Although qualitative methods have always availed themselves to longitudinal research, it is only relatively recently that they have begun to be employed in an emerging spectrum of studies. The wedding of qualitative methods to longitudinal investigation combines hallmark concerns that can yield novel ways to examine the social world. On the one hand, the use of qualitative methods marshals an emphasis on meaning: it focuses attention on the perspectives and interpretations that people develop about experiences and events. The methods open a window through which others are able to see how people understand themselves and social situations. On the other, a concern with phenomena longitudinally foregrounds the idea of trajectory: it focuses attention on the course of experiences and events. That is, people and social situations exist, not statically, but on a path, such that their existence comes to be understood as a function of temporal passage. Combined, longitudinal qualitative research endeavors to understand how people successively make meaning about the trajectories of their lives, or specific conditions of their lives, by following them through time. This type of research offers a way by which to study people's perspectives on the varieties of situations that characterize their movement in time.

In studying the same people at more than one point in time, longitudinal qualitative research is useful in examining developmental change. It is also a key to understanding how people experience and respond to developmental change. Change may be conceived variously at individual, group, institutional, or societal levels (see Cohler and Hostetler 2003). For example, at an individual level, the researcher might show how the elderly understand changes in their advanced aging that shape interpretations of quality of life. At a group level, such research might study how a category among the aged progresses and copes with a specific disease. At an institutional level, it may be concerned with how the aged fare with care and treatment regimens as found in the culture and structure of specific assisted-living organizations. At a societal level, such research could be directed at how passage in advanced years is differently understood between national contexts. The object of study is not, of course, limited to old age; longitudinal qualitative research is employable at all points in the life course. Further, the methods can address phenomena both that extend across life phases (e.g., perspectives on employment experiences across adulthood) and also phenomena that are delimited within a phase (e.g., the subjective criminal careers of juveniles). As in the example above, the analytic
focus shifts from the micro (individual analysis) to the meso (group, institutional analyses) and then to the macro (societal analysis), but in each instance attention is centered on change and how people developmentally understand themselves in response to shifting social (and biological) conditions.

Since longitudinal qualitative research constitutes a relatively new set of methodological tools with which to study social life, there is a need to outline parameters within which it works. The idea in doing so is to sustain the growing interest in longitudinal qualitative research and to encourage its greater use where conceptual dividends can be large. The maturation and integration of longitudinal qualitative research as a set of techniques constitutes a methodological advance for contemporary social science. In this chapter, I codify several of the principles and procedures underlying longitudinal qualitative research. I explicitly draw and expand upon my prior writing about longitudinal qualitative research methods (Hermanowicz 2013) in order to highlight the essential conditions under which longitudinal qualitative data are gathered, analyzed, and presented. In the course of discussion, I provide illustrations from studies noted for their longitudinal qualitative design. I rely centrally on my research and experience studying scientific careers (Hermanowicz 1998, 2009).

The chapter proceeds through three parts. First, I explain the theoretic impetus and importance of conducting qualitative research longitudinally. Second, I briefly summarize the studies of science careers I conducted, which, combined with examples of work on other topics, form a basis of understanding subsequent illustrations. Finally, in the core of the chapter, I account for the conditions essential to conducting longitudinal qualitative research successfully. In doing so, I address central concerns that form three sets of issues: design, execution, and analysis. As will become apparent, many of the parameters within which longitudinal qualitative research succeeds are as applicable to one method of collecting data, such as observational and case study research, as to another, such as interviews. The discussion will underscore the similarities among types of qualitative methods that may be used for longitudinal research.

1 Theoretic Impetus of Longitudinal Qualitative Research

The theoretic impetus for longitudinal qualitative research is derived from life course sociology more generally. In life course sociology, interest centers both on patterns and on variation in processes of development and aging. Whereas cross-sectional designs in sociological research can examine developmental change through both retrospective and prospective data on life histories, prospective longitudinal designs can capitalize on the examination of change by studying phenomena in “real” time. In doing so, longitudinal design arguably maximizes the likelihood of capturing variation in aging processes. Subjects are followed and the multiple, variable courses of their progression may be observed, together with the nested conditions that are associated with and/or cause the observed variation. As a result, the social underpinnings of human development are poised to be more fully known and articulated.

While these theoretic premises are consistent with a sociological perspective on lives, they have, to be certain, not always carried the day, nor are they yet as fully utilized as their promise holds. As Dannefer (2013, 794) has commented, “The traditional inclination to regard age-related phenomena as largely individual matters governed by the imperatives of biological aging on the one hand and ‘agency’ or choice-making on the other has survived largely unscathed...methodological and analytical progress associated with longitudinal data and cohort analysis [has not been] matched by theoretical advances” (see also Dannefer, this volume). If only to reinforce the theoretic rationale for what longitudinal qualitative design can do for inquiry into the sociology of the life course, we may briefly re-visit the reasons that account for its arrival as an analytical and methodological set of tools.

Sociological perspectives on the life course have often taken psychological approaches to
aging as their counterpoint, largely because the latter so dominated thinking about human development until major sociological contributions to the study of lives were made beginning the 1960s and 1970s. Psychologically oriented approaches to aging conceived of development predominantly in terms of preprogrammed maturation. "The temporally-anchored fact of physical birth is widely assumed to be followed by a set of fixed, organismically driven imperatives of maturation and aging; as a corollary, social life and social structure must accommodate such processes of individual change over the life course. Social scientists' thinking about aging has developed in the context of such assumptions about the naturalness of aging, pervasive in both popular and scientific thought" (Dannefer 2013, 793).

Psychologically-rooted approaches to aging have partly achieved their notoriety by promulgating "stage theories" of aging in their various forms. The popularity of stage theories, especially outside of the scientific world, is the likely result of rendering complex aging processes into simpler and predicable paths on which people are able to locate themselves amidst similarity, but also notable difference from others. Differences notwithstanding, people can know that they are not alone, that their situations, challenges, goals, and crises may be rendered generic. One can thus recall Erikson's "eight stages of man," Levinson's "seasons of a man's and of a woman's life," and Sheehy's "passages," among other stage-like approaches (Erikson 1950; Levinson 1978, 1996; Sheehy 1976). Still earlier formulations confined development to childhood such that adulthood consisted only as a playing-out of developmental imprinting that had taken place by the end of childhood. In their various formulations, stage theories were asserted to be universal, inherent to human aging. But differences do stand and these approaches minimized them. Aging differences gone unexamined represent a serious conceptual and empirical gap, which creates a significant theoretic shortfall in accounting for developmental patterns in human aging. "Deviations from the norm are more than inconvenient life events; they represent patterned variations that can be explained by their relation to forces that produce them" (Dannefer 1984a, 106). They are, therefore, of keen interest to the social scientist, for they are the manifestations of other patterns and pathways by which people age variously.

Psychologically oriented views of aging were challenged by an onset of a sociology of age and the life course, which sought to demonstrate how age-related patterns were situated in cohort-specific and context-specific experiences. For sociologists, aging has a locatedness in contexts, whether temporally or spatially bound by cohorts on the one hand and/or environments on the other. By this view, contexts serve not merely as a setting for development, as earlier approaches held, but as a constituent force of it. "Why should a universal pattern have been a theoretically expected or desired claim to make in the first place? What mode of inquiry and what kinds of assumptions would lead one to assume such invariance?" (Dannefer 1984a, 102–103; see also Baltes and Nesselroade 1984; Dannefer 1984b).

In this important theoretic sense, different contexts entail systematically distinct consequences for socialization and development throughout the life span (see Hermanowicz 2009, 8–10).

Cohort analysis has typically been used by sociologists and others to understand how people pass through time in socially patterned yet variable ways. In doing so, cohort analysis has sought to avoid an "ontogenetic fallacy"—postulating universality of development—but instead to investigate how groups of individuals age differently. Elder's work on the life course, for instance, locates individuals in historical times and socioeconomic contexts in order to see how development has transpired differently for cohorts proceeding through time under different environmental conditions. Studying cohorts coming of age during and just after the Great Depression, his work has illustrated the differential force of time and socioeconomic context on development in childhood and in ensuing adulthood (Elder 1974, 1981, 1998).

In different application, Neugarten used cohorts to conduct pioneering studies of the differential meanings of age. Neugarten's work, and those in its vein, emphasize normative underpinnings of age as a more general component of
culture: people operate with shared, if fluid, understandings about age and the time and sequence of age-related events across life domains such as marriage, family, work, education, and leisure (Neugarten 1968, 1979, 1996; Neugarten and Datan 1973; Neugarten et al. 1965; Settersten 2003; Settersten and Hagestad 1996a, b). The result is an age-graded life course as a durable, but again elastic and flexible, feature of culture.

Sociologically, the elasticity of an age-graded life course is key. An age-graded life course is not tantamount to monolithic stages as characteristic of the psychologically oriented approaches referenced above. Instead, an age-graded life course refers to the idea of a general conception and socially desired unfolding of lives through loosely defined periods of life. Some periods may characterize some individuals and not others. Individuals who enter and leave certain periods may do so at different rates. Some periods may be skipped altogether by some subset of people. The idea of a normative, age-graded life course is meant to more fully allow for the possibility of variation while still attune to the structured, patterned ways that people age and interpret their passage through time.

As a means to emphasize difference in developmental patterns, life course sociology has utilized the idea of cohort (Ryder 1965), and has come to emphasize the concepts of inter-cohort and intra-cohort variation (Dannefer and Kelley-Moore 2009). Inter-cohort differences have emphasized the role of context in shaping aging processes that are historically variable. Elder’s (1974) study of how the Great Depression differentially affected cohorts coming of age during and after the event illustrates the significance of inter-cohort variation in development. Intra-cohort differences have also emphasized the role of context, but also inequality and the ways in which processes of cumulative advantage and disadvantage characterize members of the same cohort as they age. Laub and Sampson’s (2003) study of criminal careers demonstrates how persistence in and desistance from crime operates in conjunction with the socially controlling effects of marriage, family, employment, and military service. It thereby illustrates the significance of intra-cohort variation in the development of a cohort of men who, with shared beginnings, experienced the onset of delinquency as juveniles, but then led divergent lives by proceeding along adult pathways made different by their variable exposure to social controls. The concepts of inter- and intra-cohort variation have sought to socially situate the study of human development more firmly. It is against this conceptual backdrop that many sociological studies of the life course have been undertaken, including the ones to which the discussion now turns, which highlight a qualitative methodological means to study the varied conditions and meanings of lives over time.

2 An Example from the Studies of Careers in Science

My studies of careers in academic science illustrate the use, rationale, and utility of longitudinal qualitative research, and they form a basis of subsequent discussion about the conditions under which such research is conducted. By way of background, the studies began in 1994–1995 when I interviewed a sample of 60 scientists about their professional aspirations and perceptions of their unfolding careers. At that time, the subjects were sampled according to two analytic dimensions: time, indicated by the year in which the scientists earned their Ph.D.’s, and place, indicated by the type of university in which they now worked. The rationale for utilizing these dimensions was to situate careers temporally and contextually in order to see how the experience of work and perceptions of careers vary.

On the time dimension, scientists were sampled and grouped by three cohorts: scientists who received their Ph.D.’s after 1980 which, at the time of the interviews, placed the subjects in early career phases; scientists who received their Ph.D.’s between 1970 and 1980, which drew upon scientists in middle phases of their careers; and finally scientists who received their Ph.D.’s prior to 1970, which captured scientists in late career phases. Hence, temporally, the design operationalized a study of scientists at early, middle, and late career.
On the place dimension, scientists were sampled at a range of university types. The rationale was to maximize the types of academic environments in which scientists work, and to thereby be inclusive of the types of careers found in academic science. The universities, which form a representative continuum, consist of those stressing research in the presence of teaching and other roles, which were termed elite. Examples include Harvard University, Cal Tech, and the University of California-Berkeley. Institutions that stress research and teaching as well as other roles were termed pluralist. Examples include the University of Kansas, the University of Missouri, and Purdue University. Institutions that stress teaching in the presence of research and other roles were termed communitarian. Examples include the University of Tulsa, the University of Louisville, and the University of Toledo.

The design of the study is captured in Table 1. The number of respondents are arrayed by cohort and by the type of institution in which they worked. The full results of this study and broader discussion appear in The Stars Are Not Enough: Scientists—Their Passions and Professions (Hermanowicz 1998).

In this baseline work, the subjects discussed their evolving careers, including their past and hoped-for future. In these respects the work constituted a cross-sectional design in which temporality arose by two means: by the three cohorts employed in the design, which enabled a study of meanings assigned to experiences by career phase, and by interview questions that sought data on retrospective and prospective perceptions. This type of design, where retrospection and prospection form key components of cross-sectional data collection, is a standard of life history research (Scott and Alwin 1998).

I interviewed 55 of the same scientists again in 2004–2005, creating a longitudinal design from which to study how academics, working in a variety of institutions, age in relation to their work. Up to this point, no prior study of the academic profession had followed the same people over time. A unique opportunity was thus created to study the experience, meaning, and interpretation of work in one of the main professions in modern society (Ben-David 1972; Gustin 1973). The 10-year time interval is conceptually significant for the specific occupation studied: it advances the subjects into a subsequent career phase. Consequently, the sequel allowed one to see how academics’ perceptions of work evolve with felt costs and rewards, from early to mid career, from mid to late career, and from late to post career, including the stage of retirement and exit from the career.

In the follow-up work, age and institutional location provide the structure to analyze individual, subjective careers through diachronic change. Diachronic refers to change between successive points in time. Longitudinal data add spatial and temporal dimensions to synchronic study. Synchronic refers to characteristics and conditions existing at one point in time. In moving from a synchronic to a diachronic perspective, we are consequently in a position to answer the following research questions that were central to the longitudinal study:

- How do academics account for the unfolding of their careers in light of the goals and aspirations that socially situate their profession?
- What continuities and changes—in aspiration, satisfaction, motivation, commitment, and identification with work—mark the careers of academics?
- What knowledge have academics acquired about themselves, their institutions, and the academic profession in 10 years?
- How does this knowledge vary by individual age and type of university?

Table 2 illustrates the evolved design guiding the research in the longitudinal study. Time and
Table 2  Research design of longitudinal study, by type of institution and cohort

<table>
<thead>
<tr>
<th>Cohort/career phase</th>
<th>Elite</th>
<th>Pluralist</th>
<th>Communitarian</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early to mid</td>
<td>8</td>
<td>6</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>Mid to late</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Late to post</td>
<td>9</td>
<td>5</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>15</td>
<td>17</td>
<td>55</td>
</tr>
</tbody>
</table>

place remain key analytic dimensions, but diachronic analysis is added to what was previously synchronic study. Thus in the follow-up work, time is captured as it was in the baseline work by differences in cohort meanings and by retrospection and prospection, but also by change from one point in time to another. The full results and broader discussion of the longitudinal study appear in *Lives in Science: How Institutions Affect Academic Careers* (Hermanowicz 2009).

Professors from one academic field—physics—composed the studies, but the results are not limited to them. I discuss issues of generalizability elsewhere (Hermanowicz 2009, 252–268). Physicists were selected because in the wider culture they are perceived to embody the scientific discipline *par excellence*. They possess a recognizable genealogy of immortals, such as Kepler, Newton, and Einstein, who promote a heroism and define a paradigmatic life course. Thus if one is interested in seeing how academic aspirations develop and evolve and how careers play out over time, particularly against the backdrop of a field that imposes a paradigmatic template on the passage of time, the field of physics made for an ideal setting.

By virtue of the research designs in both the baseline and longitudinal work, emphasis is placed on inter- and intra-cohort variation and on context, ideas central to life course analysis as discussed in the prior section of the chapter. The incorporation of cohorts allow for a view and treatment of aging in a career as variable, not monolithic or universal to stages. The incorporation of contexts, indicated by the different institutions in which the subjects have worked, opens a way in which to examine how they operate as constituent forces of, as opposed to merely settings for, development. Clearly not all careers in a field are of one kind, nor are people exposed to the same opportunities and constraints in their occupational (and personal) lives. As analytic resources, cohort and context—time and place—are utilized in these studies, as they may elsewhere, to socially situate the study of developmental change.

3  Conditions of Longitudinal Qualitative Research

We may proceed by posing the question, “How does one do longitudinal qualitative research?” There are three clusters of issues that, in tandem, uniquely situate longitudinal qualitative research, whether involving interviews, observation, case study methods, or other approaches, and which consequently one must take into account when undertaking this type of research in its variety of forms. These issues encompass matters that arise and range in time from the inception of a study to the dissemination of findings. They include: issues of design, execution, and analysis.

3.1  Issues of Design

Three main issues pertain to the design of longitudinal qualitative research: *origination*, which refers to the point at which longitudinal inquiry is conceived; *number and frequency*, which involves the points of contact with research subjects or the setting under study; and *protocol format*, which is key to the use of interviews in longitudinal qualitative research. Each are discussed in turn.

3.1.1  Origination

Longitudinal qualitative research may proceed from two different starting points. It may be

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factored into the design at the outset of a study, where researchers anticipate and plan in advance the use of serial contact. Alternatively, longitudinal qualitative research may be formulated into a design after a study has been completed, when the research is conducive to longitudinal formulation and where the benefits of such work are likely large.

Armstrong and Hamilton's (2013), *Paying for the Party: How College Maintains Inequality*, exemplifies the former approach. That is, the researchers sought at the outset of their work to follow their subjects, who were women college students at a major public university in the United States. The goal of the work was to understand contemporary college culture and its variable influence on the practices, goals, and aspirations of female undergraduates. The researchers studied their sample through a combination of observational and interview work over the course of 5 years. In the first year, alternating members of a research team took turns occupying a room in one of the university’s dormitories, which enabled observational work through varied hours of the day. Following the year of observational study, interviews were conducted serially, across the remaining college years and then shortly after college, with a large subset of the 53 women who had lived on the residence hall floor. Armstrong and Hamilton note that the initial year of observational work enabled rapport, which facilitated students’ subsequent cooperation in interviews that yielded high rates of response.

Many of the final interviews were conducted around the country as students fanned out from the university to find and take jobs. A portion of these interviews were conducted face-to-face, others via telephone owing to travel and budget constraints. Telephone contact is often not the method of choice in semi-structured interviews because it can compromise rapport and data quality (Hermanowicz 2002). Armstrong and Hamilton noted that telephone interviews, in this instance, went relatively unhampered given the rapport that had already been established over the prior years of contact with the subjects. In ways that may seem ironic, then, longitudinal qualitative research might introduce a degree of latitude and flexibility in some data gathering by virtue of established relationships that, by turn, are not brought about in cross-sectional inquiry.

In sharp contrast, the baseline study of scientists was conceived and completed in the absence of entertaining a possibility of longitudinal work. The subsequent discovery that such an undertaking would be the first longitudinal study of the academic profession suggested that this might be a profitable new way to examine careers. I began contacting respondents of the original sample in Spring, 2004. I did so by sending them a letter, which for illustration is presented in Fig. 1 (see also Hermanowicz 2009, appendix B). Indicative of the task of contacting respondents after an elapsed period of time and in which there was no indication at the first point of contact that they would be solicited again, the letter sought to accomplish several objectives. It attempted to place the longitudinal study in context by reminding the respondents of their previous participation in the foundational work. It explained what the longitudinal study would seek to accomplish. It informed them about what their continued participation would involve (i.e., the basic subject matter of the interview, the estimated interview length, where interviews would be held, and the like). Finally, the letter made clear some procedures (e.g., the use of a recorder to retain data) and rights of and assurances to the respondents (e.g., voluntariness, anonymity, the use of a human subjects review).

After approximately 10 days from sending the letter, I contacted the respondents by telephone. At this time, I re-introduced myself and the study, asked if they had questions, and attempted to schedule interviews. Any success of the longitudinal study hinged, of course, on respondents electing to participate again in the follow-up work. In this simple regard, as is true in much longitudinal research in which the same subjects are studied, the stakes were high for the ways in which communication was handled with the respondents. The procedures described above generated a response rate of 93%. (This rate of response also generated a sense of relief for the researcher, in that it meant the work could go forward, and a project could proceed into fruition).
Sample Re-Contact Letter, Study of Scientists' Careers

April 7, 2004

Dr. _____________________
Department of Physics

Dear Professor __________:

It has been 10 years since we met. In 1994, I interviewed you for a study of careers in science. Funded by the National Science Foundation, and conducted under the auspices of the University of Chicago, that study explored scientists' aspirations and identities related to their work. The study was based on interviews with scientists across the United States. As the principal investigator of that study, I know very well that you formed a critical part of the sample, and I remember very well how much your participation contributed to the work.

I write to ask for your help. A 10-year follow-up study is being conducted entitled “Lives of Learning: Continuity and Change in Science Careers.” The study design calls for interviewing the same participants who composed the original work. This is both substantively and historically significant: the study will be the first of its kind to follow professors in their careers. It therefore holds real potential to generate important findings about how careers are experienced and understood by scientists themselves. The study presents the unique opportunity for you as a scientist to convey knowledge about careers and science acquired over the years of your extensive experience in physics.

Your participation would involve an interview, conducted again by myself, that would last approximately an hour. As before, interviews would customarily take place in your office, and I would meet you at an agreed upon time. (If you happen to be one of the several scientists in the sample who has retired, we would make alternative meeting arrangements as necessary and as agreeable to you.) The interview would consist generally of questions about changes and continuities in your career over the past 10 years. Like before, the interview would normally be tape-recorded simply to keep accurate track of information, and subsequently the tape would be destroyed once the study is completed. Participation and all interview material will be strictly confidential. Both personal and institutional identities will be concealed in published work, following standard conventions of work of this kind. Participation is voluntary. Nevertheless, I very much hope you can participate; the success of the work depends on you. All aspects of this project have passed the usual human subjects reviews at the University of Georgia.

I will call you shortly to invite your participation and answer any questions you might have. Please know how greatly I appreciate your time and help with this request.

Yours sincerely,

Joseph C. Hermanowicz
Assistant Professor

Fig. 1 Sample re-contact letter, study of scientists' careers
An implication posed by origination involves opportunity. Many opportunities have been missed by failing to see how once cross-sectional studies may be adapted for longitudinal inquiry. Might we have imagined The Social Order of the Slum (Suttles 1968), Habits of the Heart (Bellah et al. 1985), or Coming of Age in New Jersey (Moffatt 1989) 10, 15, or 20 years later? It is not an exaggeration to assert that many, if not most, cross-sectional qualitative studies have been and are amenable to longitudinal work, and that the introduction of diachronic analysis to these studies would altogether change, in a powerful and robust way, the face of social science research.

Where opportunity was seized and longitudinal work accomplished, a different implication arises: what may call emergence. In qualitative work, meaning and significance of data emerges over time as researchers grapple with formulating interpretation. This is true in both cross-sectional and longitudinal work. In longitudinal research, however, more time is introduced for ideas to emerge. Specific research emphases, questions, and themes may change over time. In my baseline study of scientists, the research emphasized "ambition" and its role in constructing careers, whereas the longitudinal study emphasized aging and adaptation to work. In the baseline study, "acceleration" and "deceleration" were the major themes in interpreting interview data, whereas in the longitudinal study they were "continuity" and "change." Thus the baseline study could not have anticipated, or grappled theoretically, with the changed outlooks that prove to mark many careers years later. A conceptual re-tooling was necessary in order to understand lives diachronically. Such change is illustrated in the account provided by a respondent who had passed from early to mid career phases:

I would say...my research career, ten years ago, was at a peak. I was working with two or three graduate students continuously and two or three post-docs continuously...My attitudes about the job, about me, and about the university have undergone tremendous changes in the last ten years. I've gone from having a fairly large amount of [grant] money, especially for the stage of my career, to having my name on a grant, but not taking any money out of it at all. I'm not sure I want to even submit things to published journals anymore...I'm disgusted by the whole thing...I got tired of getting referee reports [on manuscripts submitted to journals for peer review] that spend a page talking about the bibliography; they were entirely concerned with whether I cited their work or their friends' work, and they hadn't read the paper. I got to the point where at [national] meetings I was telling people, 'Please don't reference my paper, if you don't read it, don't reference it.' It's a game to so many people, and there are many fools. I didn't do this [go into an academic career] to deal with fools. They don't understand basic things...I went from not having tenure to slowly being delighted with tenure because I can do the right thing...There are more important things in life than getting grants from the National Science Foundation, getting Nobel Prizes even or any of that stuff. That's all just a game. I'm interested in solving problems...I am at a crossroad.

Interviewer: Do you see yourself getting back to research?
Respondent: If you mean publishing papers and going to conferences and advising graduate students, no I don't...What do I care for refereed publications?...I'm not angry about it anymore, I just don't care about it...
Interviewer: How would you complete the sentence, 'I am more X and less Y compared to a decade ago'?
Respondent: I would like to say I am wiser and I am less naïve. But it could be just the opposite as far as I know. I really am in a very transitional stage. I'm questioning whether I want to be in physics. I've gone a little bit even beyond that. I'm thinking I probably will not stay in professional physics. I want to do something very different. (Hermanowicz 2009, 105-106)

Because people change over time, newly posed research questions, ideas and themes emerge to grapple analytically with the qualitative complexity in the data. Themes of acceleration and deceleration as initially used are not suitable for an accounting of data 10 years later that speak, for example, of disengagement, frustration, and even exit. This reality imposes significant limitations on the extent to which longitudinal qualitative research can be designed at the outset as fully operational. By circumstance alone, designs will change in such work, and even the best-planned project will not, at the outset, be able to anticipate and accommodate what arises subsequently as newly emphasized areas of interest.
The intensity of emergence as a factor in the research process likely increases as the time interval increases between episodes of data collection. While emergence is always a condition of qualitative work, and while it was by their own accounting a feature in Armstrong and Hamilton’s college student study, one can surmise it would figure even more prominently had their interviews been separated by greater lengths of time, giving the objects of interest time to change all that more substantially. Even when their subjects were studied over consecutive years, the researchers state that “Although we followed a general interview schedule each year…the flow of a typical interview was highly informal,” indicating that change over time required a flexibility in the researchers to adapt their focus (Armstrong and Hamilton 2013, 271). In these respects, one can see why emergence figures prominently in those studies, such as the ones of scientists’, where the time between contact is that much greater.

3.1.2 Number and Frequency
Number refers to the total amount of research episodes, frequency to the periodicity at which they occur. The number and frequency of serial episodes that compose a longitudinal study will depend on how a given research problem is posed, and will thus vary from study to study. Another way of stating this consideration is via the question of how much time should pass before a subsequent round of data are collected (Saldana 2003). The answer is that it should be an amount of time sufficient to examine relevant change from one point to another.

In the follow-up study of scientists, a 10 year interval was used for just a second point of contact. The 10-year interval had both practical and theoretic importance. Practically, the 10-year mark represented a point at which the greatest number of respondents from the original sample would have been available for longitudinal study. A longer time interval would have posed risk of involuntary attrition; one of the respondents had already passed away, others would of course follow in time. A shorter time interval would not have accomplished the work’s theoretic objective—to study aging and adaptation in work. A sufficient amount of time needed to pass in order to track change and continuity in the respondents professional and personal lives.

Theoretically, 10 years of time accomplished a major outcome: it placed all of the original respondents at different phases of their careers. Because the respondents were originally sampled at early, middle, and late career phases, the 10-year interval advanced all of them into the next set of three parallel phases, enabling longitudinal work to capture how people make transitions throughout a career. In using this specific time interval, data combined from the two studies enabled a consideration of careers that spanned from their beginning, for members of the youngest cohort, to their end, for members of the eldest cohort.

Other research problems, however, present different time considerations. It studying how college culture conditions behavior, attitudes, and aspirations, it was incumbent upon Armstrong and Hamilton (2013) to identify and begin studying their respondents upon college entry and then revisit them across and shortly after the college years, thus creating four waves of contact beyond the initial year of research. Electing to study the students at the beginning and then only at the end of college (i.e., two total points of contact) would in all likelihood have obscured numerous qualitative details necessary to understand variability in identity formation. What is more, another option remains in play: whether to continue following the subjects, and if so, with what frequency, as they navigate the worlds of employment and eventually marriage and family, in order to draw longer arcs of influence between college and adult life. Recalling the discussion above, the option presents an exciting theoretic opportunity in sociological research.

Still other studies illustrate the permutations in the number and frequency of research episodes in longitudinal work. In medical studies with patients, the time interval may be relatively short, and the number of iterations of contact relatively large. In their studies of people with chronic illnesses, Murray et al. (2009) used 3 month intervals to study patients with lung cancer, but 6 month intervals to study patients with
obstructive pulmonary disease, which develops less quickly. Corden and Nice (2007) tracked individuals who participated in employment programs on their journey to employment. The determination of time intervals depended on specific events occurring in respondents’ lives, which did not occur at the same rate. The timing of serial contact was contingent upon an event sequence in the research subjects’ varied lives in order to establish appropriate parameters in which to assess change.

In studies such as Shaw’s (1930) portrayal of Stanley, the delinquent boy whose life story comprises the illustrious sociological work *The Jack-Roller*, subjects may need to be interviewed multiple times in a given iteration. Through interviewing and diary techniques, Shaw obtained data on nearly all facets of Stanley’s life: his perceptions about criminal involvement, street life, schooling, work, friends, and courtship. But to do so, Shaw had to meet up and work with Stanley many times for each iteration of study across the 6 years that Shaw followed him. Wide-ranging data on people’s lives obtained at numerous points will often compel a multiplicity of research visits. Time intervals vary from one type of group to another, but nevertheless must be considered to design longitudinal inquiry with a theoretic logic.

### 3.1.3 Protocol Format

When interviews are a chief form of data collection in longitudinal qualitative research, origination, discussed previously, affects the design of protocols. Longitudinal qualitative research designed *in advance* lends itself to protocols containing identical questions posed to respondents at different times in order to assess change. But longitudinal qualitative research, unlike much longitudinal quantitative research, is not restricted to the use of identical questions. We again note Armstrong and Hamilton (2013) whose longitudinal study of college students was projected and well-planned, but whose serial interviews evolved, even across the span of 4 years, such that questions changed from one interview episode to another. What is more, longitudinal qualitative research designed *after* an initial investigation is *even less* likely to avail itself to identical protocols; instead the questions at subsequent contact are likely different.

The issue presents two means by which to structure interview protocols that undergird longitudinal qualitative work. One consists of posing the *same questions* on the *same themes*. The second consists of posing *different questions* on *selected same and newly emergent themes*. The first means is perhaps more recognizable because it parallels quantitative longitudinal design (Menard 2002; Ruspini 2002; Scott and Alwin 1998). The second means is not found readily in quantitative longitudinal design; it is a strength of qualitative study. It arises in large part because lives change and qualitative methods are attuned to emergence, discussed under “origination,” wherein the researcher strives to best characterize thematic patterns in development.

In the study of scientists, a preponderance of new questions were used in the longitudinal work. (To compare the longitudinal and baseline interview protocols, see Hermanowicz 2009, appendix A and D.) Many of the questions asked of scientists in the baseline study were time-bound. Consider the following: “How did you come to arrive at this university?” or “What aspirations did you have as a graduate student?” or “You were a graduate student at ______. Is this the type of university where you wanted to end up?” These types of questions had low utility value in being asked again in longitudinal work. Instead in the longitudinal work, one sees questions such as: “In light of the past 10 years, what are your current aspirations?” or “Looking back over the past 10 years, has your career progressed as you expected?” or “If you were starting all over again, what would you do differently, knowing what you know now about your line of work?”

How does one think about comparison of data when different interview questions are posed between research episodes? The *conditions* of research subjects are established from base round data, which may include an account of the setting in which the subjects operate, usually through heavy contextualization. Both qualitative and quantitative evidence may be used to establish and inquire about these conditions, as often found in ethnographic work (e.g., Suttles 1968).
Longitudinal work is then used to examine change, not against responses to identical questions, but against the themes that emerged to characterize the conditions of people and their social settings.

Shaw (1930) did not ask Stanley identical questions serially. Instead, Shaw crafted characterizations of Stanley’s condition, in conjunction with his milieu, which were then compared and contrasted with characterizations of Stanley at subsequent points in time.

In this format, questions do not in and of themselves serve as the baseline of comparison, but rather characterizations of people and their situations. Perceptions of crime, work, and courtship, for example, are compared across time, not specific questions about crime, work, or courtship.

This logic is made still more evident when researchers change the method of data collection among episodes of research. Armstrong and Hamilton (2013) began by collecting observational data, and then proceeded in all of their subsequent research rounds to semi-structured interviewing. Likewise Lareau (2011) conducted her baseline study through mainly observational work, but in the longitudinal study switched to interviews. It is noteworthy that such flexibility of method is possible in qualitative research designs. It also reinforces the understanding that qualitative researchers undertaking longitudinal work typically craft characterizations and themes to represent the conditions of their subjects at given points in time in order to spell out continuities and changes across time. The result is often a vivid depiction of how lives unfold.

### 3.2 Issues of Execution

Three sets of issues especially situate the execution of longitudinal qualitative research: attrition and retention, or the capacity to keep original subjects in subsequent research rounds; respondent reaction, which bears on rapport, relationships, and continuing access to research subjects, and; ethics, which involve moral considerations in re-contacting and researching the same people over time.

#### 3.2.1 Attrition and Retention

Because samples in qualitative studies tend to be comparatively small, subject attrition is an especially prominent consideration in longitudinal qualitative work. In those studies where longitudinal inquiry is designed in advance, it is likely advantageous to factor attrition into the size of the sample as part of the study design. Thus, in such designs, comparatively small samples will become larger by necessity. In all longitudinal studies, whether implemented in advance of or after initial study, thought ought to be given to the care of respondents, not only to enhance the quality of data collected but also to promote subject retention.

I relied exclusively on the rapport established with my scientist respondents 10 years prior to the follow-up contact. Careful and considered framing of written correspondence at the time of follow-up (see Fig. 1) further aided subject retention, including explicit explanation that the success of the work depended crucially on subjects’ continued participation, all while also having to make clear that such participation was voluntary. In addition, thought and care should be given to correspondence immediately following contact, such as in the use of thank you letters. Thank you letters should always be sent to participants in a research study when their identities and addresses are known to the researcher. These letters should have personalized salutations (i.e., not “Dear Research Participant…”), their wording and content should reflect genuine (not perfunctory) gratitude, conveying in essence that, were it not for them, there would be no work to be writing about. Such letters might be handwritten as an extended note or on a card; they also can be typed, as were mine, owing mostly to the illegibility of my penmanship. I strongly support mailing such correspondence, not sending it electronically. Taking time to send thankful messages received by mail are more demonstrative of the gratitude they intend to convey. (It is fine, for example, to include one’s email address and/or telephone number in the thank you message for purposes of continued contact should respondents desire to be in touch. What is more, I negotiated with my university’s human subjects office that their
Thank you Letter, Study of Scientists’ Careers

May 15, 2004

Dr. ------------------
Department of Physics
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Dear Professor --

Having recently completed our interview, I want to take the opportunity to thank you for all your help. You are most kind and gracious not only in your time, but most especially with your insight about careers in science, and your capacity to communicate some of the meaningful aspects of your life in physics. This means more to me, and to the work it forms, than I can tell.

If you have any questions or want to get in touch with me, you should feel free to do so at any time. My departmental address and telephone number are on this letterhead, and my e-mail address is: jch1@uga.edu.

As you know, this project has passed customary human subjects reviews. Should you have any questions regarding your rights as a research participant, you may contact me or --

----------, Human Subjects Office, University of Georgia, 606A Boyd Graduate Studies Research Center, Athens, GA 30602-7411; Tel: (706) ----------; E-mail: ----------.

Please accept my many thanks for all the help you have given, and my very best wishes for the months and years to come.

Yours sincerely,

Joseph C. Hermanowicz
Assistant Professor

Fig. 2 Thank you letter, study of scientists’ careers

Contact information be included in the thank you letter, since (1) it had to be communicated to the research subjects somehow; (2) this format was less invasive and disruptive to the organic flow of exchange that I sought to establish at the time of the interviews, and; (3) the particular study contained risks that were low so that a rationale could be made in providing this information after contact with subjects. Other studies, involving other types of risks, will, of course, warrant different procedures in communicating the human subjects information that is essential to transmit to research participants.) As an example, I have included the thank you letter I used in the longitudinal study of scientists; it appears in Fig. 2 (see also Hermanowicz 2009, appendix C).

It is likely that ancillary characteristics of the subjects aided retention in my study. In this case, the subjects’ lives were oriented to research and teaching, and thus broadly to helping and informing others. This occupational characteristic may have conditioned the subjects’ proclivity to assist someone whose own work depended on their involvement.

Other types of studies using different types of participants may not be ordered on such auspicious grounds. Researchers may consider sending birthday cards and holiday notes to
participants, and messages of congratulation on celebratory occasions, such as weddings and births, and messages of condolence in occasions of grief or stress. In her study of families and childrearing, Lareau (2011, 313) notes that she sent holiday cards to the children in the families she studied with a five dollar bill tucked inside. These practices likely help to maintain rapport and cooperation with respondents. These types of practices may carry the further consequence of preserving, if not deepening, relationships such that participants at times of follow-up feel a warmth, security, and openness with a researcher.

In other instances it may be difficult to locate former participants, particularly when a long period of time has elapsed between episodes of contact. This was the case for Laub and Sampson (2003) who attempted to locate and contact male offenders last studied by a different team of researchers decades earlier. The last addresses for the men were 35 years old, few of them had telephone numbers in their case files, and only about 1 in 20 had established a social security number, which otherwise is a key means of tracking people in modern databases (Laub and Sampson 2003, 62). They proceeded by undertaking criminal records searches through both the state of Massachusetts (where the offenders were last located) and the Federal Bureau of Investigation for national records, a process that itself took 18 months, but which yielded information on the vast majority of their sample. In addition, they conducted death record searches through state and federal registries as well as searches through the Boston Globe, the newspaper most likely to have published death notices for these particular men. Still other resources were utilized: telephone directories (paper and electronic), motor vehicle searches, voter lists, and, as a last resort, even the Cold Case Squad of the Boston Police Department. These efforts, extensive and time-consuming, yielded a locate rate of 79 % (Laub and Sampson 2003, 72).

In quantitative designs replacement of missing subjects is a customary practice. The technique may be less feasible in qualitative research; there is little in the way of precedent in accounting for the possibility in the research literature. Two issues are readily apparent. First, the success of replacement is contingent on the number and frequency of research episodes. Replacement may be more feasible when the number and frequency of points of contact is relatively high, though this, too, will depend on the specific research problem. College students under study who come into contact with researchers regularly may be more readily substituted in the event of attrition than career criminals who come into contact with researchers decades apart. In the former instance, key data may be more readily “brought current” by new participants, whereas in the later instance more time has elapsed for data to be comparable across cases. Second, the success of qualitative work is contingent on contextualization. Even if replacements can be matched approximately with the characteristics of lost cases (the procedure followed in quantitative panel studies), the individual narrative will still differ between the case lost and added. Thus, in qualitative work, replacement would only seem feasible when the subsequent number and frequency of points of contact would allow for sufficient intra-comparison of the substituted case over time.

3.2.2 Respondent Reaction
An issue that can interfere with subject retention at its extremes and with their cooperation at its minimum involves the reactions that respondents have to prior findings from the research in which they have participated. The researcher finds him or herself confronted by strong emotions. Respondents may express negative views about the research. They may be offended by particular interpretations or representations of themselves or others. Some may object to particular conclusions. The feelings arise for various reasons: in a researcher’s decision not to reveal plans to publish a piece of work in which subjects are portrayed; in a researcher’s decision to conceal information that subjects believe is important (Lareau 2011); in feeling “used” by a researcher (ten Have 2004); and even in having to leave the field and conclude relationships (Reiss 2005).

From her study of mental illness in rural Ireland, Schepers-Hughes (2000) recounts how the work was promptly made a classic of
anthropology yet simultaneously criticized in the Irish press as an extreme breach of privacy. Her return years later to the village in which she completed the original work resulted in her expulsion. Ellis (1995) tells the tale of the remote fishing communities she studied, where upon her return, residents reacted angrily toward her prior work. From his study of street life, Whyte (1996) reported tense reaction by community members to Street Corner Society. Studying class-based parenting patterns, Lareau (2011) reported highly negative responses from several participants, which damaged relationships in some instances and ended others altogether.

One might conclude that a way around this potential dilemma is to decide not to share the published work with participants. This is a possibility, but it does not address fully the issue of informing respondents what will come of the research. Such disclosure—the explicit statement that the researcher intends to publish work based on the research while protecting the anonymity of participants—is often treated as an ethical condition of conducting the work. Nor is a solution necessarily found in giving respondents pre-published work and amending it for publication according to respondent wishes. This is a version of the practice of "respondent validation," wherein participants are given pieces of writing to affirm or disconfirm the validity of written material and/or to establish the veracity of particular points. The less standard practice of enlisting participants to edit, re-write, or change representation presents perhaps more problems than it resolves. Publication goals of researchers and requirements of publishers for content and style will often diverge from the desires of participants. What is more, researchers surrender their license and mandate as trained professionals while bestowing "expertise" upon others far outside the researcher's community of professional peer-judges.

Scrutinizing her own experience, Lareau (2011) concluded that there is not an easy solution to this pitfall. By her account, one must clearly inform participants at the outset of their participation about the goals of the work, including its publication plans. Rather than furnish participants with an eventual copy of the publication, she advocates instead devising an informative brochure that identifies key points, themes, and conclusions. A letter summarizing results, perhaps including charts and tables, may also be utilized. In this way, the researcher fulfills any obligation to inform participants of results while also creating an opportunity for feedback in a way that protects both the role of the researched and that of the researcher.

Even this approach has limitations. Some participants, in some studies, will be curious enough to find their rightful way to the more complete work. The internet and ready access to it via cellular telephones and mobile devices makes this especially feasible. Studies have yet to document this occurrence and any consequences for the research. Following Lareau, letters and brochures could include statements that "channel" more inquisitive subjects to fuller accounts and to thereby guard against subjects routing themselves to less responsibly gathered or less informed documents that litter various media. In addition, researchers can always make themselves available out of the field via mail or phone to questions from research subjects, and defuse potentially volatile situations (and the possibility of attrition) by personalized communication regarding facets of the work that prove to generate continued interest in participants. In fact, providing contact information to research subjects is a customary, and often mandatory, procedure. Such exchange can benefit all parties: the research subject, who has questions or concerns addressed if not always resolved, and the researcher, who may use feedback to hone analyses, interpretations, or conclusions (Rupp and Taylor 2011).

Upon publication of the baseline study, I sent participants a letter describing the outcome of the work and where the results were published. In returning to the field for the longitudinal study, one of my interviewees took umbrage at the prior publication. That this had occurred 10 years earlier conveys the depth of the respondent's sentiment. The respondent disputed a specific way in which I had constructed a set of tables (in which he had been able to infer that he was treated as an outlier and excluded from selected computations).
I attempted to explain at the interview the distortions that would arise were this procedure not followed. I explained that, under the specific conditions, this was a standard methodological procedure in my field and practiced widely by others.

I had allotted 2 h for our interview; despite my efforts to address the matter and dispense with it, the discussion consumed 40 min of our time. The respondent, a highly accomplished researcher and teacher, said angrily that he expected me to change the data presentation and if I did not do so, he would consider the present interview a "waste of his time," "unfair," a "discredit to his university," and would not participate in an interview with me again. I told him that I would confer with my colleagues upon my return home. But my responses and gestures were to no avail. A pall clouded the entire meeting. The interview was irreparably marred by the respondent's opening hostility; it proceeded perfunctorily, and ended sooner than it should have.

In the thank you letter I subsequently sent to this respondent, I might have tailored it to further acknowledge his concerns. But I also knew that I would be unable to accept his conditions and that the change he requested would not be made in the longitudinal work. I elected not to "blow air over a smoldering fire." This type of experience occurred only once across 55 respondents. But it was surely memorable. I came to the conclusion, however, that I had done all I could, that the respondent had been treated ethically and properly, and that I was simply paying a price for conducting this type of work.

3.2.3 Ethics

Because by its definition longitudinal qualitative research depends on respondents' continued participation, the research tools utilized in follow-up work may be especially susceptible to problems in the power dynamics between the researcher and the researched. The researcher anticipates in conducting such work that the scholarly pay-off can be large, particularly as this family of methods remains novel. Incentives to complete such work successfully can therefore be substantial. Longitudinal researchers must be recurrently and deliberately vigilant in how they go about their recruitment and re-recruitment of subjects. As in all research, financial incentives may be sometimes used to constitute samples, but they must be used only as long as the incentives are neither coercive nor binding. That is, all respondents, regardless of any incentive, must voluntarily choose to participate in any and in each successive round of longitudinal research, and their right to withdraw at any time without prejudice to them must be communicated clearly by researchers.

To create and maintain ethical standards of longitudinal research, it should be incumbent upon authors to account in their published work for their research and field procedures. This is notably lacking in much of the published work to-date. Researchers should be able to live up before a community of their professional peers to an accounting and justification of the procedures they followed in handling human subjects and collecting data just as they are expected to account and justify their data analysis, interpretation, research conclusions, and pertinent policy insights or recommendations. By the same token, professional peer reviewers, of article and book manuscripts and of grants proposing longitudinal research, should insist on accounts from authors who can state clearly the procedures followed or to be followed in a piece of work. Such guidelines, for producers and for gate-keepers of longitudinal qualitative research, will help to sustain an ethic for this type of work. The many considerations discussed above, in attempting to prevent subject attrition, in managing respondent reactions, and in working with research subjects ethically, inform the special dynamics that come into play in entering, leaving, and re-entering the field in longitudinal qualitative research (cf. Ellis 1995; Gallmeier 1991; Lawton 2001; Reiss 2005).

3.3 Issues of Analysis

Two predominant ways of analyzing longitudinal qualitative data characterize this type of work. In the first, what may be called an iterative mode of
analysis, a researcher emphasizes the characteristics and conditions of subjects at multiple points of contact. In the second, what may be called a summative mode of analysis, a researcher emphasizes the net characteristics and conditions of subjects seen to be produced over time. Each mode contains elements of the other. While they are not mutually exclusive, the modes stress different temporal avenues along which to see and study subjects.

3.3.1 Iterative Mode
An iterative mode of analyzing longitudinal qualitative data emphasizes the representation and portrayal of the objects of research at each of the points they are studied. Hence if data on a sampling of people were collected over five episodes, there might be five studies, or five renderings in a single study, each presenting and analyzing data for the corresponding and preceding iterations of research. Here, too, however, the researcher confronts important choices.

Data at time 1 + time x can be analyzed both cross-sectionally and longitudinally. The data can be analyzed in comparison to time 1 or to any intervening time period where data has been collected. In other words, even in the context of longitudinal design, data may be subject to analysis synchronically and/or diachronically. This presents significant conceptual and analytic challenges. To contend with this situation in my longitudinal study of scientists, I formulated tables to characterize for readers the career conditions obtaining when I first interviewed my subjects. I then used results generated by the longitudinal data to compare characterizations of careers, both among respondents at time 2 (synchronous analysis) and with respondents between times 2 and 1 (diachronic analysis). Thus, in the longitudinal work, one table presents "Early Career Patterns" as established by the baseline study and another table presents "Early- to Mid-Career Patterns" as established by the longitudinal data, and likewise for respondents at all other stages in their careers. This arguably helped to eliminate any need for readers to have read or been familiar with the first study in order to understand the second. For illustration on how such tables and narrative summaries can be crafted, see Hermanowicz (2009, tables 21, 22, 24, 25, 27, 28).

To analyze the scientists’ accounts, specific codes were often adopted to mirror the subjects of the interview questions. For example, "Do you think you are working harder, less hard, or about as hard as you were 10 years ago?" Responses were coded using the same response categories offered in the question. "In learning what you have about academic careers, would you go into an academic career if you were starting all over again?" Responses were coded affirmatively or negatively, and a probe question was analyzed for the explanation provided in the response, using codes such as "funding," "difficulty," "lack of reward," and "freedom."

In coding and analyzing the longitudinal data, I paid particular attention to how responses coalesced around themes of consistency and change. Following Saldana (2003, 64), I employed a variety of conceptual and thematic questions to help situate data analysis, including:

1. What increases or emerges through time?
2. What is cumulative through time?
3. What kinds of surges occur through time?
4. What decreases or ceases through time?
5. What remains constant or consistent through time?
6. What is idiosyncratic through time?
7. What is missing through time?
8. Which changes interrelate through time?
9. What are participant or conceptual rhythms through time?
10. What is the characterization of across time experience, and how do characterizations differ by sub-groups of the sample?

My intent was to formulate understandings of respondents’ experiences and to derive substantive comparisons and contrasts with respect to the key dimensions of the research design: the institutional contexts in which scientists worked and their career stages. This allowed me to address the guiding question of how scientists age in their work environments. Thus we are placed in a
position to compare how cohorts age in organizations. For illustration, we can compare a scientist's account at an elite research university (scientist 1) with that from a more teaching-oriented institution (scientist 2), to trace the effects of institution on the individual. The illustration depicts intra-cohort variation. Both scientists, in the latter-most phases of their careers at the time of the longitudinal interviews, were born at approximately the same time (in the early 1930s) and earned their doctorates in physics a year apart from each other. Their professional careers were spent in one respective institution; they followed significantly different paths:

Scientist 1: I come in usually around 6:00 a.m., 6:30 a.m., and leave about 5:30 p.m., 5:15 p.m. I’m here [at the university] about half the time [of the year]. December was a light travel month because of the holidays. I only went to one foreign country—Sweden. In January, I had a really big load: Taiwan, UK, and Japan, in that order. It would have been nice to have it more continuous. I was supposed to go to Chile but couldn’t fit it in, so it was only a conference call. [Looking ahead], Utah is the first week of the month and from Utah I go to the West Coast—I have a panel review Academy meeting. I have to do some homework for that, get organized. I leave tomorrow. From there, I’m supposed to go to Brazil. When I come back, I have to give a plenary talk at a conference in Florida. Right after that, I go to Arizona. I come back here for three days or two days. I make many trips to New York...If I never wrote another paper, it wouldn’t be so bad. But I know I’m going to write many more, because I have many in the pipeline, things that I’m working on. It’s hard to imagine a time I won’t be doing this. (Hermanowicz 2009, 189)

Scientist 2: ...I had two or three pretty good ideas during the course of my career, and I haven’t had any since. I really don’t keep up with the literature...I think early on, even though I did some fairly decent work, both as a graduate student and in the beginning of my career, I never was satisfied. I always thought that I could have done better or sooner or more. In recent years, I have become content, not only with what I was doing, but also how much. I think this is a reflection of my coming to like myself more.

Interviewer: What worries or concerns would you say you have about your career?
Respondent: None, now. My career as a physicist is over I talk to colleagues occasionally. But they’ve gone on to do other things. The faculty has either retired or has gone on to try to do something else.

Interviewer: ...Since retiring, what do you miss most about your job?
Respondent: Not a hell of a lot.

Interviewer: Is there anything that you miss?
Respondent: No. Not at all. There are very few people that I really enjoy being around, and none of them are my former colleagues. I find them boring. This one guy was a very, is still a good friend. But, you know, I’m around him for fifteen, twenty minutes, and I’m thinking, I’ve got to get away. He rattles on and on about the same old things.

Interviewer: ...What has been the best part of retirement?
Respondent: Doing whatever the hell I want. I can get up and go to the [gym] and work out, or ride my bike [downtown] and have coffee, or even get over to the department—I don’t do that very much anymore. (Hermanowicz 2009, 207)

I utilized an approach to data analysis most often referred to as “constant comparison,” a component of grounded theorizing (Charmaz 1990, 2001; Glaser and Strauss 1967; Strauss and Corbin 1994). In this approach, a researcher simultaneously collects and analyzes data. In the course of doing so, the researcher pursues emergent themes and begins to discover basic social processes in the data. These themes and processes are elaborated, modified, or qualified through further data collection and analysis. In time, the researcher constructs and refines, inductively, abstract conceptual categories that explain and synthesize these themes and processes. The researcher eventually seeks to integrate categories into a meaningful theoretical framework that specifies conditions and consequences of the studied processes (Charmaz 2007; Charmaz and Mitchell 2001).

In constant-comparative analysis, typical, predominant patterns are gleaned from the data. Thus, for example, the accounts from the two scientists directly above are indicative of modal career patterns found among scientists employed at research-oriented versus teaching-oriented universities. The career patterns are differentiated with respect to key categories, derived from analyzing the data comparatively, including: work/family focus, the attribution of place, objects of satisfaction, definition of success, and whether scientists would seek an academic career.
again. Scientists at research-oriented institutions who are in late career phases tend to focus on work as well as leisure, view their institutions as a “haven” for their work, understand research as the principal object of their satisfaction; utilize external audiences to define and characterize their success, and would readily pursue an academic career again were they to start all over. By contrast, scientists at teaching-oriented institutions who are in late career phases tend to focus on just leisure, view their institutions as “places departed” (i.e., from which they have disengaged), understand retirement as the principal object of their satisfaction, utilize internal means to define and characterize their success through self-crafted measures, and would not pursue an academic career again. These are but 5 of 20 analytic categories that arose in the larger work through constant comparison. For the other 15, and for illustration in how analytic categories can by turn be displayed in tabular form, see Hermanowicz (2009, tables 22, 25, 28).

The task then may turn to “deviating cases,” or what others sometimes call “negative cases,” which one can define as those cases departing from the typical found in any given sub-grouping (Charmaz 2001)—instantiations of inter- and intra-cohort variation. Thus, taking the example above, some individuals do not conform to the patterns indicative of scientists in the respective career stages and institutional types. Small subsets of scientists in late career at research-oriented institutions more closely resemble late career scientists in teaching-oriented institutions, and vice versa. An account from a late career scientist at a teaching-oriented institution illustrates a countervailing case:

Without grants, you end up with a nine-month salary, and you have to ask the department chair if you can teach a class during the summer, which takes up your summer. I’ve never taught in the summer. I’ve always been able to fund myself during the summer for the past thirty years. Every month of the summer I’ve been here, I’ve been paid. Not everybody here can say that. There are a lot of people who don’t have money during the summer, so they have to teach a course. (Hermanowicz 2009, 239)

For deviating cases, one can attempt to answer the questions of why and how they have come to depart from the modal pattern. This type of procedure allows the researcher to strengthen assertions and to qualify suggestive conclusions about patterns indicative of groups and sub-groupings in a sample. This analytical strategy serves the goals of discovering and accounting for inter- and intra-cohort differences in development.

To these ends, analysis of qualitative data enables a researcher to arrive at propositions. Owing to the type of data on which they are based, the propositions must be qualified and suggestive such that they are compatible with observations that the data support. Thus, “proposition” may be taken to be a form of “generalization”; the former is more provisional than the latter.

In the longitudinal study of scientists’ careers, I made the goal of deriving propositions an explicit part of my task. I formed propositions from each of the eight sections that composed my concluding chapter, where I brought together the findings about career patterns presented in the preceding chapters. Across the eight sections of the chapter, I derived 30 propositions. To emphasize for the reader, I numbered the propositions where they arose in the concluding chapter and placed the text in italics. For additional summary and simplicity, I created an appendix to the book that listed all of the propositions numerically by topic as they appeared in the concluding chapter. To illustrate the creation and usage of propositions in longitudinal qualitative research, I include 4 of the 30 below, identified with the corresponding topic on careers from which they arose.

On Expectations and the Rhythm of Careers:
Proposition 1: One observes notable reversals in outlook and identification with the career. In broad terms, elites enter mid-career highly satisfied only to end them with ambivalence. Communitarians enter mid-career highly dissatisfied and end them with serenity. In the middle, pluralists start on a “high,” proceed to either a low or moderate level of satisfaction, and conclude on another “high.”
On Anomie and Adaptation:
Proposition 3A: At the end of their careers, elites customarily experience the phenomenon known as anomie. Communitarians and pluralists experience anomie also, but typically in much earlier phases of their careers, when it is possible for scientists in these worlds of science to realize that their career expectations cannot be realized.
Proposition 3B: The incidence and longevity of anomie among elites is greatest because elites are exposed to the greatest potential for rewards.

On Future Cohorts of Scientists and Contexts of Science:
Proposition 30: Increased emphases on research will be accompanied by increased probabilities of anomie throughout the system of higher education.

For the remaining propositions, and a more extended discussion of the contexts in which they can be made, see Hermanowicz (2009, chapter 5 and appendix G).

As can be inferred from the examples, "Propositions" mean that they can be tested in a wider range of subsequent work; they can be explored using a variety of different empirical methods (and not exclusively qualitative ones); they can be pursued by any assortment of interested researchers; they can be mined by different disciplinary and cross-disciplinary perspectives. The goal of formalizing propositions from longitudinal research is a step one can take toward encouraging others to continue the work, to extend and build upon it, and to thereby sharpen the empirical lessons and theoretical tools available in the study of lives through time.

3.3.2 Summative Mode
In a summative mode of analyzing longitudinal qualitative data, a researcher places stress on the net results of having followed subjects over time as opposed to portraying the objects of research at each research episode. Process, change, and development remain central ideas to the given study, but the emphasis is on what is produced by their cumulative effects. In the iterative mode, analysis focuses on variation between and among points in time. By contrast, in the summative mode, analysis focuses on characteristics and conditions that result in variation at a final point in time.

Armstrong and Hamilton, in their study of college women, do not portray them at each point the women are studied, and hence we do not have representations of the students as freshmen, sophomores, juniors, seniors, and college graduates. Instead, the researchers follow their subjects and use the accumulation of data from the five points of contact to formulate a discrete study that includes a set of representations of how college ultimately conditions female students. They found that their subjects possessed different resources, embodied different gender styles, and professed different ideas about the purpose of college. Consequently, the women developed, over the course of the college years, varying orientations that characterized their educational and occupational values. Some were "primed to party," others "cultivated for success," and others still "motivated for mobility" (Armstrong and Hamilton 2013, 38). In turn, these orientations were found to map onto definable pathways through and beyond college: a "party pathway" built for affluent and socially absorbed students; a "professional pathway" fitted to high-aspiring students from privileged families; and a "mobility pathway" designed for the pragmatic and vocationally oriented. The researchers call upon their longitudinal data to capture the processes by which students develop and align themselves with one of these pathways, and the ways by which institutions correspondingly produce inequalities in aspirations and achievements in education and work.

The tables used to codify data in Armstrong and Hamilton's work do not aim to compare and contrast their subjects over time (as depicted in the use of tables indicative of the iterative mode described above). Instead, tables are used primarily to summarize (1) how women come to differ along key dimensions of college experience, and (2) outline characteristics of the pathways and post-collegiate trajectories by which the women become aligned (for illustration, see Armstrong
and Hamilton, tables 5.1, 6.1, 6.2, 7.1, 7.2, 8.1, and 8.2). The specific ways by which data are analyzed in a summative mode will often mirror those used to describe the iterative analytical mode: that is, researchers apply conceptual codes to data, constantly compare them, identify and evaluate "negative cases," and work toward inductively deriving an authentic account of their subject matter. Thus, for instance, the three pre-dominant pathways that guide an essential understanding of Armstrong and Hamilton's data do not appear "out of thin air": we can infer that the researchers compared and contrasted the evolving characteristics of their cases over time to gradually codify institutional routes that summatively characterize women's passage through college. Going to college, even to the same university, results in altogether different outcomes by virtue of ways students become situated institutionally. The result is a rendering of intra-cohort variation in the ways a university—operating as a powerful sociocultural context for development—shapes women's achievements, aspirations, and identities.

4 Conclusion

The chapter has discussed the parameters that guide the use of qualitative methods in longitudinal research. Specific conditions in three clusters of issues—design, execution, and analysis—frame this type of social scientific inquiry. Design issues are informed by conditions that include the points at which longitudinal study originates, the number and frequency of research episodes, and protocol format. Execution issues are guided by conditions of attrition and retention of research subjects, reactions from respondents, and the ethics of conducting follow-up research with people. Analysis issues are guided by two related but varying modes of thought, iterative and summative, which condition both the researcher's engagement with longitudinal data and how such data are presented to audiences. All longitudinal qualitative research will by necessity confront these conditions, and the success of the research will depend significantly on how methodically researchers consider and work through them.

Variability of the life course—which involves an analytic capacity to discern similarities and differences by which people make passages through time—is a message as central to the discussion of this chapter as to currents in the continuing development of life course sociology. A concern for inter- and intra-cohort variation, as well as for context, offers substantive theoretic means by which to understand the multiple ways that lives are lived, experienced, and interpreted. This is true as much for lives animating scientific careers as for educational pathways, involvement in crime, family and parenting practices, exposure to serious illness, and participation in welfare, recovery, and employment programs, each examples that have informed the present discussion. In other words, longitudinal qualitative research is amenable to studying a broad spectrum of settings and situations that characterize contemporary social life.

Work has begun to reveal its promise and pay-off in these diverse quarters. But longitudinal qualitative research has only begun. A long-standing, well-developed body of such work has yet to come into fruition and a methodological tradition has yet to fully mature. Varieties of topics await to be pursued using these techniques. Equally vital, when we utilize these techniques we need to dedicate more explicit attention to explaining what we have done, how we have done it, and why we did it that way. The articulation of technique will foster methodological maturation, a basis of empirical and theoretic development in future work. An indication of the empirical reach and theoretic power of longitudinal qualitative research will lie in its inspiration for others to follow.

References


