for many of its methodological shortcomings.

Stephenson (1972, 1974) outlines many of these inadequacies of traditional approaches to research primarily by reintroducing ideas presented in his (1953)



work. For instance, Stephenson (1972, 1974) notes that researchers conducting experiments using traditional investigative techniques generally examine the data collected from large groups of subjects via averaging, a statistical manipulation that obfuscates individual differences in an effort to analyze results more conveniently. Stephenson (1972) contends that, when working with a medium that is as dynamic and unique as human behavior and subjectivity, such a large group focus only provides insufficient and, at times, inaccurate pictures of relevant influences and other information. Moreover, Stephenson (1972) claims that traditional methodologies, in their use of standardized measurements and researcher (i.e., rather than participant) determined categorizations and operational definitions, return results that are more indicative of the characteristics of the tests administered during the investigation than providing any insight into the participant's actual motivations and behavior.

Stephenson (1974) notes that the inadequacy of results returned from traditional investigations contrasts with QMSC studies in that, since data in such a single case study is collected via direct observation, no such masking manipulations are required. To study behavior and subjectivity adequately, Stephenson (1972, 1974) contends that investigations must proceed at the level of the individual. He contends that this focus on the individual necessitates a minimal reliance on predetermined categorizations and operational definitions. Instead, achieving results that address issues at the level of the individual only comes through the use of working theories as foundations of single case studies. Working theories, which are groups of organized thoughts (i.e., schemata) are essentially a merging together of theories, behavioral laws (as explained by Herbst, 1970, and discussed in Chapter 4), researcher know-how, and other abductive forms. Abduction, Stephenson (1972,

1974, 1994) notes, leads to interpretation, discovery (i.e., of theories, etc.), and understanding from concrete situations. This goal contrasts with those of traditional methodologies, where findings are intended to support hypotheses and are then generalized to populations.

Part of this ability to discover that is inherent in methodologies based on working theories extends from the dynamic nature of these working theories. Restated, working theories can, if necessary, be modified as suggested by the results of an investigation or as otherwise desired by a researcher conducting a study. As this ability to adjust suggests, working theories in QMSC studies are not intended to be subject to investigation for purposes of verification. Instead, Stephenson (1972, 1974) explains that researchers conducting such studies can use working theories to help guide Q sample formation, offer suggestions in the selection of conditions of instruction to be imposed on participants, provide aids in interpreting results, and in other such research activities. Thus, working theories—with their abductive origins—form the basis of QMSC studies and make them aptly suited for endeavors of discovery and interpretation and for gaining greater understanding.

This ability to fine-tune QMSC studies during the course of such an investigation can also help return results that may later be used to formulate a treatment or other course of action. The outcome of this versatile foundation of QMSC studies allows researchers to gather results that can often be of more practical assistance to researchers than those derived from more rigid, traditional approaches (Stephenson, 1972).

This practical assistance is also partially a function of the focus on participant self-reference in QMSC studies. Stephenson (1972) asserts that only by digging deeper (i.e., than in more superficial, extensive approaches) and interpreting

phenomena as experienced by the participant in a study can a researcher hope to realize a useful and applicable understanding of the behavioral influences relevant to that participant. Stephenson suggests that such understanding and interpretation is achieved in QMSC studies through the combined use of self-referential sorting and factor analysis. These interpretations can expose aspects of both a subject's and an experimenter's subjective existence, allowing for comparisons of their perceptions of reality. Moreover, intensive analysis may present operant factors representing levels of existence in areas previously unknown to both subject and experimenter. Regardless of their status (i.e., whether or not they were known prior to their presentation through single case studies), these operant factors of subjectivity, according to Stephenson, should have priority over results derived from other scientific methodologies.

Stephenson (1972, 1974) then proceeds through a discussion of the process involved in administering QMSC studies. He notes, for example, the steps taken by researchers in selecting a concourse and then fine-tuning it into a Q sample. Referring to the standardization of scores central to QMSC studies, Stephenson also explains that anchoring all items on a self-referential frequency distribution with a "0" score indicative of neutral or ambivalent feelings leaves the results of any given Q sort directly comparable with that of any other Q sort (i.e., as gathered through the use of multiple conditions of instruction or indeed with multiple participants).

Stephenson (1972, 1974) also discusses part of the rationale behind the selection of the multiple conditions of instruction imposed upon a participant, elaborating that such conditions of instruction can help a researcher gain insights into a variety of aspects relevant to and potentially influential on a participant's identity and behavior. Citing what Stephenson calls James' law (i.e., regarding the me-mine

dualism of identity) as an example, Stephenson explains that the multiple conditions of instruction used in a QMSC study can be selected to pull out those traits that the participant considers to be “himself” or “herself” (i.e., those traits seen by the participant as being most characteristic of him or her and with which he or she identifies). Characteristics identified by the participant as such contrast with those that the participant merely attributes as “his” or “hers” (i.e., those traits acknowledged as the participant’s own but with which the participant does not identify). This ability to tease out and identify those characteristics that are most central to the participant’s identity (i.e., those that are “him” or “her”) exemplifies, in Stephenson’s view, the power of insight offered by QMSC studies.

Subjectivity and behavior, Stephenson (1972, 1974, 1994) contends, while unpredictable, are generally stable and governed by laws. Thus, subjectivity and behavior are organized, allowing them to be represented operantly. The results returned from such studies typically take the form of factors. These factors, or operant patterns of behavior, help clarify for a researcher the thoughts, beliefs, and other behavioral influences of a participant as experienced by the participant (Stephenson, 1972, 1994). In the above example, then, the factors that emerge in such a QMSC study would likely be divisible into at least two types: those factors including traits or items identified by the participant as being him or her, and those factors including traits or items which the participant merely attributed to himself or herself.

These factors are unique in that, given the same Q sample and conditions of instruction, no two individuals need display the same factors. Despite this uniqueness, QMSC studies will indicate those traits that any given individual identifies as “self” and those that are identified as “non-self.” This ability of single

studies to distinguish and establish this attribution, which Stephenson (1972, 1974) says is key to understanding subjectivity in any field, holds true for any and every subject.

Whatever aspects of a participant's subjectivity that a researcher hopes to explore, Stephenson (1974) contends that the results of a QMSC study can be made more robust with replication of the investigation, much as occurs in traditional experimentation. He explains, though, that in such single case studies, replication is not initiated for the sake of affirming previous studies. Rather, replication in a QMSC study can help primarily as an avenue by which to elucidate further aspects of working theories upon which an investigation is based (i.e., by adding more observations to previously accumulated ones, thereby helping to define behavioral patterns more clearly, etc.).

Stephenson (1974) cautions that replication of QMSC studies is not intended as a means to generalize the investigation's results (i.e., in the sense of applying the results to a large swath of a population)—one need not do so. He explains that the results obtained during the course of such an investigation are compelling in their own right as they apply to the participant. This minimization of the importance of generalization highlights the focus in QMSC studies on intra-individual significance rather than inter-individual differences.

However, Stephenson (1972) asserts that not all forms of single case studies share this intra-individual interest. He explains that many attempts at formulating single case methodologies result in techniques that impose the researcher's investigative parameters upon the participant. This imposition denies the participant the opportunity to establish parameters that mirror his or her own beliefs.

Stephenson claims that QMSC studies are thus superior in that they allow subjects to

set the parameters according to their own conceptual structures, thereby allowing for authentic assessment of participant behavior.

Many of these other varieties of single case studies are further flawed in Stephenson's (1972) eyes in their reliance on logic (i.e., in the formation of hypotheses) followed by observations aimed at confirming or disconfirming this logic. This reliance on logic and subsequent observational support, he suggests, offers little insight into the behavioral influences and subjectivity of participants. Stephenson asserts that these subjective components of an individual must first be addressed before related research questions can be properly investigated. Additionally, dependence on predetermined hypothesis often prevents such studies from discovering and forming the new ideas necessary to advance a science. Thus, according to Stephenson, many of these other single case methods offer little improvement on traditional approaches to research and are thus of little practical use in studies conducted in many of the behavioral sciences.

QMSC studies, however, in their allowing for deep interpretations and understandings of behavioral influences from the perspective of participants, are applicable in countless situations. Stephenson (1972, 1974) demonstrates some of this versatility by reanalyzing others researchers' studies that were conducted using methodologies other than that championed by Stephenson. Stephenson, upon reexamining these studies, arrives at results that he claims speak more to the issues that are relevant to the participants involved and are thus more desirable and useful than those found by the researchers conducting the original investigations.

For example, Stephenson (1972) subjects participants to an intensive analysis using an exemplar (i.e., operation) and theory similar to one used by another researcher (i.e., studying students' working habits to establish relevant "theories" for

each), but he arrives at an outcome that is different from that arrived at during the course of the original research. While the original researcher successfully identified traits that correlated with each other, Stephenson says that the results speak more to a matter of logic rather than offering any significant insight into the students' behavior. Stephenson, however, in his utilization of a QMSC study, uses more than 15 different conditions of instruction to identify at least three factors. These factors are applicable to concrete situations and offer insight into the students' working habits that Stephenson claims the original methodology was unable to offer. Importantly, while Stephenson used theory in this investigation, Q methodological studies are not intended to prove or verify theories in general; theories in such studies merely serve as a vehicle for garnering a deeper understanding of subjective experiences (Stephenson, 1994).

Stephenson (1972) also revisits his (1956) reanalysis of Cattell's (1947) study of student traits. Cattell used R methodology (and a large sample) to determine that students have certain surface traits. Stephenson, however, suggests that in this study the assessment of the students (X) by other students (Y) reflected the judgments or "modes of regard" of the Ys rather than attributes of the Xs. When studying the student traits using QMSC studies, Stephenson finds that five different personality traits emerge. These five primary traits combine and interact to compose a spectrum of characteristics, much as primary colors mix to produce a color spectrum. These five factors differ entirely from those found by Cattell.

Although the abovementioned applications of QMSC studies by Stephenson (1972) both focus on student characteristics, Stephenson (1972, 1974) stresses that single cases can be utilized in nearly any field. Stephenson cites a report on traffic congestion as an example of the versatility of the methodology. He asserts that the

report, used to study urban traffic problems, neatly “thinks through” a problem and uses it intensively. Since different parties have conflicting and changing opinions regarding how best to approach traffic difficulties, the investigators ventured to make operant these various views. The study’s working theory was based on the assumption that automobiles will always remain as a primary mode of transport. The researchers then studied a few actual cases of traffic issues, looking first at a small town and then following with analyses of successively larger cities with more complex traffic problems. Despite critics’ qualms regarding using only one representative for each category of town or city, Stephenson argues that the results of the study are insightful and impressive and can be more easily put into practice than the results that would have emerged had the researchers used a more traditional approach to investigating the topic. Such is the power of QMSC studies as conveyed by Stephenson.

Consolidation: The Beginning of Research

Beyond attempting to assuage critics of his 1953 book, Stephenson (1972, 1974) also hoped to introduce a new generation of researchers to the potential offered generally by single case studies and specifically by QMSC studies. In this effort, Stephenson looked to expand the use of his intensive approach in future research endeavors, securing a place for it in scientific inquiry and aiding in the advancement of the behavioral sciences through an accelerated accumulation of knowledge and understanding. Some researchers heeded this call, with investigations reflecting Stephenson’s assertions regarding the virtues of such intensive analyses growing in regularity and continually diversifying in topic matter.

Denenberg (1982) parallels the use of single case studies in human research with a long-accepted approach in traditional, animal research: the use of strains of animals. He explains that much scientific research using animals involves the use of genetically identical animals that are brought up and kept in matching environments. Given minimized character variability resulting from the similarity of these animals and their surroundings, Denenberg asserts that the group of animals acts as a single case in experiments.

As such, many of the criticisms leveled by researchers at human single case studies can be countered by looking at animal research. For instance, Brown (1993/1994) notes that critics of single case studies in humans contend that the results of such studies cannot be generalized, given the experimental reliance on only one case. Denenberg (1982) responds to this contention, noting that animal studies have a similar reliance that is overcome by replicating the experiments in different laboratories using different strains of animals. Single case studies of humans can also be replicated using different participants, thus broadening the base from which generalizations can be made (Kazdin, 1978; Denenberg, 1982).

Continuing beyond the comparison with animal studies, Denenberg (1982) outlines some benefits associated with single case studies in humans. Oftentimes, experiments conducted according to traditional research guidelines return results that are informative about inter-individual and inter-group differences while treating as error variance and thus ignoring differences and quirks within individuals and groups (Conners & Wells, 1982; Tuma, 1982). Such results cannot then be extrapolated to provide insight into intra-individual significance (Shontz, 1978; Denenberg, 1982; Kazdin, 1982). As such, researchers looking to investigate areas relating to such intra-individual significance (i.e., dealing with behavioral and other subjective

experiences) should, in Denenberg's opinion, set aside traditional experiments and instead engage in lucubrations of individuals in the form of single case studies (Kazdin, 1982).

Barlow and Hayes (1979) and Kazdin (1982) present an additional benefit of single case studies over traditional approaches, noting that highly controlled traditional experiments typically return results that, through a combination of the unnatural controls and statistical averaging of data (i.e., that masks individual significance), are of little use to clinicians attempting to apply them to individual patients in practical settings. The results achieved during the course of single case studies, however, are more readily applicable to clinical settings. This applicability, according to Connors and Wells (1982) and Kazdin (1982), extends in part from the fact that single case studies allow extensive gathering of information about participants, thus clearly specifying for in clinical settings those patients, if any, to which the results of the study may apply. Tuma (1982) adds that this gathering of information and specificity also make single case studies better able than traditional approaches to predict future participant behavior.

What is more, Kazdin (1982) explains that a researcher conducting a single case study continually assesses the condition of the participant as the investigation progresses and can, if the assessments or his expertise suggests, adjust the treatment as necessary. This ability to fine-tune treatments as appropriate helps single case studies adapt to the effects of the environment and other such complexities of the human experience that Shontz (1978) and MacGregor and Cochran (1988) note can influence the results of investigations. This augmented flexibility of single case studies (i.e., in their allowing researchers to adjust treatments) as compared to traditional techniques thereby maximizes the probability that a researcher conducting

such an investigation will achieve results that are significant for and applicable to the participant (Kazdin, 1982; Tuma, 1982).

This focus on results that are significant to the participant rather than just the statistician highlights the frequent division between research and clinical importance, as well as stresses the desire of clinical investigators to arrive at results that are of clinical rather than merely statistical significance (Elashoff & Thoresen, 1978; Hayes, 1981). Given this desire of clinical investigators to arrive at clinically significant—and thus obvious—results, Kazdin (1982) explains that single case studies can often be adequately analyzed using visual inspection since only obvious changes in condition will likely be of clinical importance. Analysis through visual inspection (i.e., rather than through the use of statistical manipulations) is beneficial in that it is often easier to conduct, it can more readily detect patterns of data and unusual results, and can it provide clues as to areas where future research may prove fruitful (Elashoff & Thoresen, 1978). Even so, Elashoff and Thoresen caution against over-reliance on visual inspection alone, saying that statistical methods can be useful when applied correctly and interpreted appropriately (i.e., by making sure that one filters out results that are of statistical but not practical significance, a common goal amongst researchers conducting single case studies). As such, they contend that researchers conducting single case studies should utilize a combination of both statistical manipulations and visual inspection to analyze data.

The achievement of dramatic results as analyzed through visual inspection also helps researchers conducting such investigations to generalize the results of single case studies to others, adds Kazdin (1978, 1982). Specifically, Kazdin (1982) contends that visual inspection of results by a researcher will weed out those results that appear to be clinically insignificant or generally unreliable. He also explains

that results indicating a high degree of change in participant condition are often inherently more generalizable than those of a lesser degree of change (Kazdin, 1978).

Additionally, Brown (1981), Goldman (1991), and others echo many of Stephenson's and Herbst's (1970) assertions in claiming that human behavior is governed by a lawfulness that, although manifested differently in different individuals given variations in situations and parameters, is stable, universal, and thus investigable using single case studies. This universality of behavioral laws further enhances the generalizability of results obtained from single case studies. Traditional experiments, however, in their use of large groups of subjects and statistical averaging of data analysis, cannot identify such behavioral rules (Brown 1993/1994). As such, the results of extensive analysis may be poorly suited for generalization.

Shontz (1978) explains a further benefit of single case studies as they relate to the generalizability of results. This benefit results from the highly detailed information gathered in a single case study regarding each participant and his or her functional relationships that allows the researcher conducting the study to identify the parameters under which the results, interpretations, and generated theories hold true. Thus, using a process that Barlow and Hayes (1979) refer to as "logical generalization" that involves using a combination of results derived from the investigation and prior know-how and experiences (i.e., abduction) to identify relevant parameters, such a researcher can specify the relevant conditions under which other researchers should expect similar results. In traditional approaches to research, where such participant parameters are relatively unknown, researchers cannot know the situations in which phenomena operate and thus, in Shontz's (1978) eyes, are further unable to generalize the results of such studies.

After providing and considering these justifications for generalizing from single case studies, Kazdin (1982) somewhat disregards this need to “prove” the ability of researchers to engage in such generalization. He explains that a “case” in a single case study need not include only one individual. As such, the results obtained from such investigations are based on data taken from multiple individuals and thus derive their generalizability from larger numbers of participants, much as traditional experiments do. Regardless, Hayes (1981) and Kazdin (1982) note that replication of studies, both traditional and single case, serves as the ultimate means of enabling generalization to other individuals. In single case studies, this replication means conducting such investigations using successive, systematically selected participants as a means of forming and testing theories (Shontz, 1978). Tempering the entire drive for generalization of results, Shontz (1978) and Goldman (1991) note that the primary purpose of single case studies is not to apply the results to larger populations but is instead to understand the phenomenon in question as it applies to the individual participating in the investigation. As such, the debate regarding the appropriateness of generalizing from single case studies is moot.

Clinical psychology is one field, according to Hayes (1981) and Kazdin (1982), where single case studies are particularly needed. The focus on the individual that such intensive methods involve is ideal for the evaluation of some treatments within clinical psychological settings (e.g., psychotherapy, drug studies, etc.) on a variety of conditions such as hyperactivity, depression, suicide, and the like (Shontz, 1978; Conners & Wells, 1982; Kazdin, 1982). Shontz (1978) notes a variety of other fields (e.g., medicine) where single case studies may also be particularly useful.

Conners and Wells (1982) explain that single case studies in these and similar fields often follow A-B-A-B reversal and other designs (i.e., as outlined in Chapter 4 and discussed in Barlow and Hersen, 1973). Barlow and Hayes (1979) suggest two variations on these more typical single case study designs. The first, called alternating treatment designs, substitutes a treatment condition into the control phases of a typical reversal design (for a total of two—or more—different treatments) and rapidly alternates between the treatment types. The second variation, called simultaneous treatment designs, concurrently applies two or more treatments. Although both these investigative variations are designed to study the effects of multiple treatments within an individual, different research questions are more appropriately addressed using one or the other designs. For example, alternative treatment designs are well suited to the quick comparison of the efficacy of different treatments while avoiding the ethical concerns related to having to withhold potentially beneficial treatments from participants during control phases (Barlow & Hayes, 1979; Hayes, 1981). At the same time, simultaneous treatment designs are better adapted to testing interaction effects of multiple treatments. Kazdin (1978) and Barlow and Hayes (1979) counsel care when designing such studies (i.e., both standard and varied reversal designs, etc.), noting certain potential limitations associated with single case studies in clinical settings (e.g., premature progression between control and treatment phases may cause carryover effects or conceal treatment effects, etc.). Kazdin (1978) suggests that the best means of addressing and minimizing the affect of such limitations is through recognition of these characteristics by the researcher conducting such single case studies.

Shontz (1978) and Garmezzy (1982) suggest that a single case study is an ideal methodology to use for conducting research when, because of a uniqueness related to

the phenomenon at hand, the population from which to draw a participant is particularly limited. For example, Shontz (1978) notes that studies of suicidal individuals would be unlikely to be able to proceed under the auspices of extensive analyses because such individuals are unlikely to present themselves in the large numbers required to complete such work. However, a single case study of such a person (or persons) would be doubly useful in that it could effectively operate using only the one or few suicidal individuals who do seek treatment while also working to help directly these individuals whose need is urgent. The requirements and protocols associated with single case studies—along with their associated reduced financial and personnel obligations—enhance the feasibility and applicability of such investigations of unusual phenomena in nearly any environment in which they may occur (Tuma, 1982).

Garnezy (1982) adds that single case studies are well suited for accumulating data across similar individuals (i.e., roughly reproducing with humans Denenberg's (1982) discussion of animal strains). Single case studies can also act as tools with which to generate new theories and disprove existing hypotheses, as appropriate, and thus to suggest directions for future research (Connors & Wells, 1982; Garnezy, 1982; Tuma, 1982).

Even given these assets associated with single case studies, Denenberg (1982) admits that extensive approaches also have legitimate roles in behavioral research and can often act as preludes to single case studies. Tuma (1982) seemingly counters this suggestion of single case studies following preliminary, extensive work. He contends that scientific research should necessarily begin with the intensive observational periods associated with single case studies before then moving on to extensive experimentation. Brown (1993/1994) agrees that observational periods

should precede research, but he and others skirt the debate regarding the timing of extensive versus intensive analysis and take a broader stance, suggesting a general, complementary role for traditional and single case studies (Brown, 1981; Connors & Wells, 1982; Kazdin, 1982).

As a whole, Barlow and Hayes (1979) and Tuma (1982) conclude that the benefits associated with single case studies should prompt researchers in the behavioral sciences to understand better the principles upon which single case studies are based and the applications for which they are best suited. Tuma (1982) adds that researchers should place an overall greater emphasis on utilizing such intensive approaches when conducting inquiries, while Brown (1989) adds that single case studies address a need in science to collect new types of data rather than merely more of the traditional sort. Suggesting that some researchers may already wish to adjust their approaches to research, Hayes (1981) explains that many simply do not realize that scientific and powerful methodological tools like single case studies are available for their use

Hayes (1981), mirroring many of Stephenson's (1972, 1974) suggestions, outlines some of the causes that he believes contribute to the research community being poorly informed about single case studies. For instance, Hayes (1981) contends that single case studies are not widely and adequately enough taught in methodology courses. Also, when single case studies are taught, the instruction is often aimed at individuals other than clinicians, thus excluding a group of researchers who could greatly benefit from knowledge about the intensive approach. Even then, however, Hayes explains that clinicians who are informed about and wish to implement research using single case studies must often contend with clinical

institutions unwilling to support the research or clinical journals resistant to the publication of research utilizing single case methodologies.

This proposed dearth of knowledge regarding single case studies is made graver in the context of Denenberg's (1982) assertion that increased use of single case studies by researchers in the behavioral sciences is necessary to facilitate an increased understanding of human behavior. Brown (1989) contends that achieving an understanding at the level of the individual organism is in fact a prerequisite for the advancement of all sciences. In a potentially positive twist, though, and perhaps indicating the emergence amongst researchers of such an appreciation of the value and scientific merit of single case studies in behavioral research, Kazdin (1978), Brown (1981), and Tuma (1982) note that an increasing number of researchers in an expanding array of fields are conducting and publishing the results of single case studies.

Brown (1981, 1997) extends the applicability of this trend toward an increased and broadened use of intensive analysis to include QMSC studies more specifically. He, like other researchers discussed in this chapter, notes that, because subjectivity is omnipresent in human behavior, researchers must necessarily embrace and investigate subjective experiences as interpreted from the standpoint of individuals participating in investigations. With its focus on such subjectivity, Q methodology is ideally suited to investigate uniqueness, behavioral influences, and other subjective phenomena for any individual (Brown, 1981, 1997).

Discussing some of the procedural aspects involved in the construction and administration of a QMSC study, Brown (1981) and MacGregor and Cochran (1988) note, for instance, that samples of statements or other items for use in performing Q sorts can be compiled by researchers with an aim of presenting a representative

grouping of available and relevant items. Brown (1981) illustrates this representative sampling using his investigation regarding the nature and sources of charisma. He first collected a list of hundreds of names of individuals, both living and dead, who at some point occupied a position of leadership, authority, or command. In an effort to whittle this list down to a more manageable size for use as a Q sample while striving to ensure that various types of charisma were roughly equally represented, Brown turned to a theory that established values divided into eight categories. Brown then separated the list of individuals into the value categories where he thought they best belonged, noting that such organization is admittedly primitive but generally adequate for purposes of representative sampling.

Theory can also act as a guide and source when selecting multiple conditions of instruction for use in a QMSC study. Brown (1981) used such theory in his investigation with the expressed intent of attempting to identify various components relevant to the perception of charisma. Such multiple conditions of instruction, Brown notes, can help a researcher better understand the structure of a participant's subjectivity as experienced by the individual. In relying on theory to compose such conditions of instruction (and other aspects of such studies), researchers conducting QMSC studies attempt to represent more fully the spectrum of characteristics, beliefs, and other subjective experiences relevant and important to the phenomena in question.

Shontz (1981) suggests that while theory may be useful in the preliminary forming of a Q sample, the participant in QMSC studies should determine the items included in the sample that is ultimately sorted. In allowing a participant to amend items that are included in a Q sort, the researcher conducting the investigation is ensuring that the sample is relevant to the participant and, importantly, reflective of

his or her individuality (Shontz, 1981; Rhoads, 2001a). Although some researchers may argue that this individualization of Q sorts can diminish the comparability of results obtained from the administration of different Q samples to different participants, Shontz explains that the studies he conducted using such individualized samples returned results that not only were comparable with those of similar studies but also provided better defined sorting patterns than did those using nonindividualized samples. Regardless, this acting by the participant on items underscores Brown's (1997) notation that, in Q methodological investigations, individuals actively participate in the investigative process by doing something (i.e., ranking items) rather than simply having something done to them (i.e., being scored by tests).

Suggesting an alternate means of maximizing the applicability and interpretability of QMSC study results, MacGregor and Cochran (1988), as well as Stephenson (1994), explain that the results of such an investigation should be presented to the participant to whom they apply. The participant should be allowed to provide commentary on the factor analytic results, thereby offering greater elaboration on the findings for use in the researchers' interpretation and possible future application of the results. Such a post-analysis interview also helps assess the relevance and significance of the factors from the standpoint of the participant, a central goal of QMSC studies (MacGregor & Cochran, 1988).

The factors that emerge from a QMSC study reveal the state and structure of subjectivity based on the unit of measurement of the participant's point of view (Brown, 1999). Brown (1989, 1997) explains that the emergence of multiple factors, each with a discreet meaning and value, within one individual in such studies demonstrates the quantum nature of subjectivity. Restated, many complementary

states—what Rhoads (2001b) refers to as “different selves”—are present simultaneously within a person, a reference originally made by Stephenson to quantum mechanics in physics. Brown (1999) expands on this quantum allusion, noting that an item in a Q sample has little meaning prior to sorting (i.e., much like a particle has little energy in its ground state), then can have nearly an infinite number of established meanings directly prior to its being placed by a participant in a frequency distribution, and then has one, fixed meaning once sorted (i.e., similar to how the energy level that a particle will possess is indeterminate and probabilistic until it is observed, at which point its energy level becomes fixed).

The multiple factors arrived at in a study are unknown to the study’s participant (and sometimes also the researcher conducting the study) before and during the investigation (Brown, 1989; Stephenson, 1994; Rhoads, 2001a). However, upon being presented to a participant during the course of a post-analysis interview, the factors and their structure relevant to that participant are generally accepted and acknowledged by the participant as his or her own. This ability to permeate and make operational the self when even the individual and researcher participating in the investigation are unaware of some important behavioral influences further demonstrates the ability of QMSC studies to act as devices of discovery (Goldman, 1991). Additionally, the clarification and understanding provided by QMSC studies, as promoted by Stephenson (1972, 1974) highlights the power of insight provided by such investigative methods.

Goldman (1991) and Brown (1997, 1999), expanding on ideas advanced by Stephenson (1972, 1974), highlight a characteristic of QMSC studies that is exposed in the abovementioned ability to cull important but seemingly hidden factors. Namely, QMSC studies make operant a participant’s subjectivity, and this

operationalized subjectivity is based upon the activities and input of the participant and not on researcher-defined operational definitions (i.e., as in traditional investigations; Goldman, 1991; Brown, 1999). Researcher-defined operational definitions are determined prior to the initiation of a traditional experiment, and Taylor, et al. (1994) assert (echoing Stephenson's, 1972, thoughts) that the results gathered from investigations using such operational definitions generally tell more about the researcher assigning the meaning than about the subjects purportedly being studied. In single case studies, however, even though theory is involved in the selection of Q sample items and conditions of instruction, participants attach meaning to items of self-reference, and this meaning is then operationalized (MacGregor & Cochran, 1988; Brown, 1993/1994; Taylor, et al., 1994; Rhoads, 2001b). As such, insights drawn from QMSC studies can both more genuinely reflect the sentiments and experiences of the participant than is traditionally possible and allow for a more profound understanding of his or her behavioral influences and experiences (Brown, 1997; Rhoads, 2001b).

Furthermore, this imposition of researchers conducting traditional experiments (i.e., in their categorization and assigning of meaning to items) imparts a degree of artificiality into such studies and allows for researcher biases to influence the results of a study more heavily (Taylor, et al., 1994; Brown, 1999). Such artificiality and biases are not introduced in this way in intensive analyses relying upon Q methodology because, as previously mentioned, participants, and not researchers, categorize and assign meaning to items (Brown, 1999). As such, potentially unusual or distinctive behaviors and experiences of participants can more easily present themselves for identification and interpretation (Taylor, et al., 1994).

QMSC studies carry an added benefit that allows researchers to investigate and gain an understanding of a greater range of individuals than many other investigative approaches allow. Specifically, Goldman (1991) and Taylor, et al. (1994) stress the option for researchers conducting such QMSC investigations to use Q samples comprised of items other than those that are verbal. For example, Goldman (1991) uses photos from a popular magazine to study narcissism, thus obviating the need to convey an idea using potentially lengthy statements. The ability to rely on pictures, drawings, and other nonverbal items allows researchers to work with individuals who, because of poor verbal skills or for other reasons, may not be able to comprehend fully—and thus manipulate—statements (Taylor, et al., 1994). Given this ability to cater to the specific needs of researchers investigating individuals from a variety of populations, and adding to his initial assertion that QMSC studies are being more commonly and widely utilized, Brown (1993/1994) contends that Q methodology (and thus the single case approach based upon it) can be applied to the study of topics within practically any field.

This chapter introduced Stephenson's (1972, 1974) discussion of the shortcomings of traditional methodologies (i.e., in their use of averaging, etc.) as compared to QMSC studies. QMSC studies, in their incorporation of abductive principles, James' law, and adaptability, make operant a participant's subjectivity and, according to Stephenson and other researchers cited in this chapter, are well suited to use in clinical settings. Stephenson briefly demonstrated some of this applicability and superiority of QMSC studies by, in part, applying QMSC studies to reanalyze other researchers' past, traditional work.

A Look Ahead

In the next chapter, I will discuss how Stephenson, in an effort to demonstrate further this applicability of QMSC studies, utilized them in his own work. Although one of the investigations presented in the next chapter demonstrates Stephenson's (1954) use of QMSC studies to gain a deeper understanding of another individual's behavioral motives and influences, three of Stephenson's most poignant applications (i.e., Stephenson, 1989, 1990, 1992) of his single case methodology look at the subjective experiences surrounding life and aging and feature himself as the participant.

Chapter 6

Applied science I: Stephenson's utilization of Q methodological single case studies

Throughout the years that he championed the use of QMSC studies for investigations of behavior and subjectivity, Stephenson largely hoped to increase the acceptance and utilization of his methodology in the behavioral sciences. Although this aim of broadening the recognition and application of QMSC studies amongst others was central to Stephenson's career, he also applied the methodology in many of his own studies (see Appendix C for a listing of some of his QMSC studies referred to in this thesis). While this application of his approach to single case investigations was partly driven by what he saw as opportunities to demonstrate to other researchers the processes and potential of QMSC studies, his use of this intensive approach to research most likely reflected what he saw as the superiority of QMSC studies over traditional experimental approaches, particularly when investigating topics he found interesting, relevant, and important.

Clinical Applications (Stephenson, 1954)

Stephenson (1954) presents several applications of QMSC studies within clinical psychological settings. In his first two examples, Stephenson uses the intensive investigative approach to analyze psychoanalytic cases performed by other researchers. These reanalyses, although only incomplete QMSC studies, provide an example of what Stephenson suggests psychoanalysts perform when treating a patient. His third example, however, involves Stephenson's implementation of a QMSC study for the purposes of understanding the behavioral influences and experiences of one of his own participants.

Stephenson's Analysis of the Studies of Others

In the first study, Stephenson looks at Alexander's (1948) analysis of a 23-year-old male called X. Stephenson provides background and treatment information about X as conveyed by Alexander in his report. Stephenson notes, for example, that X underwent psychoanalytic treatment with Alexander for symptoms of depression and suicidal thoughts. During these treatment sessions, Alexander ascertained that X was experiencing unresolved conflict regarding feelings of gratitude for his supervisor's kindness while also yearning for his supervisor's death (i.e., given that X was the benefactor of his supervisor's company and, as Alexander claims, wished to have the wealth and prosperity possessed by his supervisor). Stephenson conducted the preliminary steps of a QMSC study of X using the information provided in Alexander's account, using a balanced block design to create a Q sample and establishing several conditions of instruction with which to gather a fuller picture of the structure of X's subjectivity (e.g., with some conditions of instruction designed to understand the defense mechanisms utilized by X). Although Stephenson did not actually perform any Q sorts with this information, he does note that a psychoanalyst could perform such an investigation prior to conducting treatment sessions with a patient. This QMSC study prelude could help provide the psychoanalyst with insights into the patient's behavioral influences and subjective experiences from which then to guide the psychoanalytic sessions and subsequent interpretations.

In the second study performed by another clinician and reanalyzed by Stephenson, Stephenson looks at Freud's (1949) case of Dora. Stephenson notes that Freud's description of Dora offers no insights into the experiences and behaviors of Dora as perceived by her. That is, Freud's attempts at analyzing Dora, in Stephenson's opinion, were based on his (i.e., Freud's) own perceptions of her

behaviors rather than being founded upon events and happenings as she experienced them. Using Freud's statements and descriptions of Dora as a basis for estimating self-referent statements that Dora may have made, Stephenson constructed a Q sample using a balanced block design to ensure that statements relevant to Dora are included in the sample in a representative and unbiased fashion. Then, using theory, know-how, and other abductive techniques, Stephenson developed several conditions of instruction that would help him better understand the relationship of Dora with both others and herself from her own standpoint. Stephenson did not perform hypothetical Q sorting regarding Dora, although he reiterates that such a QMSC study should precede psychoanalysis of an individual. Had Freud performed such a study, he might have been better able to understand Dora's behavior and experiences from her perspective and, from this self-referent position (i.e., with respect to Dora), test his theories and develop treatment plans in a matter better suited to Dora's expressed needs.

Stephenson's Own Study

One of the most elegant reports of Stephenson's applications of QMSC studies within psychology in the investigation of others' behavior and subjectivity relates to a study he conducted of a student named Martre. Stephenson's inclusion of this study in his unpublished *Q-Methodology and Psychoanalysis: A Scientific Model for Psychoanalytic Doctrine* (Stephenson 1954/1979) was intended as a means of illustrating that, beyond all of the theoretical debates and procedural discussions, a QMSC study returns results that can be genuinely insightful and practical with respect to the behavioral influences on and subjectivity of the study's participant.

Martre was a 20-year old male attending a well-known college. Although his publicly perceived role was that of a male student, Martre also played a role based in his wishes and fantasies. This second role was longstanding and featured Martre as a girl.

Martre had suffered three breakdowns, during each of which he fled from the activities in which he was engaged. Two days passed before Martre was found after the third breakdown. Still in a relatively confused and tense state, he was immediately brought to see Stephenson where, after two hours, Martre told Stephenson of his most recent breakdown.

Following a week's rest, Martre and his parents returned to see Stephenson. During this visit, Martre was controlled and socially correct. He left Stephenson's office with his parents but returned later that evening with an air of urgency. During this third visit, Stephenson observed that Martre was "visibly excited, naughty in demeanor, with a number of mannerisms of a highly peculiar kind—he behaved like a rebellious girl, ... with hostility obtruding and bursting from every glance" (Stephenson, 1954/1979, p. 174). Martre then began effusing personal information, disclosing to Stephenson his established desire to now and always be a girl.

Stephenson notes that with this admission, Martre's hostility subsided, leaving behind only profound distress. The divulgence of this wish had evidently been Martre's first, and it was followed by weeks of defensive depression in an attempt to prevent further similar outbursts. In response to this depression, psychiatric treatment was arranged for Martre. During the two-week period in which this treatment was being organized, Stephenson interviewed Martre using the technique of free association.

While providing a degree of interim relief for Martre, the interviews also allowed Stephenson to gather statements from and an opportunity to analyze Martre. Through these interviews, Stephenson learned of Martre's distorted views of people in his life and his relationships with them. Martre turned increasingly toward fantasy as a release from some of the distress associated with reality. Although Martre's distress arose from conflicts regarding his sex role, Stephenson asserts that these conflicts required greater explanation and understanding. Stephenson attempted to provide this explanation by conducting a QMSC study of Martre.

Using the self-referent statements gathered from Martre during the course of the interviews (thereby allowing for a degree of flexibility and evolution as Martre introduced new topics of import), Stephenson constructed a Q sample. Attempting to ensure that the items included in the sample were representative of the range of Martre's emotions and behavior, Stephenson used Fisherian principles to balance the number of items representing each of several categories of Martre's subjectivity.

Stephenson administered the balanced Q sample to Martre under 20 different conditions of instruction, instructing him to sort the items into the forced, quasi-normal frequency distribution displayed in Appendix B. Using behavioral theories as a basis for selection, Stephenson chose many of the imposed conditions of instruction as the study progressed. In this way, the flexibility of QMSC studies allowed Stephenson to adjust the focus of the investigation as he deemed necessary, thereby ensuring that the results returned by the study would be interesting and relevant to the participant. The conditions of instruction under which Martre conducted the Q sorts, along with Stephenson's rationale for the inclusion of select conditions of instruction, are presented in Appendix D.

Upon collecting the data from Martre's sorts and submitting them to factor analysis, Stephenson found that four factors emerged. Upon analyzing and interpreting these factors with respect to Martre's experiences, Stephenson explains that certain overt and covert components of each factor were made clear. For example, Stephenson notes that the sorts conducted by Martre under five of the conditions of instruction loaded heavily upon Factor A and suggest both what Martre believes his family thinks he is like and how he thinks of himself in family settings (i.e., the "me" of Martre's "me-you" dynamism, as proposed by Sullivan, 1947). Overtly, Stephenson asserts that Factor A is marked by socially accepted thoughts and behaviors given his social role as a male. However, this factor, in Stephenson's interpretation, actually identifies Martre's denial of his desire to assume a female role and, as such, is the opposite of what Martre really wants to be. Restated, Factor A identifies Martre's attempt at fulfilling his socially assigned role.

Factor B is defined by only three of Martre's 20 sorts. Stephenson claims that this factor overtly points to Martre's depression, especially as seen in Martre's self-attribution of worthlessness when sorting under Q sort 16 (see Appendix D). Furthermore, Factor B embodies Martre's suppression of thoughts of his abnormality. That is, Martre, as interpreted by Stephenson in this factor, is not directly denying his wish to be a woman, but rather he is suppressing all reference to his abnormal state of mind.

The possible result of this suppression (i.e., Martre's "naughty" outburst in Stephenson's office) is overtly described in Factor C. Defined only by one sort, this factor overtly conveys Martre's desire to assume a female role while expressing confusion, disturbance, and rejection of motherly figures. This desire to assume a female role is further seen in Martre's professed displeasure with his father for

imposing too many limits on Martre's behavior. As such, Stephenson contends that Factor C best illustrates the contradiction and ambivalence present in Martre as he embraces a female role while simultaneously rejecting motherly figures.

Three sorts define the final factor, although each of the sorts loaded heavily onto other factors as well. Stephenson explains that this Factor D positively encompasses the happy, irresponsible female that Martre wanted to be. At the same time, disturbance and anxiety at these socially unacceptable thoughts accompany this happiness. Part of the happiness present in this factor likely extended from what Stephenson describes as Martre's one "satisfactory" solution to his sex role conflict. Namely, in high school, Martre was secretly in a female role that he termed "little character" while projecting a normal male role to schoolmates. Thus, this factor displays the "you" of Martre's "me-you" dynamism (i.e., what others thought of him).

Stephenson concludes with an explanation of the justification and expectations surrounding the four factors that emerged. He notes, for instance, that while only seven of the Q sorts loaded heavily onto any of the four factors, the use of simplest structure allows for such results. He adds that certain expectations governed the outcome, given, for example, that Q sorts 1 and 2 can be expected to load onto different factors (i.e., given the nature of the condition of instruction imposed during these sorts). Providing some detail of his reasoning, Stephenson explains that he arrived at the factors and interpretations through this use of common sense. He stresses, however, that while the results of the study are insightful and demonstrative of the capabilities of QMSC studies, the ability of such a study to clarify and provide insight is limited by a reliance on the theories, researcher know-how, and other

abductive tools that form the foundation and shape the progression of the investigation.

The Consumership of Miss X (Stephenson, 1994)

Stephenson (1994) reiterates that each case in QMSC studies serves as an opportunity to test and discover theories and behavioral laws related to a topic of interest. Demonstrating the applicability of QMSC studies across a broad assortment of topics, Stephenson, given his background as a Distinguished Research Professor of Advertising at Missouri-Columbia, presents a well-designed marketing investigation of a consumer's purchasing habits. A QMSC study is ideal for studying such stable behavior since the basis of these habits rests in an individual's unique opinions of and experiences with consumer goods.

Using as his participant a 60-year old, single woman (Miss X), Stephenson administered a Q sample containing items that were magazine advertisements of brand name consumer goods. Miss X sorted these items under 17 conditions of instruction (based on various theories of consumership and selected to allow Stephenson to understand better the influences affecting her purchasing habits) over the course of about one week. Four factors emerged after Stephenson submitted the gathered data to factor analysis, and Stephenson presented these factors to Miss X to elicit her reactions to the data. Miss X accepted each of the factors as her own, and her responses to each of them provided Stephenson with greater information and insight when interpreting the factors.

Offering his interpretation of the factors, Stephenson notes, for instance, that Factor II concerns those products that Miss X regularly purchases. Those items loading highly positively onto this factor, according to Stephenson, reflect Miss X's

years of housekeeping and include items that she finds attractive, of high quality, and the like. Negatively scored items in Factor II include those that Stephenson explains have somehow disappointed or failed Miss X in previous encounters with them.

The other three factors, adds Stephenson, represent consumer activities outside of Miss X's usual purchases. Seven sorts define Factor I, a factor whose positive valency represents those brands both whose products Miss X would likely enjoy but does not (or cannot) purchase and whose advertisements she finds attractive. The items scoring negatively onto this factor are those advertisements that are somehow displeasing to Miss X, as well as those depicting products of whose performance she expects she would disapprove—although she does not (or cannot) buy these products, either. Overall, Stephenson contends that Factor I demonstrates the influence of media on Miss X's purchasing wishes.

Factor III, according to Stephenson, appears similar to Factor I. The main difference between the two, he continues, is that Factor III represents (positively) those items that Miss X thinks her mother would like or approve of and (negatively) those items that she thinks her mother would generally dislike. Stephenson asserts that the striking similarity between the placement of items in Factors I and III indicates a high degree of influence on Miss X of her mother as relates to purchasing behavior.

Finally, Stephenson outlines Factor IV, a factor representative (positively) of those items that Miss X would purchase if she had greater disposable income. Those items that loaded negatively onto this factor are those advertisements that were immediately displeasing to Miss X. The underlying theme in Factor IV, explains Stephenson, is Miss X's desire for, interest in, and inability to purchase a product. Restated, those items that, although Miss X cannot afford to buy them, she both

wishes to purchase and associates with interesting activities score positively on Factor IV (e.g., travel, as displayed by her positively sorting airline advertisements). Thus, Stephenson suggests that this factor represents Miss X's unfulfilled desires and dreams.

As a result of this QMSC study, Stephenson gained a better understanding of the influences affecting Miss X's purchasing habits. From exploring the role of brand perception to digging deeper into the function of advertisement aesthetics, Stephenson was able to assess the structure of Miss X's consumership. While the specific results of the study are unique to Miss X, the behavioral laws and theories that govern her purchasing habits as identified in Stephenson's investigation can be applied in future QMSC studies to gain an understanding of yet other individuals' behavioral influences.

Literary Analysis (Stephenson, 1982)

In addition to practical applications of QMSC studies (as seen above), Stephenson (1982) also used his intensive approach for more purely creative, demonstrative purposes. Specifically, Stephenson looked at Virginia Woolf's (1928) novel *Orlando* as an autobiographical account of her life. Noting that autobiographies serve as windows through which to glean substantial information about a person, Stephenson used a QMSC study to investigate Woolf's subjectivity as expressed in her literary autobiography.

Woolf (1928) describes in her novel that a person is composed of many different selves, each of which has unique characteristics. She adds that a proper biography need only account for a small percentage of these selves to be deemed

complete. One of these selves, in her estimation, represents an individual's real person.

Stephenson uses this idea of multiple and real selves as bases from which to conduct his QMSC study. Given that the purpose of such a study lies in the transformation of subjective experiences into operant factors whose meanings exist as assigned by the participant, Stephenson took the concourse for his study from Woolf's (1928) self-referent statements scattered throughout *Orlando*. Using Fisherian principles to compose an unbiased, balanced Q sample from the 100 statements included in the concourse, Stephenson selected 40 statements for use in Q sorting.

The multiple conditions of instruction used by Stephenson addressed 11 of the different selves identified by Woolf (1928) in her autobiography. Stephenson then sorted the statements under each condition of instruction over the course of four days, attempting to approximate the procedure and placement of items that Woolf would have performed. He then subjected the sorted data to factor analysis and rotation. Three factors emerged from this analytic process, each of which Stephenson notes is implicit (i.e., unknown to the participant during the course of the sort) yet recognized and acknowledged when presented after the sorting process. Although Stephenson notes that he was unable to present the results of the study to Woolf as he would do in normal QMSC studies, he expresses certainty that the results would have surprised her as much as they did him.

Stephenson then interprets the results of the sorts, noting that QMSC study interpretations involve an attempt at an understanding of the various factors that compose a whole person rather than the analysis of a person by dissecting him or her into component pieces. Stephenson explains that Factor A is defined by five of the

11 sorts. This factor represents Woolf's femininity, and stands as the closest embodiment of the one real self that Woolf described in her novel. Factor B is more vaguely outlined by Stephenson. He notes that two sorts define this factor, and that it is generally marked by Woolf's general dissatisfaction with life and her lifelong obsession with poetry. Factor C, Stephenson continues, was loaded on by four sorts and details an extended interest in death by Woolf (perhaps ultimately manifested in her committing suicide). Finally, while one sort loaded heavily onto all three factors, two sorts loaded heavily onto no factors. Stephenson suggests that these last two sorts likely represent a kind of disunity amongst Woolf's selves, a state of existence recognized and discussed by Woolf (1928).

Stephenson concludes that the conditions of instruction represent what he calls subjective hypotheses that cannot be validated or invalidated. This inability to prove the foundation—and thus results—of a QMSC study as right or wrong stems from the fact that such investigations are based only upon opinions, feelings, behaviors, and other subjective experiences and not upon fact. From this complex subjectivity, a QMSC study, with its use of factor analysis, brings to light implicit, operant factors (and, as seen in the above example, sorts that do not load heavily on factors) that can help researchers synthesize and understand the behavioral and subjective underpinnings influencing an individual's life.

QMSC studies of the self

Over two decades after working with Martre, and two years after retiring from the University of Missouri-Columbia, Stephenson took the position of John F. Murray Distinguished Professor at the University of Iowa. During Stephenson's four years at Iowa, *Operant Subjectivity*, a journal devoted to the goals and ideals of

Stephenson and his study of subjectivity, began publication in 1977. In 1985 the Stephenson Center for Communication Research was established at the University of Missouri-Columbia and the International Society for the Scientific Study of Subjectivity was established in 1989.

These various developments all speak to the increased interest that researchers and the outside world had in Stephenson's ideas regarding both the importance of subjectivity in understanding others' behavior and his approaches to conducting scientific inquiry. Despite this increased interest, and despite Sanders' (1974) contention that Stephenson seemed to defy the typical laws of aging, Stephenson more likely than not did begin to recognize the effects of time on himself. This recognition manifested itself in his beginning a quest to apply QMSC studies to analyze and interpret his own thoughts, feelings, behavior, and other subjective experiences regarding his progression through old age. These intensive analyses of himself are based, in varying degrees, on previously administered single-case studies. The objective of these studies is largely to gauge his own views about retirement and society, beginning with the first study in 1972 (but published posthumously in 1992) and ending with his reanalysis of his thoughts regarding old age shortly before his death in 1989.

"Self in everyday life" (Stephenson, 1992)

Stephenson (1992) performed his first self QMSC study shortly after his retirement in 1972. This study, based on Goffman's (1959) work with frame analysis and Stephenson's own play theory, analyzes Stephenson's beliefs regarding retirement.

Goffman's (1959) theory is based first on the fact that people give and receive impressions during social interactions. Stephenson notes briefly that these impressions can serve as the basis of a concourse in Q methodology when, as Stephenson did with passages written by Goffman, statements are extracted from text describing a person's relevant thoughts. Next, Goffman notes that people often "put on a face" in social settings, acting (as if in a play) in socially accepted and expected manners. He also emphasizes the moralities underlying this acting. Finally, Goffman suggests that behavior produces a person's concept of self, not vice versa.

Stephenson also references Huizinga's (1950) work on play. Huizinga proposes that play is a manner of behavior in everyday life. Also, in noting that playing, as an action, involves more than simply doing, Huizinga stresses the mental components integral to play. Stephenson suggests that the source of this distinction (i.e., between playing and doing) lies in subjectivity; accordingly, the (typically-implicit) self is central in play. Stephenson says that social control (i.e., society's tendency to promote conformity and observance of suitable norms) and convergent selectivity (i.e., an individual's ability to be unique and different from such norms) influence how people implicitly identify themselves, as seen in a previous study he conducted involving two homemakers (i.e., Stephenson, 1979).

Huizinga (1950) looks for play throughout history. He notes that, although play was nearly omnipresent up through the beginning of the twentieth century (i.e., as seen in music, art, games, etc.), contemporary society is largely void of play. Huizinga suggests that, with the societal changes brought about with the scientific and industrial revolutions, "play-spirit" has dissipated and essentially disappeared. In distinguishing play as being time-bound, outside reality, consciously pleasurable,

and the like, Huizinga says that science, in its unceasing investigation of reality, is the antithesis of play.

Stephenson takes issue with this assertion, however, saying that scientific pursuit is an embodiment of play. He cites the awarding of Nobel prizes as an example of such play in modern science. Stephenson concludes that scientific play contributed to the development of quantum mechanics and modern physics. He notes, however, that the scientific advances attributable to this play only benefit a restricted portion of the world's population.

Barbarism, Stephenson says, has marked much of the twentieth century. He asserts that although spans of relative peace have reigned in the Western and Soviet worlds since the early-1900s, other regions remain largely "nasty" and "brutish." While others attribute this brutishness to hegemonic governments and declining religious beliefs, Stephenson suggests that a split of nature into mind (including the self) and matter (excluding the self) is to blame. Stephenson suggests that humans are naturally communicative and self-involving beings. For a society to survive, Stephenson (citing Huizinga, 1950, and drawing from his own thoughts; Stephenson, 1967) maintains that play is essential. The most important value in his eyes is fair-play. The communicability intrinsic in this aspect of human nature involves self-reference and personal knowledge. Q methodology succeeds in tapping these individualized traits by forming operant factors for analysis.

Stephenson notes that previous work, accepted principles, and other generalizations (sometimes established through the previous use of multiple-condition QMSC studies) serve as a basis for QMSC studies; however, such studies do not prove these generalities. Given that such single case studies are not designed to produce broadly applicable generalizations, Stephenson clarifies their primary

purpose: to identify new examples of the lawfulness of subjectivity and behavior. Indeed, Stephenson reiterates that the self, while unpredictable, always abides by laws and moralities (i.e., guiding values).

To investigate himself and his guiding laws, Stephenson chose a concourse comprised of statements referring, in broad terms, to work (i.e., as in employment). He then assumed that society has a universally accepted view of retirement. Stephenson found statements fulfilling these criteria in Goffman (1959). He selected 50 relevant statements, wrote each on an index card, and sorted them into three broad, topically-established categories (i.e., statements of morality, playful statements, and statements of a personal matter) to allow for easier Q sample construction and balance. Each of these three categories broke into positive and negative valency, for a total of six subcategories (i.e., two subcategories for each of the broad, topically-established categories mentioned above). Stephenson chose seven items for each of these subcategories, and then he added three additional statements that were of particular interest to him, resulting in a total of 45 statements.

He then typed the final 45 statements onto note cards, randomized them, and sorted them into a quasi-normal distribution. Stephenson chose the conditions of instruction as he progressed with the study, ensuring that, at any given point, he did not know under what conditions of instruction future sorts would be conducted. He conducted a total of 10 sorts over two days, the results of which he says follow Kantor's (1959) interbehavioral scheme. Stephenson explains that this scheme involves different sorts that are a stimulus function, a response function, an historical function, a sort establishing immediate setting, and a sort establishing the medium of interbehavior. The final sort conducted by Stephenson required him to describe

himself, a sort that he later used to help establish which other sorts represent what the participant (i.e., Stephenson) acknowledges and attributes to himself.

Factor analysis of the Q sorts established three operant factors regarding Stephenson's behaviors. Stephenson notes that, given this operant nature, these same (or similar) factors would be expected whenever this study is replicated and even when using different but related Q samples and conditions of instruction. This constancy is attributable in part to the lawful nature of behavior and subjectivity as discussed in Chapter 2, especially when dealing with issues of significance; as such, subjectivity is minimally affected by random fluctuations over time.

Three sorts define the first factor: one dealing with social control, another referring to Goffman's (1959) thesis regarding play and acting, and the third focusing on Stephenson's understanding of others' retirements. One of the statements that scored most heavily onto this first factor reflects the supposition that everybody constantly plays roles, echoing Goffman's position. The other statements, according to Stephenson, merely reflect this role-playing. As a whole, Stephenson attributes this factor to others, seeing it as an embodiment of his skepticism regarding the motives and acting of other retirees. Upon closer inspection, however, Stephenson notes that he was actually playing roles himself, in part by stressing his English heritage, maintaining the dignity of his professional position, and keeping his distance from clubs and others. While he initially denies this acting as his own, he later admits that he isolated himself from other groups and instead gravitated toward his family. This factor, summarized by Stephenson as concerning pretense and professionalism and conditioned by social influences, represents how others saw him.

Upon first inspection, the three sorts that loaded onto the second factor indicate Stephenson's "honest effort" and his belief that his work speaks for itself. The sorts, dealing with his feelings about his retirement, his ideal self, and his vision for his future, actually embody Stephenson's dramatization and defense of his work (i.e., through his self-described false representations of self). Although he initially denies this dramatic flair and fronting, he soon realizes that he often engages in heated discussions and the like. What's more, Stephenson notes that, throughout his career, he has relied on a façade to maintain a hold in academia. He considers this second factor, an example of his resisting social control, to be an avowal of truth.

The three sorts that loaded heavily onto the third factor reflect Stephenson's career-long struggle with pursuing and defending his areas of interest, also exemplifying his resistance to social influence. Stephenson writes of his feelings of imprisonment while working under Spearman (and later Burt). Stephenson felt compelled to support Spearman's work despite disagreeing with some of his fundamental beliefs. This factor depicts Stephenson's resistive nature, seen through his insistence on pursuing controversial psychological fields and methodologies (e.g., QMSC studies). Stephenson suggests that some may label social-class influences as the source of this aggressiveness. Even given this ideological clash with his superiors, Stephenson admires their technical acumen and feels fortunate to have had the opportunity to work with them. This inconsistency surprises Stephenson. He says that his need to rely on mendacity, as seen when his desire to preserve his position in academia prompted him to temper his feistiness, was equally unexpected. Overall, Stephenson suggests that this third factor represents his hurt feelings arising from the professional ostracism that left him as a sort of an academic nomad for much of his career.

Even with this ostracism, Stephenson notes that he continued to champion Q methodology as a needed tool to study subjectivity (and the self) by which much of science is influenced. He says that the self is implicit, generally only attended to with active introspection. Thus, the true self, as presented in QMSC studies, is only completely uncovered after interpretation of the results. This interpretation, according to Stephenson, moves the meaning of a study's results beyond the relatively obvious to include tacit reflections of self. He continues, saying that values are the basis of all self-reference; this means that self is a cause of, rather than a reaction to, behavior. Restated, rather than suggesting that moralities are a result of behavior, Stephenson says that they cause behavior and, as such, are the bases for subjective science and research.

"My self in 1980: A study of culture" (Stephenson, 1990)

In his second self QMSC study, Stephenson (1990) looks at cultural self-images as an addendum to a study by Goldman (1985) based on Lasch's (1979) theory of narcissism.

Lasch (1979) had suggested that, given the arbitrariness and insecurity resulting from modern mass media, Americans have, by-and-large, developed narcissistic tendencies. This narcissism, continued Lasch, extends both from the United States government's international policies and from crumbling family life. Stephenson cites Marcuse's (1966) suggestion that playfulness may remedy this declining state and notes the parallel with his own play theory. Shotter (1973) had claimed that the creative power central to this play theory separates humans from their animal ancestors. He further stated that, following the theory of Mead (1934), the self was composed of two parts: the objective "me" guiding the subjective "I."

Stephenson reverses the roles of these parts in Q-methodology: “I” is objective while “me” is subjective. According to James’ Law, this “me” consists of some aspects that are acknowledged as part of the self (i.e., “him”) and others that are denied (i.e., “his”). Goldman (1985) based his work on studying Lasch’s (1979) justification for diagnosing Americans as narcissistic.

In developing the concourse, Goldman (1985) chose to represent culture through photographs extracted from a popular American news magazine. The topics included in these photographs came from a spectrum of contemporary issues. Choosing 60 pictures to constitute the Q sample, Goldman then had 10 subjects (representing different backgrounds) perform the Q sort. Each subject sorted the sample under eight different conditions of instruction. Upon analysis of the results, Goldman found a break in self-image that he attributed to narcissism. As such, he essentially supported Lasch’s (1979) conclusion.

In this self single-case study, Stephenson administered Goldman’s (1985) items to himself to see if an Englishman (i.e., himself) living in the United States produced similar results to those derived from Americans. Four factors emerged when Stephenson subjected his sorts to factor analysis. Stephenson reminds us that, in nearly all instances, the factors are implicit, requiring their presentation to the subject to elicit awareness of their existence. Once presented with the factors, however, most subjects will recognize and acknowledge them as their own.

Factor A, the first factor, represents what Stephenson attributed to himself. Half (i.e., 4 out of 8) of the sorts loaded significantly on this factor. Stephenson found that, at least overtly, the issues that Factor A relates to deal primarily with his upbringing (including education, anti-evangelicalism, and others). The factor had covert representations as well, though. First, Stephenson elaborates that the factor

touches positively on youthfulness and new-birth and negatively on ignorance. Upon distilling these findings, Stephenson suggests that these feelings indicate his inner compassion and dislike of oppression. Digging deeper, Stephenson links this factor with his belief that subjective science is key in understanding science and the world. He then accepts that these traits are indeed his own while stating that this factor also represents his ideal.

Factor B, with three heavily-loading sorts, overtly concerns those issues that Stephenson views as real and about which he readily enters into conversation. Notably, however, Stephenson will do little if anything active in response to these issues. Armed forces (positive valency) and constructive help (negative valency) fall at opposite ends of his sort for this factor. Stephenson's analysis of the factor suggests that the covert meaning of this factor deals with social well-being. He notes his beliefs that armed forces are a necessary evil and that medical care is a human right. Even so, he continues, he doesn't identify himself with these beliefs. As such, he sees this factor as "his" rather than "him." He suggests, however, that, even given its status as a non-self factor, the factor could be interpreted by only him (and nobody else).

Only one sort loaded heavily onto Factor C. This factor includes various manifest representations, ranging from concern about a communication center and skin cancer to his thoughts about aging and science (positive valency). At the opposite end of the spectrum, this factor involves his concerns with a troubled social structure. Although he voices no qualms about these representations, Stephenson stresses that he identifies with none of them: they are "his," but nothing more. Covertly, this factor embodies his apprehension regarding developing technology.

Like Factor C, only one sort loaded heavily on Factor D. This factor deals overtly with Stephenson's class consciousness, although he does not attribute this trait to himself. The pictures that he identifies strongly with indicate his self-consciousness and working-class background. Those pictures with negative valency are evocative of the common man and the English establishment. Overall, this factor (manifestly) suggests a sort of contempt for class structure. Stephenson's decidedly English mannerisms and self-assured ways are identified implicitly by this factor. Again, however, Stephenson does not identify these traits as being "his." He suggests that these characteristics may act as a sort of defense mechanism.

Taken as a whole, Stephenson concludes that his single-case study achieves results quite opposite to those found by Goldman (1985). Rather than the self-absorbed, narcissistic American described in the original study, Stephenson emerges as more concerned with the public domain and welfare. He offers the suggestion that while Factor D, the most personal of the four factors, could offer a glimpse of narcissism, his overriding character, as identified by this QMSC study of the self, is compassion. As such, he indicates that his results do not support the conclusions of Lasch (1979) and Goldman (1985).

"Old age research" (Stephenson, 1989)

Stephenson revisits his initial self QMSC study (i.e., "Self in everyday life," Stephenson, 1992) in one of his unpublished paper, "Old age research" (Stephenson, 1989). In this final paper, Stephenson replies to remarks made by Pat Rabbitt (1988), a UK psychologist specializing in aging, by reassessing the findings of the self single case study conducted 17 years prior.

Stephenson molds his article as a response to Rabbitt's (1988) assertion that gerontology, as a field, needed social psychology, the neurosciences, and cognitive psychology to gather meaningful insights. Rabbitt further stated that any study of gerontology that ignored how the elderly understood and managed their lives was little more than a "pseudo-academic exercise," missing the role of social interactions in preserving the cognitive sharpness of the aged. Stephenson contends that gerontology has had a viable but unused methodology (i.e., Q methodology in general and QMSC studies in particular) at its disposal for several decades that potentially offered insights into the experiences of elderly people. Therefore, Stephenson claims that gerontology requires none of the three fields noted by Rabbitt. Stephenson then introduces himself as a subject for a QMSC study to demonstrate to Rabbitt (and others) the power of his methodology and its applicability to gerontological topics.

Stephenson refers to his academic background and its relevance in developing this unused methodology. After studying old age at a hospital in Oxford, Stephenson began working at a home for the elderly. In 1943, while at the home, he attempted to secure monetary aid distributed for gerontological research to apply Q methodology to gerontology. Although Stephenson was unsuccessful in securing that funding, he and others established a society to study aging (i.e., the Club for the Study of Aging). The premise of the society was to bring together only a few members, one each from various scientific fields (e.g., the eminent biochemist, Sir Robert Robinson) as well as philanthropists, financiers, and politicians (e.g., the philanthropist, Lord Nuffield), in an effort to further the study of aging in its many respects. In addition to his work specific to aging, Stephenson tells of his continued crusade to develop and champion Q methodology and the single case studies that use

it as means with which to study people's subjectivity, notions, and other transitive thoughts scientifically (i.e., objectively).

Elaborating on some details of Q methodology, Stephenson notes, for example, the benchmark of zero (meaning "without meaning") common to all Q methodological studies. He also discusses the difficulties that even some of his best students had in believing in the ability of Q methodology to offer worthy results without the use of standardized tests.

Stephenson discusses communicability (i.e., essentially any means by which people communicate with one another). He cites James (1891), who separated this communication into substantive (i.e., what is written, spoken, or otherwise made accessible to the outside world) and transitive (i.e., the beginning of communication and thought: that which is as-of-yet unknown to the outside world). Stephenson stresses the importance of self-reference in substantive thought. This self-reference, he says, was effectively eliminated from scientific study through present-day psychology. Stephenson notes that, since nearly all past research that has been performed has looked only at substantive issues while ignoring its transitive foundation, much existing research is basically unsound. Q methodology, however, in its focusing on transitive behavior and through its use of quantum theory, offers a sounder methodological approach.

Stephenson recalls the tradition at the University of Missouri-Columbia of inviting retired professors to an annual reunion. Stephenson resented the implication that retirees needed "looking after" and, as such, had never attended. He questions, however, if any other retirees felt similarly. Stephenson restates an assumption from his "Self in everyday life," (Stephenson, 1992) relying on common, societal positions regarding retirement for his study. He then reanalyzes the purposes of the 10

conditions of instruction he used for the QMSC study, saying that these 10 conditions represent all the subjective information from him that is available for science to study.

Before reanalyzing the data, Stephenson revisits the debate that existed surrounding R and Q methodology. Although both methodologies emerged from quantum theory, Q methodology is unique in its focus on feeling-states and individualized factors. As such, Q methodology addresses the transitive thought that Stephenson emphasizes is so important. Moreover, the operant factors that emerge from QMSC studies are capable of exhibiting paradoxical relationships and can explain nearly all aspects of a person's subjectivity.

Next, he shows where the 10 conditions loaded amongst the three factors. Stephenson emphasizes that these factors emerged from his subjectivity. Stephenson then judges in retrospect the appropriateness of the factors (i.e., suggestions of possible courses of action that emerged 16 years prior) in retrospect. He begins this reanalysis by providing context. From outlining his educational and professional backgrounds (including military service) to describing his struggle with gaining acceptance for Q methodology, Stephenson lays the foundation for his behavior.

Stephenson offers a brief revision of his prior interpretations, saying that Factor I suggests that other retirees acted roles and relied on dignity while, in fact, he did much the same; Factor II, beyond the initial indication that his work "speaks for itself," represents his yearning for acknowledgement; and Factor III seems to embody his hurt from being ostracized while truthfully referencing his notable certainty in himself. Thus, Stephenson notes that each factor represents both the initial interpretation and also its opposite, resulting in six separate factors.

Stephenson then points out that he had placed himself on Factor III while his ideal fell on Factor II. This disparity of self and ideal, according to Rogers (1961), suggests maladjustment. This maladjustment, Stephenson explains, caused him to remain dissatisfied with his lot in life and adopt the feisty professional personality that he was known to have.

He also notes that the factors were merely intentionalities, not actualities. Appropriate opportunities are needed to prompt the transformation from intentionality to actuality. For Stephenson, the University of Iowa presented such an opportunity to pursue the study of Q methodology and QMSC studies with the added assistance of a graduate student body that had already been exposed to Q methodology through the efforts of Stephenson's predecessor Malcolm MacLean at Iowa's School of Journalism.

Stephenson then explains that intentionalities, whose underlying values are internalized, manifest themselves with time (Goffman, 1959). The internalized values are important in childhood, while intentionalities develop with age. Stephenson believes that Goffman would attribute the rebellious behaviors of Stephenson as an adult to values he held as a child.

Whatever the case, Stephenson shows that a person's feelings, as established through self-reference, are of paramount importance in gerontology. While he concedes that other sciences, like neurology, are also important in understanding the physiology and other aspects of aging, methods that measure subjective experiences (which, amongst other things, influence behavior) are crucial to understanding the overall experience of aging. Q methodology is such a method, and it makes operant behaviors and beliefs that already exist.

Q methodology is predicated on the fact that the self, while unpredictable, is governed by laws. Though Stephenson and Goffman (1959) both agree on this point, Stephenson goes one step further, offering a methodology (in QMSC studies) with which to study the self. This intensive approach to research, Stephenson continues, is based on quantum theory, and much as scientists initially rejected but later embraced quantum theory, Stephenson believes that Q methodology and the single case studies that use it will also be widely held in higher regard someday. Q methodology, Stephenson concludes, deals specifically with the complexity of subjectivity, making operant the feelings and experiences that are so significant in the study of aging.

Beyond Experiences

These works serve to illustrate clearly the broad applicability and value of QMSC studies in studying and attempting to understand behavior as experienced by an individual. By reanalyzing studies of X and Dora, Stephenson (1954) shows the potential for QMSC studies to be conducted prior to psychoanalysis as a means of establishing for a psychoanalyst a better understanding of the subjectivity relevant and important to a patient. Stephenson's study with Martre applied the intensive analytic approach to identifying the factors conspiring against an individual with acute mental distress, while the investigation of Miss X (Stephenson, 1994) demonstrated the importance of the study of subjectivity in business, given its role in guiding consumer purchasing. By conducting a study of Virginia Woolf's subjective experiences as expressed in her literary autobiography, Stephenson (1982) added to the potential scope of QMSC studies, showing its application in a creative, literary setting while still demonstrating its ability to dig deeper into and help uncover the

behavioral motives governing individuals. In utilizing the methodology to reveal some of his own underlying thoughts, beliefs, and behavioral influences that were previously unknown or denied, Stephenson (1989, 1990, 1992) himself was able to identify with and attest to the power of insight of QMSC studies. Simultaneously, Stephenson effectively reiterated his assertions regarding the usefulness of such intensive approaches to research as tools of discovery.

With these self studies complete, Stephenson had capped a career in which he tirelessly advocated the need to study and understand subjectivity in many fields of the behavioral sciences. Throughout his career, he defended and championed QMSC studies as a means of achieving this understanding. Having convinced many researchers of the need to investigate the subjective experiences of individuals from the perspective of those individuals, although doubtless incompletely satisfied with the degree of acceptance attained, Stephenson passed away on June 14, 1989, from complications associated with a stroke. Although Stephenson was beyond the realm of human experiences himself, his influences on the study of such experiences flourished, with researchers in a variety of fields and disciplines utilizing QMSC studies to [better] investigate and understand the subjective experiences and behavioral motives integral in all social sciences.

A Look Ahead

In the next chapter, I will discuss this broadened application of QMSC studies by presenting four such applications conducted in the years since Stephenson death. From Goldman's (1991) analysis of narcissism and the investigation of childhood experiences by Taylor and her associates (1994) to Baas' (1997) investigation of the development of political images and Rhoads' (2001a&b) study of authoritarian

personality, QMSC studies have been instrumental in the advancement of many aspects of the social sciences.

Chapter 7

Applied Science II: The broader employment of Q methodological single case studies

As a result of Stephenson's efforts to cultivate awareness of QMSC studies, researchers studying phenomena influenced by human behavior have begun applying the methodology in the years since Stephenson's death. The ability for researchers utilizing QMSC studies to identify and operationalize behavior and subjective experiences from the perspective of the individual participating in such an investigation provides a distinctive capacity to investigate the inner-workings and influences of the human mind. Since such underlying subjectivity affects the actions of humans in all avenues of their lives, researchers from an array of fields—from sociology and communications to political science and psychology—have begun implementing such single case investigations. The impact of Stephenson's advocacy of QMSC studies is clearly spreading far beyond its initial concentration within the confines of psychology.

Societal Narcissism and Communication (Goldman, 1991)

In an investigation of narcissism and communication, Goldman (1991) conducted a QMSC study, a methodological perspective different from that employed by other researchers in previous studies of these topics. According to several researchers cited by Goldman, the increasing prevalence of narcissism in America was a reflection of the progressively dominant role of the mass media and capitalism in developmental socialization. This increased socializing function came at the expense of the influence of families and other, more traditional institutions. Goldman focused primarily on Lasch's (1979) assertion that narcissists could not form ideals separate from themselves, thereby attributing the traits of their ideals to themselves.

Goldman explained that QMSC studies were ideally suited to studying narcissism and communication in that such single case studies were primarily concerned with self-reference and communication. Furthermore, by developing operant definitions according to the perspectives of the studies' participants, single-case studies effectively minimized the influence of researcher bias in the results.

Noting that Q samples must allow for self-referent interpretations but need not necessarily be verbal, Goldman developed the Q sample for his single-case study using 60 pictures from *Time* magazine. He chose images that reflected topics relevant to Lasch's (1979) discourse (i.e., dealing with personality, professional-economic matters, and social-historical matters) but that involved neither biases nor required special knowledge. Using standard Q methodological technique, the pictures were randomized, numbered, and administered to a participant (Mr. K) under eight conditions of instruction (e.g., "What is important for you *now* in the way you live?" "What has entered as a direct influence in your *upbringing*?" "What represents for you the '*ideals*' of life?" "What are *personal problems* for you now?" "What are the *real issues* in life?" "What can you enter into *conversation* about most freely with almost anyone?" "What do you feel *class conscious* about?" and "What represents *you*, yourself?"). Goldman noted that, thanks in part to the lawfulness of human behavior, these multiple conditions of instruction allowed deeper probing into the subjectivity influencing human thoughts and conduct than would be possible using more traditional methods. The resultant sorts were factor analyzed, and Goldman interviewed Mr. K to gather additional insights into his subjective influences.

Goldman extracted three factors. Factor A was overtly concerned with exercise, health, and family (on the positive side of the factor) and war (on the

negative side of the factor). Implicitly, however, Goldman suggested that this factor was marked by aggression and feelings of ambivalence regarding Mr. K's upbringing and his ideals. Goldman asserted that Factor A hinted at significant psychosocial disturbances in Mr. K's development. Of note, Mr. K did not view Factor A as him but instead considered it attributable merely as his (as described by James' law). Also, Mr. K's ideal was represented in this factor although his self-description was not. This discrepancy suggested maladjustment of the factor according to Rogers' law of ideal-self congruence.

Like Factor A, Mr. K also viewed Factor B as "his" rather than being "him." Overtly, Mr. K expressed positive regard for law and order and waste disposal. Goldman explained that the negative side of the factor focused on more personal and unpleasant feelings that Mr. K was unwilling to discuss openly. This factor implicitly involved morality, cleanliness, and issues surrounding the socializing forces in American life. According to Goldman, Factor B was largely devoid of self-reference, leaving this factor distinctly more "impersonal" than Factor A.

Mr. K reserved his self-description for Factor C, a factor that also related directly to how Mr. K currently lived. Furthermore, this factor was well adjusted in that Mr. K placed both his self-description and his ideal on this factor. Factor C overtly referenced Mr. K's notions regarding political life, military life, justice, conservation, racial integration, and economic development on the positive side while focusing on art and religion on the negative side. Covertly, Mr. K counted authoritativeness and achievement orientation as his traits. Goldman suggested that Mr. K also possesses a strong feeling of inadequacy. Overall, Goldman interpreted this factor as related less to kindness and compassion and more to status and control.

Goldman concluded by relating these factors to the narcissistic personality as defined by Lasch (1979). Pointing to Factors A and C as the primary indicators of narcissistic tendencies in Mr. K, Goldman stressed the sexual conflict, impersonality, and self-importance influencing Mr. K's behavior. Goldman also stressed that although this QMSC study supported Lasch's contention regarding the presence of narcissism in individuals, the results could not be generalized to the population as a whole. Rather, this study simply analyzed the subjective aspects of this participant's behavior by relying on the lawfulness that could be expected also to play a role in the behavior of most people in society.

Childhood Experiences (Taylor, et al., 1994)

Interested in studying childhood experiences but unsatisfied with the ability of most research methodologies to study such subjectivity both thoroughly and scientifically, Taylor and her associates (1994) conducted QMSC studies with several children. The primary objective of these studies was simply to explore whether or not a child's experiences were organized with a degree of consistency; in doing so, the researchers hoped also to evaluate the value of Stephenson's methodological approach in the general study of children's experiences.

Taylor and her associates gathered for the study eight children enrolled in a preschool program; the children were all between 3 and 5 years old. The children were asked to sort a series of 18 pictures (obtained from a children's magazine) of other children of a number of ethnicities and involved in a variety of activities. The boys who participated in the study were shown pictures of boys, while the girls were asked to sort images of girls. The researchers instructed the children to sort the images according to eight conditions of instruction (e.g., "Most like you;" "What

Mommy think is most like you;” “What Teacher thinks is most like you;” “What Big Bird thinks is most like you;” “The very best boy/girl;” “Most like you when you grow up;” “Most like your friend;” “What your friend thinks is most like you”).

Upon analysis of the generated sorts, the researchers found that each child loaded heavily onto at least three factors. This result indicates to the researchers that, while displaying a degree of overlap in his or her interpretation and experiences associated with different conditions of instruction, each child was effectively able to differentiate between the conditions of instruction and sort accordingly.

Comparisons between children by the researchers yielded similar findings: some children shared specific experiences and beliefs with certain other children while demonstrating no such similarity with other children’s experiences. As such, the researchers were able to identify a variety of similarities and differences between children, although only—they stress—to a limited extent.

For instance, two of the girls returned similar sorts under the “Most like you” and “Grown up” conditions of instruction, but they were dissimilar with regards to their views of how the pictured children related to the “Very best girl.” The researchers assert that despite the fact that the two girls have similar self-images and other experiences but differ in what they consider to be “good,” no conclusion can be drawn as to which girl is herself “good” or “bad.” Instead, one could only claim with certainty that the two girls view differently what is entailed in or representative of one’s being the “very best.”

In another example, the researchers explain that two boys (i.e., Boys 1 and 4) returned results that were similar to each other but different than Boy 2 when sorting items under the “Most like you” condition of instruction. However, the similarity between Boy 1 and 4 ended there, while Boys 2 and 4 sorted the images similarly

when instructed to sort according to what the teacher thought was like them. As such, the multifaceted experiences and relationships within and between children can be revealed and studied using QMSC studies. Taylor and her colleagues contend that, although the specific findings themselves are not of particular note and thus are not further analyzed, these results demonstrate the value of QMSC studies in accessing and analyzing—both within and between children—the subjective experiences and beliefs of children to the degree that the collected data allows.

Political Images (Baas, 1997)

Demonstrating the use of QMSC studies in studies of political science, Baas (1997) conducted such an investigation of the development and persistence of political understanding. Basing his work on Lasswell's (1962) theory of the "law of primary affect" (wherein people form images of distant, i.e., secondary, political objects by projecting upon them characteristics of more-geographically and emotionally immediate, i.e., primary, objects), Baas revisited a single case study he conducted 14 years earlier. In the current study, he used the same participant and a similar technique to that which he utilized previously to compare the results and establish whether or not the image structure used in understanding politics changed with time.

In the original study, Baas, while noting that most political science research at the time was conducted using extensive analysis, utilized an intensive approach (i.e., a single-case study followed by interviewing) to examine the subjectivity central to this topic. Baas explained that although nearly any person could have acted as the sorter in a QMSC study, he chose his participant, Ms. Smith, because she had an idealized view of the political world. He then offered further biographical

details (e.g., age, political leanings, religious affiliation, etc.) about Smith to establish possible sources of influence on her political thought.

Baas interviewed Smith and, from these talks, compiled 25 primary and secondary objects familiar to her. He also developed two Q samples, one consisting of a variety of personality traits that varied in their degree of implied likeability and the other composed of 42 adjectives describing states of feeling. In the first part of the study, Baas instructed Smith to sort the trait adjectives (following standard Q methodological procedures) for each of the 25 objects; Baas then asked her to sort the feeling adjectives for each of the 25 objects.

After factor analyzing the results of these 50 sorts, Baas found that two factors emerged for each of the two adjective types (i.e., traits and feelings). For the traits sorts, factor A represented those objects (both primary and secondary) that she viewed as sincere, trusting, and warm; thus, this was a generally positive characterization. Factor B, however, represented objects that she viewed as stern and authoritarian. The feelings sorts revealed similar findings, although slight differences did emerge. The first feeling factor (i.e., C) included many of the same “good” objects that had been included in factor A and, as a whole, included objects that made Smith feel relaxed and warm. A few of the factors in factor A were now included under the second feeling factor (i.e., Factor D), though. Factor D included objects that evoked feelings of anxiety and vulnerability in Smith.

Baas then conducted a series of interviews with Smith to add background information and meaning to some of the findings. From these talks, Baas concluded that faceless objects (e.g., the Constitution) and objects that Smith perceived as imposing authority (e.g., the law) generated anxiety in Smith. Some of these same objects (e.g., the Constitution) received positive trait sorts from her, however, and

Baas attributed this seeming contradiction between trait and feeling sorts to an attempt by Smith to idealize the objects' traits to compensate for the feelings of vulnerability and anxiety that are triggered in her by them. Whatever the case, in both instances (i.e., with both sort types) and with all factors, Baas found, as Lasswell theorized, that secondary political objects were associated with objects from Smith's primary world.

In the current study, Baas replaced some of the original objects used with more contemporary items (e.g., replacing Gerald Ford with George Bush, etc.). He then repeated the procedure used in the original, two-tiered study and merged the data from the two studies for factor analysis. Baas explains that, although Smith has changed her views regarding some of the specific images, her actual image (i.e., trait) structure has not changed. Restated, Smith used the same two (i.e., generally positive versus more-or-less negative) categories when attributing characteristics of primary images to secondary political objects as she had done 14 years previously. Additionally, Baas found that objects about which Smith was ambivalent (e.g., new political figures, etc.) tended to load onto both factors. Smith's feelings sorts were also remarkably similar across time.

After interviewing Smith and interpreting the results, Baas discussed some insights offered by these sorts into the influences on Smith's behavior. He also noted that the data helped him understand Smith's assimilation of newly-encountered objects into her affective structure. Baas asserted that Smith's increased maturity since the original study significantly impacted this assimilation.

Overall, Baas noted that although Smith's life has changed between the original and current studies, these QMSC studies showed that her image and feeling structures as they relate her primary and secondary worlds remained intact. By

approaching this investigation using such single case studies, Baas was able to operationalize the thoughts and feelings of Smith and draw conclusions regarding political theory from them. As such, his longitudinal, intensive analysis offered support for Lasswell's (1962) theory of primary affect.

Authoritarianism (Rhoads, 2001a, 2001b)

Rhoads' two-part study differs from the abovementioned research, even though all three address social issues. Specifically, Rhoads' work is distinctive in that it uses both a Q methodological investigative approach (Rhoads, 2001a) and a QMSC study (Rhoads, 2001b). With this study, Rhoads thereby demonstrates the potential for QMSC studies when combined with other methodologies.

Rhoads uses Q methodology and a QMSC study in this work to assess the comprehensiveness and correctness of Altemeyer's (1988) Right-Wing Authoritarianism (RWA) scale, a scale often used in studies of authoritarianism. This scale, Rhoads explains, has become the benchmark by which many scientists interested in authoritarianism measure the characteristic. The scale upon which the RWA and other similar scales are based (i.e., the Fascism Scale developed by Adorno, Frenkel-Brunswick, Levison, and Sanford (1950)), also attempts to describe traits of people with authoritarian personalities. While some have specifically criticized this latter scale for various shortcomings, Rhoads cites Samelson (1964) as alone questioning the ability of most scaling techniques to measure authoritarianism accurately.

Rhoads cites a study (Rhoads & Sun, 1994) wherein Q methodological techniques were used to analyze the presence of authoritarian characteristics. Upon factor analysis of the data collected, this study found that, although a factor emerged

that mirrored the focus of the RWA, another, bipolar factor also surfaced that would have been overlooked if using only the RWA. He uses this discovery of a new factor as an impetus for the present study.

Using a sample of students who scored in the upper quartile of the RWA, Rhoads administered the RWA. He instructed the students to scale the 30 statements of the RWA from “very strongly disagree with” (1) to “very strongly agree with” (9) and factor analyzed the results. Three factors emerged: the first (Factor A), corresponded to the principles underlying the RWA; the second (Factor B), a bipolar factor, focused on heterosexual freedom and limitations on protest; and the third (Factor C), another bipolar factor, related to increased personal liberation, particularly regarding young people. Rhoads interprets the meaning of each factor, explaining the relationships between statements that scored heavily on one or the other factors. He also outlines the differences in behavioral influences for participants who load positively on a factor (i.e., largely agreeing with the gist of the traits characterized therein) and those loading negatively on it (i.e., largely disagreeing with the traits).

All of the participants loaded significantly onto Factor A, thus establishing it as the factor related to the RWA (on which, as mentioned above, all participants scored highly). Factors B and C, however, were variably loaded upon. Rhoads contends that, given the RWA’s unidimensional characteristics, these bipolar factors concern behavioral influences that would have been totally obscured in a study that utilized only Altemeyer’s scale. He suggests that authoritarians are actually a diverse population with varying beliefs and characteristics, quite unlike the one-dimensionality assumed by the RWA.

The second part of Rhoads' investigation was a QMSC study designed to demonstrate the different aspects of personality (described by Rhoads as "selves") present in authoritarians, thus further disproving the unidimensional leanings of the RWA. Laing (1969) had stressed the importance of interpreting how others view themselves in establishing their own self-image. As such, Rhoads undertook to clarify an authoritarian's perception of other's evaluations of him or her to further understand the influences on that person's behavior.

Rhoads chose as his participant authoritarian a student from the first portion of his study who had scored particularly high on the RWA but who also loaded heavily onto one of the bipolar factors (i.e., Factor B+). This person, named "Rich" by Rhoads, offers an example of somebody who is authoritarian but who also exhibits diversity in influences clarified in the first part of the study. Rhoads began this intensive analysis by interviewing the student regarding the student's opinions and behaviors in various circumstances. The statements gathered from this interview were then typed onto notecards and, as such, served as the Q sample for the QMSC study. Rich then sorted the 24 statements under 12 conditions of instruction across three weeks.

The results, upon being factor analyzed, yielded three factors that influenced Rich's behavior (with the factor loadings and a portion of the Q sort arrays for the three factors included in Appendix E). The influences central to the factors, according to Rhoads, mirrored the effects of conformity described by Riesman (1952). The first factor, Factor X, represented the inner-directed influences. These pressures stemmed from and were a response to conformity related to the family. Factor Y, the second factor, focused on the peer pressures central to other-directed influences. Lastly, Factor Z, embodying the tradition-directed self, dealt with

conformity arising from group associations (e.g., the church). Rhoads used the multiple sorts to analyze further the opinions and behaviors of Rich that originated in each influence and were described by each factor. While noting that some of the traits described by the factors were “classically” authoritarian, Rhoads asserts that the RWA (and other such scales) would have altogether missed the multifaceted authoritarian personality of Rich and the behavioral influences central to it.

By using standard Q methodological and QMSC study approaches, Rhoads effectively demonstrates some of the shortcomings associated with standard scaling procedures in measuring complex character traits like authoritarianism. Furthermore, his thorough interpretation of each factor, with brief contrasts between different factors, clarifies the procedure and power of this objective measure of subjectivity known as QMSC studies. Rhoads concludes by calling for a revision of approaches to future studies of authoritarianism and other such personality traits to include, perhaps in addition to standard scales, Q methodology and QMSC studies.

QMSC Studies Contextualized

The abovementioned studies reflect contemporary research involving the theoretical discussions introduced in previous chapters. Although Stephenson applied QMSC studies in a number of fields, his expertise rested primarily in psychology, communication and advertising. The three studies discussed in this chapter expand on the applicability of QMSC studies, showing the methodology’s use by researchers in fields outside the scope of Stephenson’s direct interests. These examples demonstrate the ability of QMSC studies to provide useful analysis when used exclusively and when coupled with standard Q methodological investigations to explore subjectivity fully both in groups of individuals and with single participants.

The flexibility of Stephenson's QMSC studies thus not only arises from its ability to investigate the behavioral influences from the perspective of nearly any individual in essentially every field of social science, but also extends from its research potential when combined with Q methodology and other approaches to research.

A Look Ahead

In the next chapter, I provide an overview of the origins, development, and implementation of QMSC studies. I look at possible reasons why biases in publications and the general research community have caused QMSC studies to be relatively underutilized. Following this discussion, I note the limitations of my research. After then outlining the prospects for QMSC studies in research by addressing the question as to in which areas it has particular potential for future application, I close by providing some remarks about my hopes for my own use of QMSC studies in the future.

Chapter 8

An end of this means: Discussion

With the passage of time, much in life can be forgotten. For instance, without regular use of a lock or frequent reminders of its combination, the correct unlocking sequence can quickly fade into the nether regions of one's memory. All that remains after a period of such disuse is the memory that the lock has a combination that, when correctly entered, allows the protected entrance to be opened onto something valuable or worth guarding. In much the same way, scientific advances, when utilized only rarely or looked at as minimally useful, can slip into history and out of the reach of future generations. When such a forgotten scientific advance is a methodology, the strengths of this methodology and its potential benefit are also lost, locked away without information necessary for its utilization.

Such is the fate that could easily have befallen QMSC studies. Were it not for the persistence of the methodology's developer, William Stephenson, and his insistence that such studies addressed central phenomena in the social sciences, QMSC studies might now be more of an historical curiosity than an actively employed investigative approach. Stephenson unflinchingly advocated QMSC studies, envisioning their usefulness partly on the basis of his unique experiences and circumstances, elaborating on the approach's procedures and virtues, and demonstrating the methodology's applicability to investigations within the social sciences. This thesis has been intended to act as a means of tracing and conveying the importance of the origins, development, and implementation of QMSC.

A Look Back

Researchers today may find themselves at an advantage when considering the adoption of QMSC studies as compared to their counterparts at the time when Stephenson first suggested the methodology. The implementation of such an

investigative approach is more feasible today than it was in the 1950s and 1960s, in large part because computers can now rapidly perform the complex calculations involved in factor analysis. Such computing power means that the time needed to move from completed Q sorts to fully analyzed results is determined only by the speed with which a researcher can enter into a dedicated Q methodological program the placement of Q sample items by a participant. This ability for quick analysis of data allows researchers a more rapid progression through Q methodological studies.

Even with this reduced need for mathematical prowess, knowing what items to include in a Q sample and what conditions to impose across multiple sorts can require experience with QMSC studies, expertise in the field of study in question, and generally helpful and insightful abductive sensibilities (for a recent discussion, see Brown and Robyn, 2003). The ability to use pictures and other nonverbal items in Q samples can help this process greatly in minimizing the need to fine-tune carefully the wording of items. What is more, since a picture can, as the common saying suggests, be worth a thousand words, more robust ideas can be captured and represented with a set of pictorial items than could be possible with standard, verbal items. Even when the topic matter included in a Q sample does not lend itself to representation in ways other than verbal, Q sorting can be less burdensome for participants to work through than lengthy and putatively objective surveys.

Origins and Development

In order to understand more fully QMSC studies as presented in Chapter 2, however, one must bear in mind the background and origins of the methodology. The beginnings of QMSC studies can be found in the early development of Q methodology. Although Stephenson's (1935a) brief introduction of Q methodology

was not entirely ground breaking (i.e., in that others had previously suggested inverting the rows and columns in data matrices to establish relationships amongst individuals rather than traditionally comparing tests), his variation on traditional analytic approaches was unique in three important ways. Stephenson's initial statement of his position, followed by a series of supporting articles (i.e., Stephenson, 1935b, 1936a, b, c, & d), show first that unlike previous researchers who had also contemplated such a procedure, Stephenson's exposure to the objective methods of physics drove him to establish an objective methodology for studying behavior and that he viewed this inversion as a technique that held great promise for aiding researchers conducting psychological investigations (for a recent discussion of the impact of his training as a physicist on his approach to subjectivity, see Good, 2003b). Stephenson (1935b), for instance, outlined the benefits of Q technique versus traditional methodologies. From requiring fewer individuals and thus being better suited to lab work to necessitating less financial and personnel support and thus being more feasible in situations where such resources are limited, Q technique offered a more practical and useful approach to research than did extensive, traditional experiments.

Stephenson (1936a) discussed the further application of Q technique in a number of illustrative studies; however, this third paper functioned more as an elaboration of the statistical and theoretical underpinnings of Q methodology. He noted, for example, that Q methodology was designed to investigate intra-individual significance rather than inter-individual differences. In order to accomplish this task of comparing potentially disparate characteristics within an individual, Stephenson exposed the second differentiating trait between himself and others who had previously explored the inverted factor technique. Specifically, Stephenson stressed

the importance of conducting investigations with reference to the self (i.e., with reference to the individuals under investigation) as a means of standardizing otherwise incomparable items. Restated, rank-ordering (i.e., Q sorting) items with reference to their significance to a participant homogenizes the items, giving each item a common unit of measure within that participant. From a series of such Q sorts, Stephenson explained that “families” or patterns of sorting emerged, forming factors. Individuals would saturate on one or more factors, and those individuals that most highly saturated on a given factor were most representative and typical of individuals significantly associated with the factor.

Many researchers, some of whose contributions to QMSC studies have been discussed in this thesis, began advocating the use of single case studies to investigate phenomena at the level of the individual. Although researchers such as Ebbinghaus and Freud had long used single case studies when conducting investigations, more and more single case advocates began asserting that a researcher could only hope to gain a complete understanding and interpretation of behavior and phenomena as experienced by a participant by working at the level of the individual, particularly if that behavior or phenomenon was relatively unique or subtle. What is more, single case studies imparted a degree of flexibility into investigations, allowing researchers, if necessary, to modify and redirect studies as new information and data were gathered. Although critics of single case studies have suggested that results derived from the study of a single person are invalid and not generalizable, Lundberg (1941) and others explained that the case under investigation was not the person participating in the study but rather the recurring behavior being investigated. Thus, such a study derived its legitimacy from this recurring phenomenon. Attempts at making single case studies objective and scientific met with little success, however,

as most proposed methods were cumbersome, difficult to implement and interpret, and poorly replicable. Given this lack of means with which to adequately work at the level of the individual, and given that some researchers, like Primoff (1943), contended that even approaches using inverted factor technique (e.g., Q methodology) were inappropriate for conducting such single case studies, a need clearly existed for an objective, scientific approach for conducting single case studies of feelings, behavior, and other forms of subjectivity at the individual level. Stephenson, drawing on his extensive background in physics, saw the need for—and a means of developing—a single case methodology in psychology that could match the kind of scientific merit to be found in objective, replicable physics techniques.

The third and final significant deviation between Stephenson's contemporaries—who had considered and dismissed the inverted factor technique—and Stephenson's own views becomes evident as Stephenson (1953) extrapolated his Q methodology to form the even more intensive investigative approach for which he claimed Q methodology had always been intended: QMSC studies. In *The Study of Behavior*, Stephenson discussed the theoretical basis and procedural aspects of QMSC studies, providing a thorough and complete introduction to his single case investigative approach.

Stephenson adds that although some critics had questioned the ability of a researcher conducting a QMSC study to gather an adequately representative selection of items for a Q sample, balanced block designs in QMSC studies helped to ensure that an equal representation of the entire range of possible and relevant items was included in a Q sample. The utilization of these Fisherian methods, combined with the use of factor analysis and centroid rotation to achieve simplest structure, allowed QMSC to draw out and operationalize behavioral laws. This process of making

operant participant subjectivity allows researchers to manipulate and more objectively study an individual's behavioral influences and experiences.

As noted above, the response of the general research community to this lengthy unveiling of QMSC studies was, at best, muted, and at worst, hostile. The mixed reaction was possibly a reflection of the fact that Stephenson (1953), while aptly introducing QMSC studies, presented his ideas in a way that was too elaborate and lengthy for researchers to grasp easily. Other researchers seemed to focus on the drawbacks of traditional, extensive research and on the advantages of general intensive, single case studies. Many clinical researchers noted, for instance, that a methodology was needed that bridged the gap between research and practice. As such, clinical researchers conducting investigations were often more concerned with clinical than statistical significance and were looking for results that could be applied directly to patients. Single case studies, and not traditional experimental approaches, allow for this direct clinical focus and application.

Through continued and detailed reporting of participant characteristics and conditions, researchers conducting such single case studies developed a specificity of results that aided in establishing to whom the results of the study might later be applied. Also, the frequent observational periods associated with single case studies allowed researchers conducting such work to monitor constantly and, if necessary, fine-tune the progression of investigations to optimize the relevance and importance of the research findings. Although this more intensive—and often longer lasting—research approach may have resulted in participant fatigue and thus a higher dropout rate amongst participants, such dropping out had a less broad effect in a series of single case studies than in traditional experiments (i.e., in that each single case study was independent and stood alone on its own merits whereas data were pooled in

traditional investigations). The net effect of this intensive, individualized, and relevant study was the identification and understanding of behavioral laws that, although manifested differently in different people, were common to and govern all individuals.

Many researchers claimed that such single case studies were greatly needed for the advancement of social science research. The growing support for such claims was seen in the increasing numbers of researchers who conducted and successfully published single case studies, despite an initial bias against such work by detractors of single case work. Riding this wave of support for single case studies—as well as the ebbing bias against them—Brown (1973) and Stephenson sought to secure recognition for the potential of QMSC studies in a format that was more concise and clearly spelled-out than in Stephenson's (1953) attempt. As such, they collaborated and proposed for publication a book defending such studies while advancing their virtues in exploring and understanding human subjectivity. For a number of reasons partly reflecting the number of his ongoing projects, this work was never published. However, Stephenson, who had already begun composing an introductory chapter for the proposed book, continued writing. This book chapter (Stephenson, 1972) was the basis of a published article (Stephenson, 1974) in which Stephenson addressed questions of validity posed by critics of QMSC studies. Specifically, Stephenson noted that researchers utilizing the Q methodologically based single case approach often find useful and interesting results. Moreover, since QMSC studies are concerned only with opinions as opposed to verifiable facts, questions of research validity are less relevant and important.

Researchers who posed such doubts about the validity of QMSC studies generally relied instead on traditional approaches when conducting investigations.

Stephenson asserted that such extensive experimentation typically used scales and tests that, through the inclusion of researcher-determined categories and operational definitions, informed more about the tests and researchers than they did about the participants. Also, the statistical averaging that traditional experiments involved obfuscated individual differences, thereby preventing unique or unusual participant characteristics from emerging for study. Combined, these and other traits of traditional research approaches hindered the ability of researchers using such techniques to discover and understand governing behavioral influences.

QMSC studies, however, were purposefully designed to effectuate such discovery and understanding. Stephenson explained that, through the use of abduction and working theories, QMSC studies were more flexible and able to conform to the requirements and needs of researchers. Also, the reliance on working theories in QMSC studies instead of predetermined hypotheses eliminated the need for researchers conducting such investigations only to pursue the original research question (i.e., as in traditional experiments). Instead, researchers conducting QMSC studies could pursue and attempt to understand whatever behaviors, influences, and other subjective phenomena arose as such studies proceed. This trait of flexibility inherent in QMSC studies was especially beneficial if new or unexpected phenomena presented themselves during the course of a study. By firmly establishing this distinction between rigid, traditional experimental approaches and more flexible, QMSC studies, Stephenson clearly portrayed QMSC studies as the investigative approach best suited to conducting much practical social science research.

Stephenson struggled against well-established methodological foes in championing QMSC studies. He began a determined attempt to [introduce] introduce his peers (and others) to the logic and power of single case studies. The

two pieces of work, while similar, vary in subtle ways. Although both include sample applications of QMSC studies as illustrative aids (e.g., Stephenson's reanalysis of Cattell, 1947), Stephenson used comparatively fewer complicated examples in the 1972 book chapter. The net effect of these and other differences is a more easily followed 1972 version as compared to the 1974 article. From using more understandable examples to including some of the relevant background terminology, Stephenson's 1972 piece is a somewhat more complete introduction to QMSC studies. Taken together, though, the pieces provide clear, thorough, and effective support for an understanding and application of QMSC studies.

Researchers responded to this clarity and effectiveness by continuing to champion the use of single case studies in general while also specifically advancing QMSC studies as a viable and necessary investigative approach. For example, Denenberg (1982) demonstrated the scientific validity and worth of single case studies by likening them to animal studies, a widely accepted approach to research. He noted that researchers conducting such animal studies, in their use of animals that were genetically similar (i.e., of a similar strain), relied on what was essentially a single case. Researchers also asserted that, as in traditional studies, replication of single case studies strengthened the results and could aid in generalizing the findings to others.

Single case studies, despite being well suited to establishing, verifying, and disproving theories, are generally undertaught. Some researchers (e.g., Hayes, 1981) have put forward theories as to why such studies are not introduced as often as they should be in social science courses; researchers (e.g., Brown, 1981) have also noted that such single case studies are gaining ground in scientific communities and are

becoming increasingly commonly published. This characterization of poor exposure in the classroom with growing use in research applies to QMSC studies as well.

Furthermore, researchers noted that the factors that emerged from a QMSC study provided a researcher with a peek into the structure of a participant's subjectivity. This structure could then be more fully ascertained, the QMSC study supporters continued, if the researcher conducting such a study presented the results of the study to the participant to gather reactions and feedback. The researcher could then use these responses to guide a further and deeper interpretation of the results, applying them to the participant. Through this analytic process, researchers conducting QMSC studies could uncover seemingly hidden (i.e., previously unknown and unexpected) factors, thereby again highlighting the ability of QMSC studies to act as tools of discovery.

Overall, the increasing number of published papers directly related to QMSC studies suggests that Stephenson (1972, 1974) presented an argument for and defense of his favored single case approach that better addressed (i.e., as compared to previous attempts) the concerns and interests of the general research community. His more concise yet still complete description of QMSC studies, coupled with his elaboration of the methodology's potential utilization through the presentation of clear examples, helped to reiterate the case for the power of QMSC studies. At the same time, Stephenson's use of a clearer and less convoluted sentence structure allowed and encouraged a larger population of researchers to peruse his papers. Stephenson's two pieces on QMSC studies represent his mature—and most effective—advocacy of the theoretical underpinnings and practical potential of QMSC studies.

By more clearly presenting the need and usefulness of QMSC studies, while suggesting complementary roles for the single case approach and traditional methodologies, Stephenson (1972, 1974) had provided the research community with a powerful statement of the potential of QMSC studies. Despite an intellectual climate that was more favourable to the study of single cases, editors and researchers were slow to accept—and embrace—the “new” approach to research, a matter that will be returned to later in this chapter.

Implementation

Having established the origins and development of QMSC studies, the thesis next addressed the implementation of the methodology. One of the most prodigious users of QMSC studies was Stephenson himself. Over the course of several decades, Stephenson conducted QMSC studies in a variety of formats (e.g., clinical psychological investigation, literary analysis, advertising studies, psychosocial exploration) and used as participants not only individuals involved in his own studies and those patients reported on by other psychologists but also himself. With these varied studies, Stephenson aptly demonstrated the broad scope of research topics open to researchers who employ QMSC studies.

In some of his first applications of QMSC, Stephenson (1954) applied the methodology in clinical situations. In two of his early single case studies, Stephenson discusses QMSC studies that could have been carried out on patients presented by other researchers (e.g., Stephenson’s look at Alexander’s (1948) study of the 23-year-old male, X, and his reanalysis of Freud’s (1949) case of Dora. These hypothetical applications of QMSC studies were followed by Stephenson’s practical utilization of the approach in a clinical setting. Specifically, Stephenson (1954)

discussed his work with Martre, a young man who wanted to be a female. Drawing upon his expertise in advertising, Stephenson (1994) conducted another practical QMSC study, this time with the aim of investigating consumership as seen in the influences on the purchasing habits of Miss X.

In addition to such practical applications (i.e., in clinical psychology and advertising), Stephenson (1982) also explained that QMSC studies could be utilized to conduct a sort of literary analysis. To demonstrate such an application, Stephenson analyzed Virginia Woolf's (1928) autobiographical novel, *Orlando*, explaining that a person's autobiography could provide a great deal of pertinent information about the individual.

Having used QMSC studies to understand better the behavioral influences, experiences, and general subjectivity of other people, Stephenson, beginning shortly after his retirement from teaching, decided to employ the single case methodology to better understand his own motivations. He had an additional reason, however, for conducting his series of "self" QMSC studies (i.e., Stephenson 1989, 1990, 1992): Stephenson used his self QMSC study papers to promote and show additional applications of such a single case approach. The three papers, despite sharing a similar participant, possessed certain unique characteristics.

Overall, Stephenson (1989, 1990, 1992) aptly showed that QMSC studies could add support to and provide criticism of theories of the self through the investigation of a spectrum of topics using nearly any individual, including one's self. Stephenson also confirmed the insight offered by QMSC studies by reanalyzing and reaffirming the results of his first (posthumously published) study of himself (i.e., Stephenson, 1992) in Stephenson (1989). This reanalysis, performed a few months before Stephenson's death, thus served not only as a response to Rabbitt

(1988) but also as a review of Stephenson's work in hindsight. Stephenson (1990) reiterated the significance of QMSC studies. However, this second study offered an additional feature in its use of pictures as the items composing the Q sample. This word-free sample not only demonstrated the wide variety of sources from which concourses can be gathered but also showed the applicability of QMSC studies to investigating both topics that cannot be adequately captured in brief statements and populations who cannot read or comprehend words to a degree necessary for other traditional studies. In all three studies, Stephenson's lengthy unfolding of his own background as it related to the emerging factors helped clarify the interpretative technique and capabilities of QMSC studies.

Stephenson effectively applied and presented QMSC studies in these papers. Although his erudite language and prophesizing may have turned some away from his papers, his well-thought arguments, robust examples and unwavering support for QMSC studies cast doubt on the value of traditional methodologies while simultaneously entrenching the significance of QMSC studies in creating an understanding of the basis of human interactions: the subjectivity of the self.

Given the ubiquity of human subjectivity in nearly every area of the social sciences, Stephenson had long asserted that QMSC studies could benefit researchers in a broad array of fields. Increasingly, other researchers agreed with this assertion and began applying QMSC studies to study topics ranging from sociology and communication to political science and psychology. Goldman (1991), for instance, used a QMSC study with a Q sample of photos from a popular magazine to study societal narcissism and communication. Taylor and her colleagues (1994) applied QMSC studies toward a different subject: scientifically exploring children's experiences. Baas (1997) conducted his own QMSC study to investigate the

development and persistence of political images and understanding. In an application of both a standard Q methodological study and a QMSC study, Rhoads (2001a, 2001b) appraised the completeness and adequacy of a commonly used and supposedly standard-setting scale of authoritarianism. QMSC studies in contemporary research, as reviewed and contextualized in this thesis, reflect the power of insight offered by the approach within a variety of fields.

On the Mixed Reception of Q Methodology and QMSC Studies

As yet no reasons have been offered as to why researchers, by and large, did not respond favorably to Stephenson's introductory discussion of Q methodology and perhaps attempt to apply this approach themselves in single case studies. A number of possibilities should be noted.

First, part of the blame may lie with the subject itself. Although Stephenson's illustrations of Q methodology were generally clear-cut, many of the mathematical and statistical manipulations and arguments presented by him (Stephenson, 1935a, 1936a, b)—although relatively straightforward to him given his mathematics-intensive physics background—may have seemed too formidable to most psychologists to ensure a broad acceptance and understanding.

One likely source of bias against single case studies was the linguistic misconception amongst researchers as to the meaning of the word “case.” As discussed previously, many researchers tend to view single case studies as being based upon one person rather than upon recurring behaviors. Given this misunderstanding, researchers were reluctant to base their work and interpretations upon what they thought was only a single item or occurrence. Good (1998) contends that the use of the term subjectivity itself was another frequent source of confusion

and/or misunderstanding (for a recent discussion, see Smith, 2000). Beyond these linguistic disconnects, another misconception that Good (1998) asserts likely biased researchers against QMSC studies was the tendency for Q methodology (and Q sorting) to be dismissed by researchers as just another technique rather than as a radically different way of approaching and assessing human subjectivity that it was.

Another probable source of bias, with respect to QMSC studies in particular, was that the difficulty of the material and ideas involved with such studies further precluded its immediate widespread acceptance. As noted above, when Stephenson introduced QMSC, computers were neither readily available nor as powerful as they are today. Given the reliance of QMSC studies on factor analysis and its associated intensive and laborious mathematic manipulations, even those researchers who viewed QMSC studies as a valuable tool may well have been prompted to work without them given their apprehension about the complex calculations involved in arriving at results.

Stephenson also likely prompted researchers to ignore or even dismiss QMSC studies because many of his articles and books were complex, dense, and difficult to understand. Additionally, Stephenson's periodic outright dismissal of traditional experimental approaches may have alienated some researchers. As such, these dismissals may have indirectly discredited Stephenson in the eyes of some of his contemporaries and thus diminished the effectiveness of his advocacy of QMSC studies.

Furthermore, investigations using QMSC approaches were not extensively published in journals, further limiting the methodology's exposure to researchers. Similarly, textbooks included little or no information about QMSC studies, resulting in the methodology being undertaught or altogether ignored in psychology courses.

The combined effect of these forces resulted in a generation of new scientists and researchers altogether unaware of the scientific merit and power of QMSC studies. These new researchers, with time, then took up positions as editors of journals and perpetuated the cycle of bias against QMSC studies.

Finally, the reception of much of Stephenson's work was hampered by his marginal status as an academician. Good (1998) suggests that one of a number of reasons for this marginalized status may be that, following his move to the School of Journalism in Columbia, Missouri, Stephenson was isolated from the discipline of psychology in his normal working environment.

QMSC Studies Today

From the review of more than 50 years of articles, books, and unpublished manuscripts written by researchers in a variety of fields, this thesis has presented support and evidence of QMSC studies' value as a useful and necessary alternative to traditional, extensive approaches to research. The case for QMSC studies, as it stands today, is a product and an amalgamation of the information presented in these papers.

The process of developing a methodology with which to study human subjectivity objectively formally began when Stephenson (1935a) first proposed and was enthused about Q technique. From there, his contemporaries' advocacy of single case studies convinced Stephenson that although there was indeed a need for studying behavior at the level of the individual, no satisfactory method existed with which to conduct such research scientifically. Given this need, Stephenson (1953), in his first major presentation of the idea, advanced his views about conducting research at the level of the individual: QMSC studies.

Although having been received with little reaction from the research community, Stephenson's book was, in effect, a hidden treasure. Despite having been presented in this single source with compelling arguments for and illustrative applications of both Q methodology and QMSC studies, researchers generally continued advocating general single case and intensive work rather than focusing much attention on QMSC studies. In response to this, Stephenson wrote more concise guides to QMSC studies (i.e., Stephenson 1972, 1974) and began conducting more QMSC studies himself (e.g., Stephenson 1982, 1989, 1990, 1992, 1994), and the research community public responded. Since Stephenson's death in 1989, the utilization of QMSC studies by other researchers has increased, both in frequency and in breadth of topic. Examples presented in this thesis have shown the utility of applications of QMSC studies in disparate environments. Despite the gradual growth of QMSC studies, it continues to be less-than-fully embraced by researchers in the human sciences. Nonetheless more general intellectual developments can be seen as producing an environment more receptive to such studies.

At about the time that Stephenson completed his 1972 introductory chapter, a number of developments took place that signalled a growing unease on the part of psychologists and other social scientists about the consequences of the legacy of positivism, with its restrictive experimentalism and individualism, and neglect of meaning and subjectivity (Koch, 1971; Harré & Secord, 1972; Israel & Tajfel, 1972). Over the next three decades an increasing number of psychologists and other social scientists began to embrace theories and methodologies that were more responsive to human subjectivity and individuality (e.g., symbolic interactionism (Denzin, 1989); discourse analysis (Potter & Wetherell, 1987; Harré, 1992a), phenomenology (Giorgi, 1970), the revival of intensive approaches in the study of personality (de

Waele & Harré, 1976), and explorations of the nature of human subjectivity (Henriques et al, 1984; Curt, 1994)). Indeed, by 1990, Jerome Bruner and Rom Harré were heralding the arrival of a second cognitive revolution that had returned the study of meaning to a central place in the field of psychology (Bruner, 1990; Harré, 1992b). The value of case studies had also been more positively re-evaluated (Bromley, 1986; Smith et al, 1995).

Even within experimental psychology, the growth of cognitive neuropsychology was to focus attention on the value of single case studies of brain-damaged patients (Marshall & Newcombe, 1984; Camarazzo, 1986; Ellis & Young, 1988; Shallice, 1988). Single case studies have also become more prominent in clinical psychology, more generally (Blampied, 1999; Freeston, 2001; Kazdin, 2003).

Good (2003a), illustrating the increasing acceptance of case material in the human and life sciences, notes John Forrester's (1996) suggestion that reasoning in cases be added to the six styles of reasoning proposed in 1990 by the philosopher Ian Hacking (i.e., with the others being postulation and deduction, experimental exploration, hypothetical construction of models by analogy, ordering of variety by comparison and taxonomy; statistical analysis of regularities of populations; historic derivation of genetic development). Good also explains that such a style of reasoning is in marked contrast to the preoccupation in experimental psychology with average performance and statistical significance (cf. Danziger, 1990). Nonetheless, Stephenson's single case studies do not fit readily into any of these styles of reasoning: his cases demonstrate sensitivity to the uniqueness of each case and a concern with statistical rigor as well.

Limitations of Research

Although I have attempted to conduct a thorough and comprehensive investigation of the origins, development, and implementation of QMSC studies, several unavoidable limitations associated with my work should be noted. First and foremost, while some contributions to and discussions of Q methodology, single case studies, and QMSC studies probably exist that were not included in this thesis, many of these contributions appeared in sources that are difficult to obtain, or indeed remain unpublished. Nonetheless I do not believe that my discussion of QMSC studies, based upon more prominent journals or publications, has neglected salient issues of the methodology.

Another limitation that arose as my research progressed is that over the course of seventy years of contributions to the topics, multiple researchers often repeated both their own and others' suggestions regarding the virtues of Q methodology, single case studies, and QMSC study. While some of these suggestions were nearly identical to previously advanced ideas, others varied slightly. As such, I felt compelled to include discussions in multiple chapters of notions that were generally similar although subtly different. These "repeated" arguments for the scientific merit and value of such intensive analysis therefore added information to and at times complicated an already expansive topic.

While I have tried to provide a comprehensive account of the development and implementation of single case studies, I am aware that I have had necessarily to neglect many other aspects of the application of Q methodology with multiple participants. Although I also have tried to address and do justice to the multi-disciplinary nature and potential of Q methodology and QMSC studies, limitations of time and space have necessitated a more restrictive disciplinary focus on psychology

and allied disciplines. Brown (1980) provides an invaluable review of some QMSC studies with a predominantly political focus.

QMSC Studies Tomorrow

The application of QMSC studies is potentially relevant in nearly any field of research on human behavior. Political scientists and politicians could use QMSC studies to identify and better understand those issues that voters view as particularly important. Government agencies, when deciding in what areas to distribute limited tax monies, could conduct QMSC studies with the hope of understanding what services or programs citizens view as most essential.

Advertising departments in particular, but also businesses in general, could apply QMSC studies to understand their employees and the consuming public better. Human resource departments could employ QMSC studies to identify those benefits that employees most desire, thereby increasing the likelihood that scarce financial resources achieve maximum utility and result in happier—and hopefully more productive—employees.

When evaluating or launching products, businesses might further benefit from QMSC studies to establish which products and services (e.g., movies, television shows, sports events, automobiles, books, etc.) consumers want while also giving clues as to what they will pay for those items. Furthermore, businesses could gather insights into consumers' purchasing habits for such items and establish those characteristics (e.g., brand name, perceived quality, color, advertisement traits, etc.) that most influence the likelihood that a person will purchase a product or service. Such insights could be especially important for businesses looking to expand their product line to new items within their established sales region or hoping to begin

selling in other regions or countries. By utilizing QMSC studies to understand more fully the behavioral and cultural influences that govern individuals' purchasing habits in these new markets, a business would help ensure that a new product is both desired and properly marketed to the new customers.

The pharmaceutical industry is one area of business where such insights into customer beliefs and feeling could be particularly useful. For instance, in developing new drugs, pharmaceutical companies must contend with the fact that most such treatments, although potentially effective in combating whatever condition it is intended to address, may likely cause unwanted side-effects in some patients. When contemplating whether or not to undertake a costly launch of such a drug, these companies could conduct QMSC studies to assess the level of side effects that prospective patients would accept given the benefits associated with the treatment. By effectively evaluating whether patients would accept the side effects of and comply with the treatment regiment for the pharmaceutical, these drug companies could more thoroughly ensure that their advertising expenditures would result in a successful drug launch.

Physicians and medical researchers would also likely advocate the use of QMSC studies to assess compliance with recommended treatment. As discussed previously, Q methodology has been used to understand better why diabetics do not comply with such treatments. Doctors could utilize QMSC studies to dig even deeper into the motivations of patients with whom they expect to have extended contact, and such studies would be especially necessary if the type of patient under investigation (e.g., organ transplant patients) was relatively uncommon. What is more, intensive analysis could help medical professionals better understand why some pregnant women still engaged in behaviors (e.g., smoking, drinking alcohol,

consuming illicit drugs, etc.) that have been shown to be detrimental to their unborn child. With this information, physicians might be able to use their limited patient contact to address issues of particular concern or relevance to the individual patient more effectively

Treatment programs could also be tailored to address the needs of certain categories of individuals. For instance, physicians and therapists who were visited by victims of crime could use QMSC studies to understand better the individual feelings and experiences. These practitioners could tailor their treatment approaches to the needs of the patient. Researchers interested in the criminal justice system could apply QMSC studies to investigate why criminals committed their crimes in the first place and factors underlying recidivism. QMSC studies could also be used to explore the aspects of the prison system and other corrective mechanisms that are particularly effective or ineffective in reducing criminal activity.

Countless other areas, no doubt, could benefit from scientific investigations of subjectivity conducted at the level of the individual. An emerging trend of increased use of single case studies suggests a growing recognition of the value and utility of Stephenson's methodology.

Personal Prospects

My own hopes for the utilization of this research and future application of QMSC studies rest in medical research and patient care. Specifically, even give the abovementioned limitations, my research has demonstrated that QMSC studies offer an important and powerful tool for discovering and understanding motivations and influences affecting individuals. By using QMSC studies to understand patients'

experiences (clearly a subjective issue), I, as a physician, hope to address more effectively their needs and thus augment the level of care I can provide.

I am particularly interested in applying QMSC studies to investigate two areas in medicine where patient subjectivity is likely to be heavily influential. First, I would like to employ Stephenson's single case methodology to get a better understanding of the factors and experiences that contribute to placebo effects, perhaps by intensively studying individuals who displayed significant placebo reactions as well as those who demonstrated no such placebo benefit. Second, I hope to use QMSC studies when working with lung and other organ transplant patients. Through such investigations, I would hope to complement traditional medical treatments and procedures to maximize the likelihood that such treatments would be successful and that the patients involved would feel and report positive reactions to their medical care.

Finally, I hope to influence physicians around me to take a similar interest in their patients' experiences of disease and treatment. In this way, both with this research and in my subsequent endeavors, I hope to contribute to an expansion of medical care to consider more fully the powerful influence of the mind. Although medicine is also concerned with human diseases and pathologies, I hope to remind clinicians of the subjectivity of each patient's medical experiences—to remind my colleagues that for every prescription they order and treatment they recommend, an individual must carry out and experience the effects. In a sense, then, I hope to apply my research to remind both other physicians and myself that, as Lee (1960) suggested, we all need to climb into another person's skin and walk around in it every now and then to appreciate fully—and address—the entire human being.

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Appendices

Appendix A

Title: Some principal events in the life of William Stephenson (adapted from Good, 1998).

- 1902 Born Chopwell, County Durham, England, May 14.
- 1918-19 Pupil-teacher at Blaydon Secondary School
- 1920-23 B.Sc. Physics, University of Durham
- 1924 Diploma in the Theory and Practice of Teaching
- 1925 M.Sc. Physics, University of Durham
- 1926 Moves to University College London to study with Charles Spearman.
- 1927 Ph.D. Physics Durham
- 1929 Ph.D. University of London
- Appointed Research Assistant, University College London
- 1935 Begins psychoanalytic sessions with Melanie Klein
- 1936 Joined staff at the Institute of Experimental Psychology at Oxford as
 Assistant Director.
- 1939-43 Consultant, Central Trades Test Board, Royal Air Force
- 1942 Reader in Experimental Psychology, University of Oxford
- 1943-47 Consultant Psychologist to the British Army (War Office).
- 1945 Stephenson succeeds William Brown as Director of the Institute of
 Experimental Psychology.
- 1946 Consultant Psychologist, Indian Army.
- 1947 Establishing of first undergraduate combined degree in psychology,
 philosophy, and physiology at Oxford.
- George Humphrey is elected to first Oxford Chair in Psychology

- 1948-50 Visiting Professor of Psychology, University of Chicago.
- 1949 Publication of *Testing School Children*.
- 1951-52 Visiting Professor of Psychology, University of California, Berkeley
- 1953 Walker-Ames Professor, University of Washington, Seattle
Publication of *The Study of Behavior*.
- 1954-55 Lecturer, University of Chicago.
- 1955 Consultant, National Institute of Health, Bethesda, Maryland (Jan-Mar)
- 1955-57 Director of Research, Nowland & Co, New York.
- 1956 Becomes American citizen
- 1958-72 Distinguished Research Professor in Advertising, School of Journalism, University of Missouri-Columbia.
- 1967 Publication of *The Play Theory of Mass Communication*
- 1972 Professor Emeritus, University of Missouri-Columbia.
Festschrift volume published – contributors included Steven Brown, Cyril Burt, Fred Kerlinger, Lawrence Kohlberg, Carl Rogers, William Rozeboom and Oliver Zangwill.
- 1974-78 John F. Murray Distinguished Professor, University of Iowa
- 1977 *Operant Subjectivity* begins publication.
- 1985 Establishing of Stephenson Center for Communication Research, University of Missouri-Columbia.
- 1994 Posthumous publication of *The Quantum Theory of Advertising*
- 1989 *International Society for the Scientific Study of Subjectivity* is founded.
Attends first British Q Conference at the University of Reading.

Died June 14, following complications after a stroke.

Appendix C

Title: A chronological (i.e., according, where applicable, to publication date) listing of the application of QMSC studies by Stephenson and others as referred to in this thesis. The thesis chapter in which each article or book was primarily referenced is listed parenthetically after the citation.

1. Stephenson, W. (1953). *The study of behavior: Q-technique and its methodology*. Chicago: University of Chicago Press. (Chapter 4)
2. Stephenson, W. (1954). *Psychoanalysis and Q-methodology: A scientific model for psychoanalytic doctrine*. Unpublished manuscript. Western Historical Manuscripts Section, Ellis Library, University of Missouri-Columbia. (Chapter 6)
3. Stephenson, W. (1972). *Introduction to essays on intensive analysis*. Unpublished manuscript. (Chapter 5)
4. Stephenson, W. (1974). Methodology of single case studies. *Journal of Operational Psychiatry*, 5, 3-16. (Chapter 5)
5. Stephenson, W. (1982). Newton's fifth rule and Q methodology: Application to self psychology. *Operant Subjectivity*, 5, 37-57. (Chapter 6)
6. Stephenson, W. (1989). *Old age research*. Unpublished manuscript. (Chapter 6)
7. Stephenson, W. (1990). My self in 1980: A study of culture. *Operant Subjectivity*, 14, 1-19. (Chapter 6)
8. Goldman, I. (1991). Narcissism, social character, and communications: A Q-methodological perspective. *Psychological Record*, 41, 343-360. (Chapter 7)

9. Stephenson, W. (1992). Self in everyday life. *Operant Subjectivity*, 15, 29-55. (Chapter 6)
10. Stephenson, W. (1994). *Quantum theory of advertising*. Columbia, MO: School of Journalism, University of Missouri-Columbia. (Chapter 6)
11. Taylor, P., Delprato, D.J., & Knapp, J.R. (1994). Q-methodology in the study of child phenomenology. *Psychological Record*, 44, 171-183.
(Chapter 7)
12. Baas, L.B. (1997). The interpersonal sources of the development of political images: An intensive, longitudinal perspective. *Operant Subjectivity*, 20, 117-142. (Chapter 7)
13. Rhoads, J.C. (2001a). Researching authoritarian personality with Q methodology Part I: Revisiting traditional analysis. *Operant Subjectivity*, 24, 68-85. (Chapter 7)
14. Rhoads, J.C. (2001b). Researching authoritarian personality with Q methodology Part II: An intensive study. *Operant Subjectivity*, 24, 86-103.
(Chapter 7)

Appendix D

Title: Conditions of instruction, with accompanying rationale for inclusion of select conditions of instruction, imposed upon Martre by Stephenson (1954).

Conditions of Instruction Imposed Upon Martre

- 1) Describe yourself as you felt when you “exploded” on May 1st.
- 2) Describe yourself in your present “mood of solitariness.”
- 3) Describe yourself as you are today.
- 4) Describe what you think you “should” be like.
- 5) What do you think Dr. Stephenson thinks of you now?”
- 6) What you think your sister thinks of you.
- 7) What you think Bob (a friend) thinks of you.
- 8) What you think your father thinks of you.
- 9) What you think your mother thinks of you.
- 10) What Dr. Stephenson would have thought of you in June last year.
- 11) What you were like as a “little character.”
- 12) What teacher Monty thought of you, you think.
- 13) What you think you were usually like at high school.
- 14) What teacher Monty was like.
- 15) What do you think Dr. Stephenson thinks you are like now?
- 16) Describe your “worthless self.”
- 17) What you think Dr. Stephenson is like.
- 18) What you, Martre, would like to be like ideally.
- 19) What you are like now.
- 20) (Self-description by Dr. Stephenson)

Rationale for Inclusion of Select Conditions of Instruction

<i>Condition</i>	<i>Rationale for Inclusion</i>
1	Retrospective interpretation of outburst
4	Explore ego and ego-ideal structure
5 – 10, 12, 15	Use transference to study the “you” of Martre’s “me-you” pattern
11	Investigate Martre’s high school fantasy “character”
14	Reality check: Compare Martre’s concept of Monty with reality
16	Probe super-ego construction
20	What Martre would likely think of Dr. Stephenson if mentally healthy

Appendix E

Title: Factor loadings for, along with selected items from the Q sort array of, factors X, Y, and Z from Rhoads' (2001b) intensive study.

Factor Loadings

Q Sort	Condition	Factor		
		X	Y	Z
1	Rich's view	0.81*	-0.14	-0.01
2	Father	0.53*	-0.34	0.58*
3	Mother	0.80*	-0.07	0.30
4	Buddies	0.19	0.55*	0.00
5	Female friends	0.22	0.80*	-0.13
6	Football players	-0.06	0.02	0.56*
7	Before college	0.33	0.55*	-0.31
8	Parish priest	0.32	-0.16	0.57*
9	J. Edgar Hoover	0.18	0.03	0.12
10	John F. Kennedy	0.56*	0.41	-0.19
11	Favorite teacher	0.50	-0.33	0.39
12	Rich in 20 years	0.55*	0.18	-0.24

*p<0.01

Selected Items from Q Sort Array

Statement	Factor		
	X	Y	Z
I think we should try to keep some of the old rules—they keep us in line	1	-2	3
You've got to have tradition in the family: it helps establish who you are	3	0	-1
A lot of respect is being lost in today's society	2	1	1
It makes me sad that so much crime goes on	-2	1	2
I admire the customs and traditions of society	-1	-3	2
I don't think premarital sex is a crime or anything. No one's actually getting hurt	0	2	-3
Kids should be given more attention by their mothers and fathers	3	0	1
Ambition—that's something I like to see in people	1	0	-1
You can't shut people out who are thinking about change	1	2	0
Rules about being well-mannered and respectable should be questioned	-1	1	-1
I make my own judgments. I'm really not influenced that much	-2	2	-2
Just because some people are atheists doesn't mean they're bad	-2	2	-2

