The Nature of Women's Career Development: Determinants and Consequences of Career Patterns

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In memory of my father

Abstract

Existing career theories are largely based on a stable working environment and have focused excessively on men and single work roles. In the postindustrial era, however, women's careers, characterized by the constant negotiation of multiple roles and more frequent job changes, have had implications on the changing nature of careers. The general purpose of this thesis is to increase knowledge about the process of career development of women. The focus is on two aspects: *Life Career* (characterized by multiple role constellations over the life course) and *Occupational Career* (characterized by different shapes of occupational movement over the life course). Three sets of questions addressed these two aspects of career: trajectory patterns, interrelationships, and antecedents and consequences. Career biographies covered ages 16 to 43. Antecedents reflecting individual agency (e.g., life role value, aspiration, and early experiences) were investigated. The impact of family context on occupational choice was also examined. Among the consequences examined were midlife work wellness and stress, health, and wellbeing.

Results showed that (1) Career patterns were highly diverse, including nine distinct life career patterns and ten occupational career patterns. (2) Occupational and life careers were significantly related, indicating that the paid work career is embedded in the overall life role structure throughout the life course. (3) Individual agency factors predicted life career. Occupational career was related to life career more than family context. (4) Occupational career did matter in work wellbeing. In terms of stress, health, and wellbeing at midlife, there was little difference among life career patterns, but more significant differences among occupational career patterns. The thesis indicates career theory can benefit from taking multiple roles and career development into account. Implications for career counseling, social policy, and organizations are discussed.

Keywords: career patterns, life career, occupational career, life course, human agency, family context, job perception, work attitude, quality of life, allostatic load, wellbeing, person-oriented approach, life history approach, sequence analysis

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List of Studies

The present dissertation is based on the following studies, which will hereafter be referred to by their Roman numerals.

Study I Huang, Q., El-Khoury, B. M., Johansson, G., Lindroth, S., & Sverke, M. (accepted). Women's career patterns: A study of Swedish women born in 1950s. *Journal of Occupational and Organizational Psychology*.

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Study II Huang, Q., & Sverke, M. (submitted). Women's occupational career patterns over 27 years: relations to family of origin, life careers, and wellness.

Study III Johansson, G., Huang, Q., & Lindfors, P. (submitted). A life-span perspective on women's careers, health and wellbeing.

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Introduction

Freud said that work and love are the two essential needs of our humanness. Modern societies were built on the foundation of work. Although the meaning of the term ‘work’ varies among individuals (MOW International Research Team, 1987), it has always been an indispensable part of people’s lives. Beyond just getting a job, people intentionally choose vocations and design career paths that would best fulfill their personal interests, abilities, and self-concepts (Super, 1953). However, the “love” part of people’s lives tends to be neglected in considering vocational choice and development, as if vocational behavior is performed in isolation of other parts of life. In the postindustrial era, people’s lifestyle preferences have become more diversified (Hakim, 2000). As individuals develop as whole persons, different role activities are continually being interconnected and counterbalanced (Richardson, 1993; Super, 1980).

In the postindustrial era, women have been more engaged in paid employment than during any other time in history. For example, from 1991-2000, the average employment rate of women was 51.1% in the European Union and 71% in Sweden. During the same period, 31.5% of women in the European Union and 41.1% of women in Sweden were employed part time (European Commission, 2001). Alongside this, women still take on most of the responsibilities of homemaking, which makes the issue of how to balance work and family life without sacrificing either a big concern for women. The demographic changes happening in the labor force have influenced men’s careers as well. The increase in dual-career couples has made the work-life balance an important factor for both women and men’s career decisions (e.g., Barnett & Hyde, 2001). An integrated identity, which assimilates work and other aspects of personal life, is what people are seeking nowadays (Mirvis & Hall, 1994). The previously work-centered male career pattern cannot account for postmodern men’s lifestyles adequately. The largely unexplored question of how to negotiate between work and nonwork roles over the life course is thus one of particular interest.

Especially today, when new technologies and advances in knowledge are developing at speeds that were unimaginable several decades ago, people have to continually update themselves in order to stay apace with the changes. For individuals, education really becomes a life-long process. From a larger perspective, we can see that intensified competition among companies, globalization, and turbulence in the economy all demand greater levels of efficiency and flexibility from organizations (Burke &

Cooper, 2000; Pfeffer, 1998). As downsizing, outsourcing, mergers and acquisitions, as well as temporary employment contracts become commonplace for organizations, it becomes less likely for individuals to stay in one occupation or organization for a long time. One sign of this is that job tenure has decreased recently. The average job tenure is down to about 10.6 years in Europe and 6.7 years in the United States (Auer, Berg, & Coulibaly, 2004).

In addition, the development of new technology is continuously eliminating the need for many traditional occupations, and creating new types of jobs. A survey in Sweden, for example, shows that during the period of 1989-1999, there had been a decrease in blue-collar occupations (from 47% to 42%) while white-collar occupations were on the increase (from 44% to 49%). Moreover, in both types of occupations, lower-level occupations are disappearing (Marklund, 2001). In a fast changing economic era, career-related issues become even more important, requiring research to expand upon those previous career models that were derived from times characterized by life-long and stable employment (Arthur & Rousseau, 1996). In regard to this, and job changes in particular, a number of central questions arise, including the following. What sequences of job changes do individuals tend to follow? Why do people pass through different career trajectories? Which kinds of trajectories are more beneficial for individuals in terms of health and wellbeing? How do people integrate work into their lives?

As women's careers tend to more frequently involve job changes related to family care roles, and as women more consistently negotiate work and family roles in their career development (e.g., Lee, 1994; Moen, 1985), women's experiences of their complex interactions with the labor market and their diverse work histories will have greater implications for the elucidation of today's career features (Fondas, 1996; Marshall, 1989). More importantly, as the changing nature of work brings challenges to people's careers, it also provides them with a unique freedom and opportunity to enrich their lives. Women's unique experiences involve the "potential for questioning present beliefs about what is essential for a creative and productive society, and how to chart a successful course to manage life's critical adult challenge – the balance between love and work" (Gallos, 1989, p. 110).

Related concepts: occupation, vocation, career, career pattern, and career development

In vocational psychology, authors have been urged to use terms such as vocational behavior, occupational roles, and career development more carefully (Crites, 1969; Savickas, 2002a). The Oxford English Dictionary defines occupation as “a particular job or profession” and vocation, with a similar meaning, as “one's ordinary occupation, business, or profession.” In vocational psychology, however, the two constructs are different. “Occupational” is used in the description of objective stimulus variables, while “vocational” is used to describe an individual's response to occupational information, as in the phrases “vocational choice” and “vocational behavior,” which involve the individual's subjective processes (Crites, 1969). This distinction is used in this thesis.

In regard to the concept of “career,” it is used differently in daily language and in academia. According to the Oxford English Dictionary, career is “a person's course or progress through life.” In everyday language, career is more or less viewed as the occupations that encompass a series of hierarchical positions that people can climb up in order to gain power and rewards. In this sense, it actually denotes managerial or professional career. In academic research, the term ‘career’ has a much broader meaning. It can refer to anyone who works and is not limited to professionals (e.g., Arthur, Hall, & Lawrence, 1989); this includes those who work outside of organizations, such as homemakers (e.g., Richardson, 1993; Super, 1980), and can also pertain to activities that deal with temporal processes (cf. Barley, 1989).

Definitions of career vary greatly among the disciplines. For example, Arthur et al. (1989) listed the different conceptualizations of career in psychology, sociology, anthropology, economics, political science, history, and geography, with each discipline centering on different aspects of career. In political science, for example, the study of career focuses on individuals' pursuit of power, wealth, and social status within a political context. In the field of economics, it focuses on the labor market situation, employment opportunity, and individuals' creation of human capital. In geography, it focuses on the effects of the geographic distribution of resources on work. In history, it focuses on the autobiography of famous figures in historical events. In anthropology, the functions of career on culture and society are emphasized. In sociology, the study of career focuses on its mediating roles and connection with the reciprocal relationship between social structures and the individual. Sociology has a long history of career study, which can be dated back to studies by the Chicago school that focused on the life histories and life patterns of

deviance (Barley, 1989). For Chicago sociologists, career is a general term used to describe anything unfolding along the life course, such as a criminal career, medical career, or family career (Barley, 1989). This tradition has been carried on recently in life course research (e.g., Elder, 1992).

The concept still keeps on evolving even within the same discipline, as can be seen in the changing theoretical feminist view of career. The feminist view, which once focused more on the social stereotypes and factors that prevented women from having the same career opportunities as men, is now more women-centered, highlighting women's own values, and cherishing their attachment to relationships and family rather than seeing them as setbacks from men's perspectives (e.g., the feminist view by Marshall, 1989).

In vocational psychology, career was previously used to denote advancement in power or responsibility along the hierarchy of the occupational structure (e.g., Shartle, 1959). As vocational behavior began to be regarded as an integral part of an individual's whole life, the concept of career expanded. Super (1980, p. 282), for example, defined career as "the combination and sequence of roles played by a person during the course of a lifetime." Here, Super discusses the constellations of nine roles (i.e., child, student, "leisurite," citizen, worker, spouse, homemaker, parent, and pensioner) across the life course. A similar, broad definition was given by Arnold (2001), who conceptualized career as "the sequence of employment-related positions, roles, activities and experiences encountered by a person" (p. 116). This broader view of career is endorsed in this thesis. Since career has the inherent connotation of development, the term 'career development' expresses the same meaning as career (Savickas, 2002b). Following Savickas' (2002b) suggestion, the adjective "occupational" is added so that occupational career refers to the sequence of jobs or positions in an occupational structure, in contrast to careers in other life domains such as parental career or leisure career. In this thesis, following the suggestions of others (e.g., Chen, 1998), another modifier, "life" is added to describe careers characterized by multiple-role combinations over the life course.

The concept of the career pattern emerged from the analysis of sequences of careers that developed in industrial sociology (e.g., Miller & Forman, 1951). This concept was used in summarizing the number, duration, and sequences of positions in work history (Savickas, 2001; Super, 1957). In connection with its origin in sociology, career patterns tend to be utilized to disclose occupational mobility. Within this tradition, there are approximately three schemes used to describe occupational

careers: orderliness (orderly vs. disorderly), denoting whether the adjacent occupational changes follow certain orders (Wilensky, 1961); direction (vertical vs. horizontal), denoting whether people stay at the same or upgrade their job levels in their occupational career history (Miller & Form, 1951); and stability (stable vs. changing), describing whether people change their occupational field (Jepsen & Choudhuri, 2001). The differentiation is not strictly followed. For example, stability can also be used to describe whether people maintain the same occupational level (Miller & Form, 1951). In addressing women's careers, the concept of career pattern is later extended to include non-employment periods (e.g., Hakim, 2000; Lee, 1994; Super, 1957).

The changing nature of careers in the postindustrial era

The changing nature of careers in the postindustrial era has been receiving increased attention. New concepts have emerged to illustrate the new features of career. The boundaryless career (Arthur, 1994; Arthur & Rousseau, 1996) is one of the most influential notions to emerge in recent years. According to Arthur (1994), the term 'boundaryless career' is an antonym to the bounded or organizational career. The term suggests that the borders between organizations and between work and nonwork are permeable. Within this general meaning, Arthur lists several specific aspects of the boundaryless career. The first aspect is characterized by career movement across separate employers. The second aspect describes the phenomenon where individuals build up employability outside of their present organization, and the third addresses how career is constructed through intentional networking and knowledge acquisition across the borders of organizations. The fourth distinguishing feature concerns the fact that career advancement across the hierarchy of a single organization is not applicable, while the fifth involves the attention paid to an individual's other roles in career development. Lastly, the sixth aspect refers to an individual's perception of the boundaryless nature of his or her career under structural constraints (Arthur, 1994; Arthur & Rousseau, 1996).

In a similar vein, Hall (1976) has advocated using the term 'protean career' to describe the loosening ties between the individual career and any single organization. Literally, as the word "protean" implies, this concept emphasizes the frequently changing nature of careers rather than focusing on conventional stable career paths. According to Hall (1976), "The protean career is a process which the person, not the organization, is managing. It consists of all the person's varied experiences in education, training, work in several organizations, changes in occupational field, etc.

The protean career is not what happens to the person in any one organization” (p. 201).

As we may give many labels to the changing nature of careers, there are several common features. Firstly, there has been an intensification in the changing of jobs, organizations, and occupations over an individual’s life course. Secondly, the intensified changes diminish the possibilities of prevalent upward career mobility of the type characterized by increasing seniority in the hierarchy of a single organization. Career development patterns may thus include more diversified career pathways such as cyclical and lateral movement. Thirdly, individuals have become a great deal more responsible for their own career development. Career management systems within organizations are weakened as individual agency, the ability of an actor to formulate projects for the future and to implement them (Emirbayer & Mische, 1998), is strengthened (Mirvis & Hall, 1994). Fourthly, there has also been an increased acknowledgement of both work and nonwork roles in the construction of personal identify (Arthur & Rousseau, 1996).

Given these new features of the career, especially the decreases in stable careers and the increasing concern for balancing life as a whole, the future direction of the studies of vocational psychology and vocational guidance is not clear-cut. Richardson (1993) suggested that vocational psychology should look to applied psychology in the future, by placing more focus on enhancing people’s wellbeing and health. This suggestion has significant implications. Present research in vocational psychology almost exclusively focuses on aspects of career success, which is a trend that will limit its contributions in the new century. Future research in vocational psychology, as suggested, needs to look in other directions.

Existing career models were largely developed from the conditions that were found in a stable modern society and therefore tend to define career as a linear and predictable advancement in an occupational hierarchy. This view leaves many questions unanswered. What do individuals’ long-term career trajectories look like? Do different career trajectories fall into patterns? What factors are related to career patterns? How do occupational careers develop in interaction with other roles? What do different careers bring to people? Does it matter when people study, work, or become parents? Does it matter how long people stay in or away from employment?

The feminization of career

Fondas (1996) pointed out that there has been a feminization of paid work. A feminization is taking place not only in that more women participate in the labor force, but also in that those attributes ascribed to women are becoming more prevalent in contemporary working life. This can be witnessed, for example, in the rather recent spread of a management style that is characterized by caring and supportiveness (Ferguson, 1984). Fondas (1996) made an important point in stating that women's career development has had significant implications for the changing nature of the career. The features associated with careers in the postindustrial society, as described in the previous section, indeed, also apply well to the career situation of women.

How women's experiences can inform and extend career theory has been discussed by Marshall (1989) who posits that during the process of career development, action and inaction are equally important. Career theory has often placed too much emphasis on movement, especially upward mobility, while non-movement has tended to be viewed as a type of career stagnation that should be avoided. Marshall emphasizes that the inaction period in a career is important in that it allows for "inner deepening" (p. 284). The inaction period is thereby a process of self-development, whereas the movement period is a process of career development. Secondly, Marshall points out that communication and cooperation have been degraded in male career development. She advocates that independence and interdependence be equally credited. Thirdly, Marshall holds that linear career paths, characterized by sequential progression, should be supplemented by cyclic career paths that encompass peaks and valleys. Cyclic career patterns either entail giving something up or starting over in order to learn something new. Finally, she advocates taking into account the whole life instead of only a single work role, stressing that a balanced life should be a source of identity.

Marshall's (1989) work clearly indicates how research on women's careers can benefit our understanding of the contemporary boundaryless career. Woodd (2000) emphasized that typical female career patterns are more suitable to the new economic era since they enable women to readily cope with the demands associated with the changing nature of careers. The existing career theories and models have been criticized as being biased toward men's living conditions, thus suggesting that features of women's career development, especially how they organize their working life and other aspects of life, still need additional research attention (e.g., Arnold, 2001; Betz & Fitzgerald, 1987; Marshall, 1989).

General aim

The general aim of this thesis is to expand our knowledge about the process of career development. The central tenets are twofold. (1) Work is embedded in people's lives. This implies that individuals' work careers develop within the fabric of different constellations of roles. Employment is therefore only one of a multitude of roles that individuals engage in (Super, 1980). Previous research, however, involving the study of roles in career studies, has tended to focus on the paid work role in isolation of the other roles. To have a multiple role perspective in regard to careers is now necessary in order to accommodate the fact that the development of individuals as whole persons is much more relevant to the circumstances of the postindustrial era. The increase in dual-career families, for instance, is one type of situation in which the negotiation between multiple roles is a constant concern. (2) Career development is a long-term process. This proposition has been a central viewpoint within the developmental perspective of career, which can be dated back to Super (1953). In today's working life, the construct of the boundaryless career implies that one's career is often comprised of a variety of jobs or even occupations. Accordingly, one's working situation at any single point of time cannot account for that individual's entire career.

Under these two tenets, this thesis sets out to shed some light upon the processes of women's career development. Through the closer examination of women's career patterns, useful insight can, furthermore, be gained about the changing nature of the career in the postindustrial era. More specifically, this thesis focuses on two particular aspects of career: life career and occupational career, including their trajectory patterns and interrelationships, as well as their antecedents and consequences. In the examination of women's careers, in regard to both paid work and other aspects of life, this thesis deliberately avoids the tendency of labeling women beforehand. In order to facilitate this, a method that allowed different career patterns to emerge was sought out. This thesis further investigates the longitudinal health and wellbeing consequences associated with life and occupational careers. Figure 1 presents the research model of this thesis.

As it is no longer viable to isolate work career from the development trajectories of other roles over the life course (Richardson, 1993; Savickas, 2002a; Super, 1980), the first aim of this thesis is to investigate the patterns of multiple-role constellations occurring over the life course in order to disclose the personal context of work career development. This aim is considered significant due to the fact that little empirical research has been conducted in this regard in vocational psychology. Sociologists have given

some attention to women's lives, but most of the research has been based on qualitative methods, such as interviews, and focused on American women. A central question that should be addressed in this area concerns how women combine multiple roles over the life course. This somewhat general question raises a number of more specific questions relevant to this study. Do women have the same life schedule in terms of education, joining the labor market, and becoming mothers? Do women hold different roles for the same length of time? Do women follow the same order of roles? If not, how many different ways (i.e., patterns) exist? This set of questions is concerned with the nature of the life career and are here followed by two even more important questions. Why do women choose different ways? And what are the consequences of different patterns? Study I was designed to address these issues.

Although it has been pointed out that women's work careers are more strongly affected by their other role involvement, few empirical studies have been conducted with the purpose of examining the effects these other roles have over an individual's life course. The second aim of this thesis is to examine the process of occupational career development within an occupational structure and to look more closely at how the process is related to trajectories involving combinations of multiple roles (i.e., life career, outcome of aim 1). More specifically, this aim centers on three questions, concerning: (1) the nature of occupational career development, including the categories of occupations women entered, and the contours of their occupational movements (i.e., upward, downward, stable, or fluctuating); (2) the antecedents of the occupational career, i.e., the context of the individual life (i.e., life career) and the family context; and (3) the consequences of occupational career development patterns on work-related wellbeing. Although there have been studies that focus on women's occupational career development, most have been small-scale, cross-sectional, and limited to well-educated women in the western world. Furthermore, the career patterns identified in these studies have been pre-determined, based on certain hypotheses, or arrived at through qualitative methods such as interviews. Since women's lives are complex and can involve combining their vocational activities and other activities, such as homemaking, in a variety of different ways, the patterns identified through pre-defining or interviews may not adequately cover the array of career-related events that are a part of women's real lives. All of these limitations make it clear that studies in this area need to make use of both a longitudinal design and a robust pattern searching method, while also focusing on more general populations of women rather than populations comprised primarily of elites. These issues are addressed in Study II.

Figure 1. A research model of women's career development.

Richardson (1993) pointed out that in career research, health and wellbeing have not been paid enough attention. In much of the literature, success and satisfaction in the work system has been the dominant index of vocational choice and development. On the other hand, most knowledge about the interrelations between work, on the one hand, and somatic and mental health, on the other, is based on cross-sectional research using variable-oriented analyses. Some attempts have been made to investigate the accumulated exposure to various psychosocial and physical work

environment (e.g., Johnson & Stewart, 1993), but the follow-up periods involved have rarely exceeded more than a few years. Hence, the third aim of this thesis is to extend career research by systematically examining the relationships between long-term career development patterns and health and wellbeing, using measures taken during the final year of the career span and then again several years later. This aim will benefit our understanding of career development. Study III is conducted to fulfill this aim.

Perspectives of career development in vocational psychology and sociology

In the following section, relevant theories about the process of career development in vocational psychology and in sociology will be reviewed through the consideration of the following perspectives: the development perspective, the life course perspective, and the diversification of career path perspective. These perspectives together serve as the fundamental framework for this thesis.

Developmental perspective of career

The establishment of vocational psychology and career counseling as a science can be attributed to the contributions of Frank Parsons. The core tenet of his thought regarded people as being matched to occupations rather than just finding jobs. Parsons (1909) pointed out that the process of vocational choice should be based on three factors: (1) a clear understanding of the self; (2) a clear understanding of the requirements, opportunities, or constraints of certain occupations; (3) a true reasoning about the relationships of self and occupation. He argued that career satisfaction resulted from the fit of individual to occupation. As Parsons emphasized individual differences in traits, his theory was viewed as a trait-factor theory of career. Parsons's proposition has stimulated considerable research. The work of John Holland represents the summit of trait-factor theory. Holland put forward a hexagonal model that differentiated between six types of vocational personalities, including the realistic, investigative, artistic, social, enterprising, and conventional (e.g., Holland, 1997). Holland's model has received substantial attention and has not only been influential within research but also within the area of career guidance. However, the trait-factor theory has been increasingly criticized as being too undynamic of a perspective. The theory sees individual traits as static and ignores the fact that both individuals and work change over the life course – and that people are seldom confined to a single occupation or organization.

The developmental view of career came into being as a sharp contrast to the trait-factor view of career which held that vocational choice was made only once in a lifetime and that individuals committed themselves to just one occupation or employer over their working lives. Donald Super was the major impetus of this transition. Super (1953, 1957) criticized Parsons's

view for being too static in that it overstated individuals' traits and ignored the fact that both individuals and work continually change. He stressed that vocational choice is a long process and therefore advocated a shift of focus, dismissing the notion that vocational choice occurred at a point in time in favor of the study of *career*, i.e., the sequence of jobs or positions engaged in over a life span.

According to Super (1953, 1957, 1980), career development is the process of implementing and developing the self-concept. Occupational success and work satisfaction depends on the extent to which individuals fulfill their vocational self-concept. Although vocational self-concepts tend to stabilize with age, they do change over time and can be affected by one's experiences. Vocational choice is a long process of compromise amongst one's personal abilities, interests and values, and the opportunities and constraints of one's surroundings.

In accordance with Super (1957), Savickas's (2002a) career construction theory posits that career is reflected in the course of one's vocational behavior, not vocational behavior itself. The reflection can focus on actual sequences of events such as one's occupations (objective career) or on their meaning (subjective career) (Savickas, 2002a).

Inspired by research in developmental psychology and industrial sociology, the constant interaction between self and environment has been summarized by Super (1957) in a series of age-marked career stages over the life course, and include growth (birth till age 12-14), exploration (adolescence, age 14-25), establishment (early adulthood, age 25-45), maintenance (middle age, age 45-65), and decline (old age, age 65 and older). Additionally, a minicycle of these stages has been found to occur during the transitions between different jobs and stages, and during transitions between sick leave and work.

In research on individual development, a person-oriented approach has been emphasized (e.g., Bergman & Magnusson, 1997; Magnusson, 1999). This approach is based on the holistic-interactionistic perspective (e.g., Magnusson, 1998), which holds that individuals develop as whole persons, and that internal and external factors are organized in systematic ways, which together form a functioning unity. This perspective leads to an approach that focuses on the patterns of changes that individuals go through over the life course. This clearly contrasts the variable-oriented approach, which aims to describe the relationships of the variables without considering the individuals. In the person-oriented approach, inter-individual differences are emphasized with the purpose of identifying different ways of development. For the study of career development, the

person-oriented approach provides a useful tool for the examination of longitudinal career patterns.

In recent years, a more widespread use of the development perspective has been frequently called for (Savickas, 2001, 2002a, 2002b; Vondracek, 1998, 2001; Vondracek & Hartung, 2002; Vondracek, Lerner, & Schulenberg, 1983, 1986), but the number of studies to consider career development over multiple life stages has still been low, particularly when it comes to investigations that use a longitudinal design (Savickas, 2002b) and person-oriented approach (Jepsen & Choudhuri, 2001).

Multiple role perspective

Major theoretical models of career development (e.g., Derr, 1986; Driver, 1988; Super & Hall, 1978) have typically focused on (full-time) paid work, thus emphasizing occupational or employment careers. According to Super (1980), career is the combination and sequence of roles taken on by a person during the course of a lifetime. Career development is a process that centers on the different degrees of engagement one has in various roles over a life course. He contends that at different stages of life, different constellations of developmental tasks are encountered and dealt with. Super brought up the concept of *life career*, emphasizing the longitudinal features of career. He also put forward the notion of *life space*, which describes the life domains in relation to nine roles an individual can occupy, including child, student, “leisurite,” citizen, worker, spouse, homemaker, parent, and pensioner. The activities pertaining to the nine roles are performed at four locations: the home, community, school, and workplace. He further emphasized that none of these roles are sex related, which implies that the family role is not unique to women, and the work role is not unique to men. The role activities are interconnected both simultaneously and across time. For example, longitudinally, the length and quality of schooling affects the occupation later attained, and early occupational position, to some extent, determines later occupational success. Cross-sectionally, individual multiple roles may spillover into each other and may either interfere or facilitate each other. More importantly, different roles vary over the life course in terms of temporal and emotional importance. During certain times over the life course, some roles may demand more time, while other roles may need more emotional involvement. For example, the role of working may be more time demanding when an individual is climbing up the occupational ladder. Super’s notions of life career and life space imply that it is important to investigate overall life role constellations in order to understand an individual’s career. Thus, it is a broader view that is being

advocated with this approach, where the vocational problem is not restricted to the work domain, and may be sought in the role structure and different roles' relative importance to an individual (Savickas, 2002a).

From a gender perspective, it is especially important to take individuals' multiple roles over the life course into account, particularly when it comes to the career development of women. Career models, until recently, have been strongly influenced by the historical and cultural/ethnic contexts in which they were created. A bias towards American working and living conditions in the mid and late 20th century, especially as they relate to males, is often found. Motivated by her dissatisfaction with this sort of bias toward white middle class men found in vocational psychology's research and theorization, Richardson (1993) proposed that vocational psychology be repositioned in order to gain a better understanding of the phenomenon of work in people's lives rather than remaining overly preoccupied with the subject of career development processes in occupational systems. Richardson argued, in the first place, that concentrating on work in people's lives would help deemphasize the centrality of the aspect of advancement in occupational hierarchy in regard to the conceptualization of career, and thus attract more research attention to those of lower social class who may have less access to occupational opportunities. Secondly, the new focus would bring attention to work done outside the employment system, especially women's homemaking work and caring work. Thirdly, career development would be placed in the context of multiple life domains, since work carried out at an employer, at home, or at other places would all be considered simultaneously. Fourthly, the inherent social value of work would switch the focus from the individual to the interaction of the individual with others, in this approach.

In summary, the multiple-role perspective clearly indicates that the (paid) work career is embedded in people's overall life structure. To adopt such a perspective is an important way to expand career research to include women's life situation.

Life course perspective

Richardson (1993) pointed out that one of the major problems in vocational psychology concerns the failure to recognize the progress being made in other disciplines, such as the recognizing of the process of development over the life course made in developmental psychology. She is not alone in noting such a limitation. Vondracek felt the same way. He called for a better communication with other disciplines such as industrial and organizational psychology, development psychology, and life course

research in sociology (Vondracek, 1998, 2001; Vondracek & Hartung, 2002). With the increasing recognition of the long-term process of career development, life course theory and research has been particularly noticed of late. A special issue of the *Journal of Vocational Behavior* (volume 61, issue 3, 2002) has even been devoted to inspiring new thinking on how advances in life course theory can benefit career research.

Elder (1992) remarked, “The study of lives represents an enduring interest of the social sciences” (p.1120). The implications of transitions into and out of different major life roles, such as school, work, and family, have been of major concern in life course research for several decades. Life course theory views life as a set of trajectories or patterns, consisting of an “age-graded, socially-embedded sequence of roles that connect the phases of life” (Mortimer & Shanahan, 2003, p. xi). From this perspective, the question of how people live their lives can be answered by exploring how their life trajectories are marked by life-role transitions. The timing and ordering of these transitions and the duration of states together depict an individual’s life trajectory (Elder, 1992; Elder, Johnson, & Crosnoe, 2003).

Timing and ordering of transitions. Rindfuss, Swicegood, and Rosenfeld (1987) differentiated the timing of transitions from the ordering of transitions and suggested that both of them are important. O’Rand and Krecker (1990) stated that “the timing and ordering of early life events related to major life domains such as education, marriage, and work lead to heterogeneous outcomes later in the life course and thus produce heterogeneity even within cohorts” (p. 250). The significance of the timing of transitions, for individuals, is considered to be one of the principles in life course research (Elder et al., 2003).

For example, experiences of unemployment matter differently for middle age and youth. Likewise, an earlier transition into motherhood has longer-term implications (Furstenberg, Brooks-Gunn, & Morgan, 1987). Military service at an earlier age was found to facilitate educational opportunity and occupational advancement, whereas later entry into the service was related to a greater risk of family and career disruption (Elder, 1987).

Duration of states. According to Elder et al. (2003), duration refers to the span of time between successive changes in state. It was found that duration of state has developmental consequences (Elder et al., 2003). For example, Haveman, Wolfe, and Spaulding (1991) indicated that being persistently poor and on welfare had a significant impact on high school completion. McLeod and Shanahan (1996) found that rates of increased antisocial behavior were related to persistent poverty rather than the event of transitioning into poverty. Duration, however, may also be beneficial for the stability of roles and settlement in the social environment (Elder et al.,

2003; Shanahan, 2000). For example, stability of family structure has been shown to relate to higher levels of education (Goldscheider & Goldscheider, 1998), whereas the number of changes in residency has been found to have a significant negative impact on high school completion (Haveman et al., 1991).

Life course theory and its related research supplement career research with the key idea that career development is reflected in the trajectories of sequences of work-related role activities. The nature of the dynamic relationships among the different role activities must, furthermore, be taken into account, and factors such as timing, ordering, and the duration of activities should be considered.

Individual agency and career

It is well recognized that career development is essentially an individual process. Vocational choice and vocational behavior are made by individual actors. Super's pioneering work on the notion that career development is the process of developing and implementing the self-concept laid the foundation for ensuing research that examined the role of the subjective psychological process in vocational choice and its interaction with the environment. Characteristics of the individual agent – such as self-concept, aspiration, and value – are all determinants of occupational choices, together with environmental constraints and opportunity. For example, Gottfredson's (1981) theory of circumscription and compromise illustrates the interaction of the factors of occupational interests, prestige, and gender characteristics and their impact on the development of occupational aspirations over time. O'Brein and Fassinger's (1993) model concerning the career choice of adolescent women emphasizes the roles of ability, agentic characteristics (including self-efficacy and instrumentality), and gender role attitudes, among other factors. Teenage educational aspirations have been demonstrated to be a good predictor of adult educational attainment (e.g., Gustafson, Stattin, & Magnusson, 1989).

Life role values guide individuals' choices and decisions (e.g., Schwartz, 1992). The meaning of work tends to be associated with the degree of labor force participation, the choice of jobs, and the tendency to remain in work despite economic independence (MOW, 1987). It has been found that values play an important role in career development (Brown, 2002; Super & Sverko, 1995). According to Brown (2002), values are the “core beliefs that individuals experience as standards that guide how they ‘should’ function” (p.468). Brown (2002) has presented a theory illustrating the role of work values and cultural values. The fundamental proposition of his

theory is that cultural and work-related values are critical factors when it comes to occupational choice, satisfaction with the choices made, and the degree of success associated with the occupation. Other life role values are also influential in career development.

Career development context

Individuals always exert agency under the influence of the constraints and opportunities of the environment. Vondracek et al. (1983, 1986) argued that career development could never be fully understood without referring to the social and cultural contexts in which people live and communicate with each other. Vondracek et al. (1983; 1986) added the contextual perspective to the development perspective of career. They were critical of the fact that most career models ignored cultural and historical contexts, and instead advocated a contextual focus that took into account the influences of various contexts, such as those of society, economy, and family.

One of the most studied context variables is the family of origin (for a review, see Schulenberg, Vondracek, & Crouter, 1984; Whiston & Keller, 2004). Since half a century ago, the influences of family of origin on career has been documented in individual's different life stages (Blau & Duncan's, 1967; Whiston & Keller, 2004). Family influences can be divided into two main aspects: family structure variables (e.g., parents' occupations) and family process variables (e.g., relations to parents) (Schulenberg et al., 1984; Whiston & Keller, 2004). For instance, it has been found that the occupations of the parents play an important role in the occupational choices that children make (e.g., Bell, Allen, Hauser, & O'Connor, 1996; Mortimer 1974, 1976; Owens, 1992), as children tend to choose similar occupations as their parents. By serving as an important model of achievement, the presence of a working mother has also been observed to be an important factor for a daughter's career development (Betz & Fitzgerald, 1987; Crawford & Unger, 2000). Both daughters and sons of working mothers tend to hold less gender-stereotypic occupational aspirations (Barber & Eccles, 1992). Relations with parents are also related to how well the children are prepared to choose an occupation and whether they would like to choose their parents' occupation. Updegraff, McHale, and Crouter (1996) found that girls from egalitarian homes maintained a higher level of performance during adolescence than girls from traditional home environments.

Another type of context is the individual's own life background. Savickas' (2002a) career construction theory posits that social structures influence individuals via the different roles that are cast on individuals,

including the roles of student, homemaker, parent, and employee. People differ in their preferences for different roles. People make career choices in accordance with their life stages and the fabric of different roles. This perspective corresponds to the multiple role perspective of career development.

Diversification of career trajectories and the heightened role of human agency

The information in the above section suggests that career development is determined by individuals' personal agency, including one's preferences, values, interests and aspirations, their environmental constraints and opportunities, and their life context. Recent research has made great strides in documenting the diversification and individualization of lives. This phenomenon is largely attributed to the heightened role that agency is playing in life construction, which has been made possible by the freedom provided by supportive social policies.

However, the diversification of lives was only noted recently in vocational psychology. Vondracek et al. (1983) pointed out that a primary problem in career development research was its failure to keep up with the research progress of other developmental sciences. With much research still focusing on the career-stage approach initiated by Super (e.g., Super, 1957), Vondracek et al. (1983) warned that research in developmental psychology has clearly indicated that the individual does not develop through normative stages unanimously. He argued that with the unfolding of the life course, the interindividual differences in development have become greater, and individuals' lives have become more and more diversified instead of following stage-like and normative sequences. In vocational psychology, empirical research on the variation of career development patterns is scarce.

The diversification of life trajectories is well documented in life course research. Compared with the earlier emphasis on socially defined normative life pathways (Neugarten & Danan, 1973) and its otherwise deleterious consequences (e.g., Hogan, 1978, 1980), recent research has revealed an intensified diversification of people's lives (e.g., Elder et al., 2003; Rindfuss et al., 1987). Elder (1992), for example, found that "contrary to modal views of age patterns in cultures, people of the same age do not march in concert across major events of the life course; rather, they vary in pace and sequencing, and this variation has real consequences for people and society" (p.1124). O'Rand and Kreckler (1990) also concluded that "selected life cycle stages can be reversible, repeatable, and

only loosely coupled with biological and chronological age over the individual life-span and cross historical time” (p. 250).

Recognition of the variability in people’s lives has twice marked a watershed in the history of life course studies: once after the 1940s, which had previously been a time when variations in life patterns were neglected, and then again in the decades after the 1960s (Elder, 1992). Elder (1992) stressed that the recognition of the variability in lives has advanced life course theory.

Shanahan’s (2000) review of the research regarding the pathways to adulthood concluded that the life course has become individualized with the development of society and that this trend has markedly accelerated since the 1960s. He noticed that increasing research in the past two decades has paid greater attention to the variability in regard to the timing and ordering of transitions into education, employment, and parenthood as well as the length of intervals between these transitions. For example, there has been an increased likelihood of returning to higher education or participating in employment, education, and parenthood simultaneously. Shanahan further noted the role of human agency, which is “the active process of choosing of appropriate institutional involvements, organizational memberships, and interpersonal relationships” (p. 675), in the choices of transitions and the efforts made to shape biographies. At the same time, however, he also emphasized the role of constraints of social structure on the differentiating of transition behaviors. He concluded, nevertheless, that the fewer the constraints of social structure, the more agency people were able to exercise in the construction of their biographies.

Heinz (2003) pointed out that both men and women’s work life courses have become destandardized. His study indicated that there was increasing variation in the passages from education to work and from employment to retirement. The links between school, training, and employment have also become diversified and people are facing more discontinuity in their careers. He concluded that “Individual flexibility in the timing, sequencing, and duration of work-related transitions has become characteristic of post-industrial service societies” (p. 201). Heinz also asserted that the three-phase normative model of the life course (education–employment–parent and homemaker–employment) neglected the individuals’ role in constructing their biographies. He believed that individuals’ careers were becoming “neither assigned nor guaranteed but rather negotiated” (p. 196) between individuals and institutions. Furthermore, he pointed out there was an increasing emphasis on the role of personal decisions and responsibility in the shaping of the work life course in post-industrial society.

The diversification of the career and the heightened role of agency have been advocated recently through the philosophical reflections of vocational psychology, and particularly through the thoughts of constructivism and social constructionism (e.g., Young & Collin, 2004). Constructivism stresses the importance of the cognitive process for perceiving the world and generating knowledge (Gergen, 1992). In contrast to logical positivism, the main tenet of constructivism is that the world cannot be known directly but through the construction conducted in the mind. Hence, constructivism emphasizes individual agency, self-definition, and subjectivity. In career research, constructivism is represented by the notion of the subjective career, which can be described as the meaning an individual retrieves from his or her career pathways. According to social constructionism, there is no absolute knowledge. Knowledge and meaning are created through the social interaction process and are embedded in the historical, cultural, and political background (Gergen, 1992). Both constructivism and social constructionism have cast doubt on the belief that careers progress in normative and predictable developmental sequences, and regard human development as more individualized, variable, and less predictable (Young & Collin, 2004).

Hakim (2000), in her defining of preference theory, explained the expressions and causes of the diversity of career paths. She proposed, for example, that women's varying responses to social engineering policies in modern societies is the main cause of the heterogeneity among women. This variability, she further found, has become greater as a result of historical changes such as the expansion of white-collar occupations, the equal opportunities revolution, and the contraceptive revolution. The full heterogeneity of the employment patterns of women, she argued, can only be revealed by utilizing a longitudinal life-span approach.

Women's life careers in the research literature

There has been an increasing interest in the ways in which women combine paid work and homemaking roles. A general finding is that in contrast to the conventional notion that women form a homogeneous group in regard to paid work and domestic work, their strategies of organizing different roles have never been unanimous. In the literature, four ways of categorizing women's life career patterns have been utilized. Table 1 presents these categorizations (except the elite women groups) and their correspondences.

Table 1. Summary of the categorization of career patterns for women.

Hakim	Super	Zytowski			Gerson	
Hakim (2000)	Super (1957) & Vetter (1973)	Zytowski (1969)	Wolfson (1976)	Betz (1984)	Gerson (1985)	Lee (1994)
Home-centered (10-30%)	Stable homemaking, (no significant work experience, 22% Conventional (worked until marriage), 27%		Never worked	Never worked; 1.4%	Early family orientation sustained	
		Mild pattern (short span, lower degree of participation)	Mild pattern	Low commitment in traditional occupations 12.4%; Low commitment in pioneer occupations, 1.2%		
Work-centered (10-30%)	Stable working pattern (worked continuously, career-oriented), 3%	Unusual pattern (early entry, long duration, high degree of participation).	Unusual pattern	High commitment in pioneer occupations 23.5%	Early career orientation sustained	Early career orientation sustained
Adaptive women (40-80%)	Double-track (involved in double careers of working and homemaking), 14%	Moderate pattern (early entry, long duration, low degree of participation)	Moderate pattern	Moderate commitment in traditional occupations, 21.7%	Early career orientation modified	Early career orientation modified
	Interrupted career (breaks in the middle of work career to fulfill homemaking requirement), 16% Unstable career (rotated working and homemaking irregularly), 18% Multiple-trial career (unrelated job moves)		High moderate pattern (lengthier span than moderate pattern)	High commitment in traditional occupations, 35.9% Moderate commitment in pioneer occupations; 3.8%	Early family orientation modified	Early career and family orientation Sequencing: career-family-career Sequencing: family-career Early family orientation sustained

Note. Patterns sharing similar features are in the same row.

Hakim's categorization. Hakim (2000) divided women into three groups according to their choice between paid work and family work. Based on data from Britain and USA, Hakim (2000) found that home-centered women and (paid) work-centered women each constituted one fifth of the population. The remaining sixty percent of the women were adaptive women who engaged in gainful employment and family work in various ways.

Super's categorization. Super (1957) proposed seven life career patterns for women that are also based on the extent of participation in homemaking and paid work. Two of the patterns include homemaking as the predominant form of work: the stable homemaking pattern and the conventional pattern (describing women who only work until they are married). The stable working pattern is one that is comprised of women who have work continuously. Four of the patterns involve participation in double careers consisting of work and homemaking, including double-track, interrupted, unstable, and multiple-trail careers. Vetter (1973) provided estimates of Super's patterns in a cross-sectional sample of American women (Table 1).

Gerson's categorization. Gerson's (1985) study of life career patterns among women from different socioeconomic groups and Lee's (1994) study of professional women were both concerned with the sustaining of orientation towards family and work. Gerson's (1985) categorization is based on the comparison of early aspiration and later choice. Lee's (1994) categorization of professional women was built on the basis of three dimensions: timing of childbirth, involvement in childcare and family, and involvement in paid work. The six patterns she delineated encompass the sustaining or changing of early career orientation, as well as different ways of combining career and family involvement.

Women's occupational careers in the research literature

Few empirical studies of women's occupational career patterns have been conducted. Among these, only particular groups were considered, such as women in managerial positions or those employed at big companies, which may reflect a bias of viewing women's careers according to men's standards.

Zytowski's categorization. Zytowski (1969) categorized occupational participation patterns for women according to age of entry, length of participation, and degree of participation in non-traditional versus traditional occupations. Three patterns emerged (Table 1). Wolfson (1976) and Betz (1984) have subsequently elaborated Zytowski's classification.

Betz (1984) also provided the estimates of the size of each pattern based on data from female university graduates.

Elite women's occupational career patterns. Some career researchers have focused on women from special groups, especially elite women. For example, Blair-Loy (1999) examined the career paths of senior female finance executives by examining the characteristics of the organizations the women were involved in and the types of jobs they chose. Han and Moen's (1999) compared the occupational career patterns of men and women employees of top companies. Their study included men and women in different occupational groups. Generally, it was found that women's occupational careers exhibited more time off from the labor market and more part-time employment.

The rough correspondences among the different categorizations are shown in Table 1. From the available estimation of the frequency of different patterns, a trend can be found in which there is a decrease in home-centered women and an increase in work-centered women. However, the adaptive pattern has always been followed by a majority of the women. Although these studies are informative for the understanding of women's careers, they have typically focused on women in the USA and Britain, and the patterns obtained obviously rely on the hypothesized dimensions utilized. New approaches are needed, which are free from the constraints that relying too heavily on certain dimensions can carry with it and which also use samples that are made up of women from other nationalities besides American and British. Furthermore, this approach should take into account the timing, ordering, and duration of career transitions, whose importance has been elucidated by life course theory.

Consequences of career development

Richardson (1993) suggests that vocational psychology could learn from applied psychology. She believes that research in vocational psychology should not only aim at uncovering the career development process, but also concentrate on how to enhance the wellbeing of individuals. In other words, the objective should be to investigate how health and wellbeing can be improved through career development. Recently, career development patterns have been found to play a role in individuals' health and wellbeing, with respect to, for example, longevity, allostatic load, job satisfaction, satisfaction with career advancement, and life satisfaction (e.g., Jepsen and Choudhuri, 2001; Kinnunen, Kaprio, & Pulkkinen, 2005; O'Neil, Bilimora & Saatcioglu, 2004; Pavalko, Elder, & Clipp, 1993). Despite these findings, it is still unclear whether certain career patterns are more favorable than others. Some studies have found, for example, that the outcomes associated with stable careers are more beneficial than those associated with various types of interrupted or changing careers (e.g., Smart & Peterson, 1997), while other studies suggest the opposite (e.g., Jepsen & Choudhuri, 2001). Since previous research has also tended to focus on career success and satisfaction within the occupational world, little is known about the effects that various career patterns have on health and wellbeing, or the underlying mechanisms involved.

Life career involves multiple-role constellations over time, and is thereby divided into aspects that concern: (1) content, that is, how many and what kinds of roles individuals occupy; (2) the ways of combining different roles, which is manifested in the timing, ordering, and duration of roles. The influences of life career on health and wellbeing are discussed in terms of the theories, models, and research associated with role interaction (for content) and stress (timing of role transition).

Occupational career concerns the career trajectories in occupational structures; its aspects include: (1) the categories and levels of occupations that individuals participate in, and (2) the mobility of occupations. Since occupational level is an important index of socioeconomic status, the influences of occupational career will draw inspiration from socioeconomic–health research in epidemiology, especially the research dealing with the life course perspective.

The physical mechanism of the accumulative effects of life career and occupational career development over the life course are illustrated by the allostatic load model – a stress model that accounts for the cumulative

pathologic process of stress exposure. Figure 2 shows the conceptual model of how life career and occupational career relate to health and wellbeing.

Figure 2. A conceptual model of the influences of career development on health and wellbeing.

Life career and health and wellbeing

Life career concerns the interaction of the work role with other life roles over the life course. Research has revealed that psychosocial characteristics of work, such as those relating to resources, demands, and control (Karasek & Theorell, 1990), have long-term effects on individuals' health and wellbeing (e.g., Caplan, Cobb, French, Harrison & Pinneau, 1980; Johansson & Aronsson, 1991; Leitner & Resch, 2005). Similarly, the psychosocial environment of other life areas has been found to have a similar type of effect on health and wellbeing. For example, evidence indicates that the demands and supports of the family role have a significant influence on family satisfaction (e.g., Aryee, Fields, & Luk, 1999; Carlson & Perrewe, 1999). It is also well documented that many transitions in life, including the birth of a child, marriage, going back to study after working for some time, and so forth, have effects on health and wellbeing (Appley & Trumbull, 1986). Furthermore, a large amount of research has focused on the consequences of the interactions of the work and nonwork roles.

One of the career features in the postindustrial era, for men and women, is that they engage in multiple roles (Barnett & Hyde, 2001). The increase in dual-earner families indicates that women are participating more in the labor market, and that men are increasingly entering the domestic world, although a gap still exists (Barnett & Hyde, 2001). As the ways in which people organize their multiple roles becomes more diversified, it becomes

more important to know which of these ways are more beneficial in the long run. To know whether those who participate in different roles are healthier or happier than those who only commit to limited roles can be of consequence in light of today's developments.

How work and family roles interact and the consequences of the work-family interaction are among the most investigated topics of late. It has generally been found that individuals' wellbeing is impeded in circumstances where there is a conflict between paid work and family. The consequences of the work-family conflict that have been examined include both mental and physiological problems as well as health-rated behaviors, such as lower satisfactions with both domains, psychological distress (Frone, Barnes, & Farrell, 1994), anxiety (Frone, 2000), self-rated health (Frone, Russell, & Cooper, 1997), hypertension (Frone et al., 1997), substance dependence and abuse (Frone, 2000; Frone et al., 1994; Frone et al., 1997), and somatic symptomatology (Guelzow, Bird, & Koball, 1991).

Grzywacz and Marks (2000) summarized three theories that account for the outcomes of the work-family interface. One approach, the role strain model, centers upon the notion that the responsibilities of the multiple roles compete for key resources, including time, energy, and psychological involvement. Multiple role involvement may therefore be accompanied by strain. This, for example, could be the case for a person who has to work overtime and does not have enough time to spend with his or her family, or befall a working mother with demanding childcare responsibilities who has less energy with which to work effectively. Another model, the role enhancement model, holds that multiple roles foster individual growth and better functioning in various life domains, while enriching the lives of individuals (e.g., Barnett and Hyde, 2001). This can be witnessed, for example, in the fact that those in supportive family relationships are better able to concentrate on work. The third model, which Grzywacz and Marks (2000) advocated, is based on the ecological systems theory suggested by Bronfenbrenner (1979, 1986, 1999). Using this model, Grzywacz and Marks (2000) came to the conclusion that the influences of the work-family interface can be either beneficial or detrimental depending on the interaction of certain factors such as individual orientation and preference, the environment, and the timing of role transitions over the life course. The fact that having a child at the beginning of a work career can be more stressful than doing so when one is stabilized in their present work illustrates this.

Barnett and Hyde (2001) argued that the new social and economic circumstances of the postindustrial era have rendered the classical theories regarding the separated roles for women and men obsolete. They put

forward an expansionist theory, postulating that, in general, multiple roles are beneficial for both women and men in terms of mental health, physical health, and relationship health; the effects, they added, would however be subject to certain conditions, such as the number of roles, the involvement of roles, and the quality of roles.

In summary, multiple roles have the potential of being either positive or negative for health and wellbeing. The temporal characteristics further complicate the influences. As mentioned before, in the case of earlier motherhood, longer-term consequences, such as marital upheavals, and difficulties with the children's school and social life have been found (Furstenberg et al., 1987). The majority of previous research tended to examine the health and wellbeing consequences of the work-family interaction at one time point. Because of this, the important aspects of duration of role occupancy and ordering of role transitions, as indicated in the life course research mentioned above, have been ignored.

Life career from a stress perspective

The use of a stress perspective for the examination of career development has only been suggested recently. In one study, for example, certain career patterns showing instability, such as unrelated job changes and unemployment experiences, were regarded as stressors (Kinnunen et al., 2005). How career development patterns trigger stress processes deserves in-depth discussion.

The concept of stress can be dated back to Selye (1956) who used stress to describe the physiological process underlying the body's response to noxious stimulus. Early stress research tended to define stress as either a stimulus or a response. With the stimulus-based approach, stressful events in the environment were sought after, such as war, natural disasters, divorce or unemployment, while individual differences were neglected. The response-based approach was popular in biology and medicine, where the focus was on the biological processes that occurred in connection with stress. This was later followed by the relational approach (Lazarus & Folkman, 1984), which emphasized the relationship between person and environment, and hence individual differences. With this approach, certain environmental factors are viewed as stressors if the focal person appraises them to be stressful. Psychological stress is thereby defined as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus & Folkman, 1984, p. 19).

Among the factors that influence people's appraisal, the timing of certain events over the life course is an important one. For example, to experience a lay off during young adulthood can carry with it a different degree of frustration than it would for someone of middle age in a similar position. Since there is a normal schedule for life events, those events happening off schedule can be perceived as stressful. Lazarus and Folkman (1984) summarized a number of reasons for this. They found, for example, that the experiencing of an off-scheduled event can: (1) reduce the amount of social support one receives from peers, (2) be less meaningful than the on-time occurrence of the event would have been, and (3), in regard to a too early event, be more demanding due to inadequate preparation. Moreover, the timing of certain events can also impact appraisal via its connection with other events. For example, divorce matters differently depending on one's childcare responsibilities and socioeconomic status. For a woman of low socioeconomic class who also has a newly born child, getting divorced can be acutely stressful.

Since life course research has indicated an intensified individualization and diversification in life patterns, there is less surety over whether the timing of events is still an important stressor. For example, it is difficult to surmise whether women who postpone their education until later in the life course feel more stress than those who finish their education earlier, or to know how late mothers fare compared to early mothers.

Career development, SES, and health and wellbeing

Career determines individuals' socioeconomic status (SES). Life career encompasses the length of individuals' working and educational experiences as well as their other life role activities, while also taking into account the different constellations of work and other roles, which all affect the focal individual's SES. For example, because career interruptions have been found to have a negative effect on subsequent income (Albrecht, Edin, Sundström, & Vroman, 1999), individuals whose life careers are characterized by continuously full-time work could be expected to have a higher level of SES than those who work mostly part time or intermittently. As occupational level is an important indicator of SES, occupational career can serve to locate individuals in their respective SES.

It is widely documented that SES is associated with an individual's wellbeing and health (Marmot, Kogevinas, & Elston, 1987). Unfavorable SES is related to increased all-cause and specific-cause mortality and morbidity (e.g., Winkleby, Jatulis, Frank, & Fortmann, 1992). The connection applies to all of the components of SES: education,

occupational prestige, and income. Among the indicators of SES, occupational level is most frequently used. SES and its association with health can be viewed as an important mechanism in the relationship between career and health and wellbeing.

Studies indicate that the association between SES and health occurs at every level of the SES hierarchy. One finding indicated that there was an inverse relationship between occupational levels and mortality among British civil servants, such that the mortality levels decreased as the occupational levels rose from unskilled workers, clerks, professional and executive staff, to top administrators (Marmot, Shipley, & Rose, 1984). Marmot et al's study indicates that health differences can occur even in relatively homogenous groups. Nowadays, the SES-health gradient is frequently witnessed. For example, Adler et al. (1994), using evidence from the UK and USA, found that there was a negative association between occupational/educational levels and mortality and the onset of diseases.

In the area of chronic disease epidemiology, a life course approach is increasingly being advocated since it "explicitly recognizes that importance of time and timing in understanding causal links between exposures and outcomes within an individual life course, across generations, and on population level disease trends." (Lynch & Davey Smith, 2005, p.1).

There are at least three theoretical models that apply to the influence of SES and are based on its time and the timing of the life course (Hallqvist, Lynch, Bartley, Lang, & Blane, 2004; Lynch & Davey Smith, 2005). The critical period model is one that emphasizes the timing of unfavorable SES exposure. Based on this model, exposure to poor SES during a specific period of the life course can have crucial long-lasting effects. However, research using this model has yielded somewhat equivocal findings. For example, the well-known fetal origins hypothesis has suggested that health problems in adulthood can be the result of impaired fetal growth resulting from poor nutrition during pregnancy associated with adverse SES (Barker, 1995). Alongside the studies indicating that childhood SES is an important determinant of adult health (Kaplan & Salonen, 1990; Nystrom Peck, 1992; Vagero & Ostberg, 1989) are other studies which indicate that adult SES is an even more important determinant of adult health than childhood SES (e.g., Lynch et al, 1994). Thus, findings on the significance of childhood SES in comparison to adulthood SES in regard to coronary heart disease have produced mixed results. In fact, the impact of SES on health has been witnessed all across the various life course stages (Lynch & Davey Smith, 2005).

Another perspective centers on the accumulation model, which holds that the longer the exposure to adverse SES, the greater the later health

damage. This model also maintains that the effects of SES are cumulative over the life course. Studies show that exposure to unfavorable SES across different life course stages has an additive effect on adult health consequences (e.g., Davey Smith, Hart, Blane, Gillis, & Hawthorne, 1997). Therefore, a SES-health gradient also exists with regard to the duration of SES exposure.

A third model stresses the sequence of changes of SES categories. The changes are summarized by different mobility patterns. Patterns characterized by downward or upward mobility, as well as by stability have been related to different health outcomes (e.g., Lynch et al., 1994). A study by Lynch et al. (1994) found that those who had stable high-income levels during both childhood and adulthood, or who had an upward mobility where they rose from a low-income childhood to a high-income adulthood, had half the mortality risk of those who had downward income mobility from childhood to adulthood.

The accumulation and sequence models have been especially emphasized recently, while the importance of the critical period perspective remains acknowledged. Studies point out that the accumulation model helps to reveal processes of the SES-health association that would not be uncovered by one-time measurement. For example, with the use of mobility patterns, it is possible to observe the occurrence of a compensation effect in those with favorable adult SES who had been exposed to an earlier adverse socioeconomic environment, which is illustrated as the pathways of resilience (Singer & Ryff, 1999).

However, few empirical studies exist on the effects of cumulative or mobility patterns. Among them, only coarse SES indicators are used. One of these studies, for example, only compared manual workers to non-manual workers. Little is therefore known about whether the effects hold across different occupational groups in the occupational hierarchy. Measurement of SES has also been quite limited in these cases, only being measured, at most, three times over the life course up till adulthood. A typical example of this being that only an individual's first occupational status was taken into account (i.e., manual vs. non-manual), and it was often limited to whatever his or her status was on the day the study was conducted. Any potential effects related to occupational changes were therefore missed. As Davey Smith et al. (1997) remarked, "Any serious attempt to elucidate the contributions of socially distributed risk factors to the risk of disease in adulthood should aim to collect information covering the entire lifespan of study participants" (p. 552). Generally speaking, the relationship of lifetime SES development to psychological functioning has not been paid enough attention.

While it is useful to distinguish these models for conceptual clarification, in reality they all help explain a complicated phenomenon that often results in physical repercussions. Hallqvist et al.'s (2004) study shows that the effects of SES in critical periods, cumulated exposure, and mobility patterns overlap, and that it is impossible to separate them from each other. The concept of occupational career, which takes into account job timing and duration as well as the changing of job levels, captures the key variables of the critical period model, accumulation model, and sequence model simultaneously. For this reason, studies concerned with occupational career and its association with health and wellbeing will have significant implications for the further investigation of the SES-health relationship.

Physiological Mechanism: Allostatic load model

Adler et al. (1994) concluded that SES has four types of influences on individuals: physical environment, social environment, psychological development, and health behaviors. This entails, for example, that having a poor SES is related to more stressful life events and having fewer resources to deal with the stressors. SES also has an inverse relationship with smoking and alcohol consumption as well as the frequency and content of physical activities; adverse SES, furthermore, contributes to depression and hostility. All four aspects contribute to increased levels of stress (Adler et al., 1994; see also Adler, Boyce, Chesney, Folkman, & Syme, 1993). Hence, to some extent, adverse SES impacts health through stress.

Therefore, one way that career development influences health and wellbeing is through SES. SES affects the stress process, which, in turn, impacts health and wellbeing. As mentioned earlier in this section, temporal characteristics of the life career can constitute stressors. The work-life conflict may be viewed as a stressor as well, as the life career may also directly provoke the stress process.

The mechanism underlying how stress affects health and longevity has long been the subject of research, and can be dated back to the notable studies on homeostasis and the physiological over-activation by Selye (1956). Recently, McEwen and Stellar (1993) introduced a more cumulative and multisystem construct termed the 'allostatic load' in order to explain the pathologic process associated with the exposure to stressors. The term allostatic load is derived from Sterling and Eyer's (1988) notion of 'allostasis,' meaning that the body maintains stability through change. In contrast to homeostatic systems, such as blood pressure and body temperature, which have to be maintained at certain optimal set points, an allostatic system can operate within much broader ranges while adapting to

a stressful situation. At the same time, the physical system has to pay for such an adaptation, which is called the allostatic load. According to McEwen (1998a), “Allostatic load is the wear and tear on the body and brain resulting from chronic overactivity or inactivity of physiological systems that are normally involved in adaptation to environmental challenge” (p.37). Because career development is a longitudinal process over the life course, the accumulative model can be instrumental in accounting for the physical mechanisms of health and wellbeing that are consequences of career.

Allostatic systems include the sympathetic nervous system, the hypothalamus-pituitary-adrenal (HPA) axis, as well as the cardiovascular, metabolic and immune systems. Allostatic responses typically start with the activation of the sympathetic nervous systems and the HPA axis, which invokes the release of catecholamines from the nerves and adrenal medulla, and the secretion of corticotrophin from the pituitary. Corticotrophin then regulates the release of cortisol from the adrenal cortex. These hormones activate target organs and prepare the body for potential threats. Either over or under activity of these systems can be detrimental for health. Possible cardiovascular health risks include hypertension, myocardial infarction, and atherosclerosis. Allostatic load can also contribute to brain dysfunctions, such as memory impairment or neuronal atrophy; metabolic disorders, such as obesity and diabetes; immune system disorders, such as inflammatory, autoimmune disorders (McEwen, 1998a, 1998b, McEwen & Seeman, 1999).

Four types of situations contribute to allostatic load. The first and most obvious type concerns exposure to high frequency stress. The second type is the inability to shut off the allostatic response after stress. The third type is the lack of adaptation to repeated stressors of the same type. And the last type deals with the inadequate responses of certain bodily system, which cause the compensatory activities of other systems (McEwen, 1998a, 1998b, McEwen & Seeman, 1999).

In summary, as it is a long-term process from allostatis to allostatic load, allostatic load reflects life-long exposure to stress. It is therefore a useful construct for the investigation of long-term physiological activity over the life span that is associated with different career pathways. Career development may contribute to allostatic load in two ways: firstly, life career can constitute a stressor that directly activates the allostatic process; secondly, life career and occupational career affect allostatic responses through SES. Allostatic load is a useful construct with which to account for the health gradients across SES classes (McEwen, 1998b; Szanton, Gill, & Allen, 2005). Frequent unfavorable SES exposure across the life course

leads to cumulative wear and tear on physiological functioning, which is indicated by allostatic load (Kristenson, Eriksen, Sluiter, & Ursin, 2004; Singer & Ryff, 1999; Szanton et al., 2005).

Methods

A longitudinal cohort

All studies in this thesis were conducted within the longitudinal research program, *Individual Development and Adaptation* (IDA; Magnusson, 1988; Magnusson & Bergman, 1997; Magnusson, Dunér, & Zetterblom, 1975). The IDA program was initiated in the early 1960s by David Magnusson who led it until 1996 when Lars Bergman took over and became the scientific leader of the program. The first data collection was conducted in 1965 and included three complete school-grade cohorts from the medium-sized Swedish city of Örebro (about 100,000 inhabitants). The cohorts included all children around the ages of 10 (grade 3), 13 (grade 6), and 15 (grade 8). Information had been collected from the children themselves (e.g., intelligence, school performance, vocational preferences, adjustment to school, psychosomatic symptom) as well as from teachers (e.g., ratings of symptoms), parents (e.g., parental biographic background, conditions of living, family situation), peers (e.g., social relations), and registers (e.g., school marks and school absence). The age-10 group was called the *main group*. The data have been continuously collected since then for the main group at grade 6, during secondary school (grades 7-9), during upper secondary school (grades 10-12), during early adulthood (age 26), and during middle adulthood (age 43, age 47, and age 49).

Sample in the thesis

The studies in this thesis were based on the data collections of 1998 and 2004, when women of the main IDA cohort were aged 43 and 49, as well as on data collected when the cohorts were 15 and 16. The 1998 data collection was an extensive follow-up that only targeted the women. The theme of this data collection was “Women’s Health, Work, and Education in a Life-span Perspective” (Bergman, 2000). The data collection contained four parts. The first was a comprehensive personal interview focusing on work and family, which covered family situation, homemaking activities, social relations, health-related questions, career history, work attitudes and experiences, work values, and life satisfaction. In the context of the interview, a number of questionnaires were distributed. The interviews normally took place in the women’s homes. In order to aid memory when asked to recall their career histories, the participants were able to use a life plot, in which important events were marked. Alongside this, the women

were also allowed to verify their employment histories using documentation available at home. The second part involved an intensive psychological-medical investigation, including a thorough physical health examination, health questionnaires for the participants to fill in, and psychological tests and psychiatric interviews. This was, thirdly, followed by a study of stress hormones. The stress hormones were measured both at work and at home. Urine and saliva samples were collected for the purpose of examining catecholamines and cortisol levels. The fourth and final part involved a study of bone density.

The four parts of the data collection were directed at different samples within the main cohort. The personal interview targeted all of the women belonging to the original main cohort, as well as a small number of girls who had moved into the city. This brought the total number of eligible women to 639. The psychological-medical investigation was only used to target a certain subgroup within the main cohort who lived in Örebro county as well as those who received a medical examination at grade 6 (biomedical group). The stress hormone and bone density studies were restricted to those living in the Örebro area. The participation statistics are reported in Table 2. For detailed information regarding this wave of data collection, see Bergman (2000).

Table 2. Participation statistics for the data collection of 1998

Data collection	Number of eligible women	Number of participants	Participation rate (percentage)
Personal interview	639	569	89.0
Psychological-medical investigation	479	369	77.0
Stress hormone study	347	218	62.8
Bone density study	440	333	75.7

In 2004, when the women in the main cohort were aged 49, those who had participated in the 1998 data collection were invited to take part in a follow-up questionnaire data collection addressing their life situation, life satisfaction, and health. Information related to the following specific areas was gathered: family and children, education and occupation, work satisfaction, work-life balance, life satisfaction, feelings and emotions, menopause, and health and wellbeing. Out of the 629 eligible women, 514 individuals volunteered to take part in this follow-up, yielding a

participation rate of 81.7%. See Lindfors (2004) for more information on this wave of data collection.

Representativeness of the IDA women sample

This sample has been found to be reasonably representative of the overall Swedish female population (Isaksson, Johansson, Lindroth, & Sverke, 2000). Table 3 shows a comparison of the demographic characteristics of the IDA women (at age 43) with that of a women population (aged 35-44) provided by Statistics Sweden (SCB, 1998a, 1998b). This revealed fairly comparable proportions of married women, women who had children below the age of six, and women's educational levels. A minor deviation in terms of employment data was that the percentage of economically active IDA women was at 84%, as compared to 79% for the women population.

Setting of this study

Some important characteristics of the social policies in the Swedish welfare system that concern career need to be pointed out. During the childraising years of the women in this study, the policy of the public social insurance system in Sweden has been to provide dual-earner families with various forms of societal support (Johansson, Isaksson, Lindroth, & Sverke, 2006; Jonsson & Mills, 2001). Alongside public health and unemployment insurance, for each child, Swedish parents are granted approximately a year's worth of parental leave with pay, which, for the most part, still tends to be used by the mothers. A certain number of days of paid leave are also granted per child in case of sickness, with public childcare also being available to all since the 1970s. Sweden's growing economy and its expanding public sector have provided many opportunities for women to engage in either full-time or part-time employment, especially within the areas of health care and education.

Measures

Career biography

Life career. In the data collection of 1998, the women were asked to give an account of all of their major post-primary school activities that lasted at least six months, including when these activities started and how long they lasted. The activities reported encompassed three major life domains (education, work, and family) and were of the following seven types: full-time study, study combined with work, full-time work, part-time work,

parental leave, unemployment, and unclassified activities (e.g., long-term sick leave, traveling abroad).

Table 3. Demographic information of IDA women in comparison with women population in 1998 (Statistics Sweden).

	Women population (35-44 years)	IDA women (43 years)
Family		
Married	65	63
Cohabiting	9	19
Single	26	18
Children under 6 years	16	18
Highest education achieved		
< 9-year compulsory school	3	2
9-year compulsory school	15	17
Upper secondary school, 2-year	38	34
Upper secondary school, 3-4-year	10	15
University	32	34
Employment		
Economically active	79	84
Study	8	5
Unemployed	6	5
Other (e.g., retired, parental leave)	7	6

Note. Entries are in percentage.

Source: Isaksson et al. (2000), SCB (1998a, 1998b).

The participants were also requested to report exactly when the shifts between activities occurred, although the precise times were not always available. Because of this, the following standardized procedure was used. For an activity (e.g., activity A) that was said to have ended the year prior to the start of a following activity (activity B), the shift was considered to have occurred at the turn of the year. However, if activity A was said to have concluded during the same year as activity B, the shift was considered to have occurred in the middle of that year.

To incorporate the temporal features (i.e., timing and duration) of the activities into the career sequence, the career information of each

participant was recoded into a sequence of six-month periods from ages of 16 to 43. Hence, for each individual, her life career was represented by a sequence of activities, containing up to seven elements and with a length of 54 data points (= the number of six-month periods between leaving compulsory school and age 43). Graphic displays of individuals' life careers are shown in Figure 3. The three life career sequences are used primarily for illustrative purposes; however, the figure does show the variation between women's life careers. For data analysis purposes, each of the seven activities (i.e., study combined with work, full-time study, full-time work, part-time work, parental leave, unemployment, and unclassified activities) was represented by a number from 1 to 7.

Figure 3. Graphic illustration of an individual's life career

Occupational career. All of the individuals' occupations were entered and coded according to the Swedish Standard Classification of Occupations 1996 (SSYK96, SCB, 1998c), which is an adaptation of the International Standard Classification of Occupations (ISCO-88) published in Geneva in 1990 by the International Labor Office. SSYK96 is a hierarchical classification system, where occupations are organized according to kind of work performed and corresponding skill levels. Ten major occupational groups were defined based on the tasks or duties to be performed, and four

skill levels were identified based on the corresponding educational levels that are required to fulfill the tasks (Table 4). These correspondences between educational level and job level, however, are not meant to imply that tasks can only be performed via formal education. The ten major occupational categories are further divided into sub-major groups, minor groups, and unit groups. Hence, each specific occupation is represented by four digits.

Table 4. Occupational Categories and Qualification Levels according to SSYK96 (SCB, 1998c).

Occupation Fields	Qualification
1 Legislators, senior officials, and managers 2 Professionals	4. University, three years or more
3 Technicians and associate professionals 4 Clerks 5 Service workers and shop sales workers	3. College or short university education
6 Skilled agricultural and fishery workers 7 Craft and related trades workers 8 Plant and machine operators and assemblers	2. Upper secondary school education
9 Elementary occupations	1. Compulsory school

Note. A tenth occupation field, Armed forces, is not included due to its inapplicability to women.

Similar to the coding of life career activities, all occupations lasting at least six months were recorded. In order to include temporal features (i.e., timing and duration), each woman's occupational information was then recoded into a sequence of six-month periods from age 16 to 43. Each occupational coding reflects both occupational category and skill level. The non-employment periods were coded with "0." Each woman's occupational career was thus represented by a sequence of occupational categories and a length of 54 data points (= the number of six-month periods between leaving compulsory school and age 43). Graphic displays of individuals'

occupational careers are shown in Figure 4. For this thesis, only major occupational categories were focused on. In order to assess the reliability of the coding procedure, five coders coded a sample of 30 interview protocols to supplement the original coding. Altogether, the sample contained 174 occupations to be coded. The percentages of agreement among the five coders in terms of major group, sub-major group, minor group, and unit group were 83%, 82%, 81%, and 71%, respectively.

Figure 4. Graphic illustration of an individual's occupational career.

Antecedents and consequences

The variables regarding antecedents and consequences of life career and occupational career were measured by scales or single items, except allostatic load, which was based on clinical data. For all of the variables, the scales used, the scale reliabilities in the studies, the time that the measures were taken, and in which studies they appeared are summarized in Table 5.

Table 5. Overview of the variables used

Variable	Measures	Reliability (alpha)	Study	Age at measurement
Antecedents				
Life role values	MOW (meaning of work, 1987)	—	I	43
Educational aspiration	Single item from IDA	—	I	16
Adolescent sexual experiences	Single item from IDA	—	I	16
Mother's and father's occupations	SSYK96 (SCB, 1998c)	—	II	43
Relation to mother	Questionnaire from IDA	.87	II	15
Relation to father	Questionnaire from IDA	.89	II	15
Consequences				
Socioeconomic status	Sum of standardised score of educational level, income, and job level	—	I	43
Job satisfaction	Minnesota Job Satisfaction Questionnaire (Weiss, Dawis, England, & Lofquist, 1967)	.90 & .87	I & III	43 & 49
Intrinsic job satisfaction	Minnesota Job Satisfaction Questionnaire (Weiss et al., 1967)	.85	II	43
Extrinsic job satisfaction	Minnesota Job Satisfaction Questionnaire (Weiss et al., 1967)	.87	II	43
Job involvement	Kanungo (1982)	.84	II	43
Organizational Commitment	Allen & Meyer (1990)	.69	II	43
Work load	Hovmark & Thomsson (1995)	.87	II	43
Time planning	Hovmark & Thomsson (1995)	.85	II	43
Role conflict	Rizzo, House, & Lirtzman (1970)	.74	II	43
Goal clarity	Rizzo et al. (1970)	.73	II	43

(Cont'd)

Table 5 (cont'd)

Work-to-family conflict	Frone, Russell, & Cooper (1992)	.78 & .84	II & III	43 & 49
Family-to-work conflict	Frone et al. (1992)	.79 & .80	II & III	43 & 49
Life satisfaction	The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larson, & Griffin, 1985)	.91	III	49
Life satisfaction	Single item from IDA	—	I & II	43
Optimism	The Life Orientation Test Revised (LOT-R; Scheier, Carver, & Bridges, 1994)	.78	III	49
Psychological wellbeing	Ryff's Psychological Well-Being Scales (Ryff & Keyes, 1995)	.82	III	49
Mental distress	General Health Questionnaire (GHQ-12, Goldberg, 1972)	.89	III	49
Allostatic load	SBP, DBP, Hb _{A1c} , HDL, TC, PEF, and WHR (adapted from Seeman, McEwen, Rowe, & Singer, 2001)	—	III	43
Subjective health	Single item from IDA	—	I	43

Data analyses

Sequence analysis and optimal matching techniques

Individuals' life career and occupational career sequence data were analyzed via sequence analysis in order to classify them into patterns. In doing so, the timing, ordering, and duration of career activities or occupations were taken into account.

A sequence is simply a list of ordered things, whether it be events, jobs, positions, steps in a dance, numbers, or anything else, which are called elements. The elements can be continuous variables (e.g., amount of salary) or discrete variables (e.g., jobs, nucleotide types). For discrete sequences, each sequence is made up of a finite number of elements. For example, life

career is a sequence of career activities, and occupational career is a sequence of occupations which is often accompanied by intermittent non-employment periods. For each individual, there are at most seven kinds of elements (activities) appearing in her life career sequence, and at most nine elements (occupational categories) appearing in her occupational career sequence. Elements can repeat themselves in a sequence. For example, the career activity of full-time work can reappear at different times over the life career. To analyze and find patterns within the life career and occupational career sequences, each of which having 54 recurrent elements, is tedious work if attempted without the aid of an analyzing tool. Optimal matching (OM) is one such tool that can be used.

The use of the optimal matching technique for dealing with sequences has a long history in the natural sciences, especially in the areas of biology, computer sciences, and speech analysis. In biology, for example, optimal matching is largely used for the comparison of proteins and other large molecules. The comparisons are conducted by analyzing strings of elements, such as the nucleotides in DNA sequences. The results of similarity searches can be of value for inferring homology. In the computer sciences, optimal matching is mainly used for the comparison of long sequential files. Since many variations exist when people utter the same phrase, the focus in speech analysis is to compare the sequences of sounds that are related to one phrase in order that the phrase can be recognized when it is uttered with certain sequences. One interesting implication is the study of bird songs. As bird songs are learned behavior, analyzing the song variations can shed light on the evolution of bird populations. A song can be decomposed into a sequence of notes, which allows song comparison to be conducted using sequence analysis. See Sankoff and Kruskal (1983) for the application of optimal matching in the natural sciences.

Since the 1980s, Andrew Abbott (Abbott, 1990; 1995; Abbott & Hrycak, 1990; Abbott & Tsay, 2000) has been dedicated to adapting this method to the social sciences. Nowadays, it has come into use in a wide variety of areas (for a review see Abbott & Tsay, 2000). Career research, in particular, has seen an increased application of this method (e.g., Abbott & Hrycak, 1990; Blair-Loy, 1999; Chan, 1995; Han & Moen, 1999; Pollock, Antcliff, & Ralphs, 2002; Scherer, 2001; Stovel, Savage, & Bearman, 1996)

Taking a look at sequences again, it should be noted that two sequences are considered to be exactly the same only if they are made up of exactly the same elements and these elements are in the same order and positions in both sequences. In all other cases, the sequences are considered dissimilar. The basic method for comparing sequences is to examine how different

their elements are. In the simplest cases, where the sequences are of equal length, and each element in one sequence only corresponds with another element at the same position, the comparisons can be easily calculated using conventional distance measures, such as the Euclidean distance measure, or the city block distance measure, and so on. For the recurrent sequences that usually have unequal lengths, these methods are not applicable because there are no correspondences between the elements of the different sequences. However, the principle is still the same. Elements are to be compared, but on the condition of searching for optimal correspondences between the elements in different sequences, for example, to keep the order of the elements in sequences. This process is called optimal matching.

Fundamentally, optimal matching involves calculating the metric distance between pairs of sequences, as represented by the ‘costs’ of transforming one sequence of the pair to the other (Abbott & Hrycak, 1990; Sankoff & Kruskal, 1983). The transformation is conducted by changing the elements of the sequences to make two sequences similar. Generally, there are three potential ways of changing the elements: elements of one of the sequence pairs could either be substituted with those of the other sequence, deleted, or new elements could be inserted. These three kinds of changes are called element operations. The transforming of one sequence to another can be performed in different ways; some require a greater number of element operations, while others require fewer element operations. To achieve an optimal correspondence between elements, the distance can be simply taken as the minimum number of element operations required. For example, to change sequence a: TERMINAL to sequence b: TEMPORAL, if two transformations are considered (Figure 5), the first transformation invokes two substitutions, one deletion, and one insertion, while the second invokes one substitution, two deletions, and two insertions. In this case, the distance can be 4.

T	E	R	M	I	N	-	A	L	T	E	R	M	-	I	N	-	A	L
T	E	-	M	P	O	R	A	L	T	E	-	M	P	-	O	R	A	L

Figure 5. Example of how two sequences can be aligned.

This is, however, one of the roughest ways to calculate distance. In most applications, each of these three kinds of operations on a sequence (i.e., insertion, deletion, or substitution of elements) would be given a specific weight. The operations would also likely be further weighted depending on

which elements are involved in that operation. The substitution of part-time work for full-time work, for example, may be weighted as less costly than a similar substitution using parental leave. Furthermore, the weights (customarily known as ‘costs’) that are associated with other operations, such as insertion or deletion, may differ depending on the type of activity in question and where in the sequence the operation is to occur. For the example in Figure 5, if the substitution cost is set to 2, and the insertion and deletion cost to 0.8, the first transformation bears the sum cost of $0.8 + 2 + 2 + 0.8 = 5.6$, whereas the second transformation incurs a sum cost of $0.8 + 0.8 + 2 + 0.8 = 5.2$. As a result, the second transformation will be retained with the distance being 5.2 units.

The process of determining the costs for the possible operations (substitution, insertion, or deletion) to be performed on the elements is one that may be carried out either operationally or theoretically, or through a combination of the two. In most applications, the substitution costs for the elements are typically taken from the measures of dissimilarity between the elements. For example, some jobs are more similar than other jobs. It should be noted that the relative magnitude of the insertion and deletion costs, in contrast to substitution costs, affects the layout of the final alignment. The above example shows that an insertion and deletion cost (0.8) that is lower than half of the substitution cost ($2/2 = 1$) results in an alignment that expands the length of the sequence. Hence, for the life career sequence, the substitution costs were determined based on each career-related activity’s (e.g., full-time work, part-time work, study, etc.) estimated relative significance in advancing work career development, which was itself based on seven aspects, including employability, security, income improvement, network building, and so on. The insertion and deletion costs were fixed to equal the greatest value of the substitution costs. A higher value for the insertion and deletion cost would favor the use of substitution and hence prevent the sequences from unreasonably expanding. For occupational career, the substitution costs were calculated in accordance with the absolute differences between occupational levels. The occupational career sequence includes non-employment periods, which can be any activities outside of the employment system. Their existence is of little interest for examining occupational career patterns. Accordingly, for the insertion and deletion cost, a value lower than half of the highest substitution cost was assigned. This helped ensure that more insertion and deletion would be used in order to decrease the influence of non-employment periods, and to find the similar subsequences from different positions of the sequence pair (see Abbott & Tsay, 2000). Once the costs of the element operations are determined, the dissimilarity of the two

sequences can be observed in the sum of the costs associated with the operations that are needed to yield exact similarity between the sequences.

Andrew Abbott's OPTIMIZE software (Abbott & Tsay, 2000) was used to perform optimal matching on the life career, while TDA (Transition Data Analysis, ver. 6.4f, Blossfeld & Rohwer, 2002) was used for the occupational career.

The basic algorithm of optimal matching

Finding the minimum distances of paired sequences requires dynamic programming. There are several recursive algorithms for this procedure (Sankoff & Kruskal, 1983). All algorithms produce an alignment for a sequence-pair. An alignment is simply a matrix composed of two rows (Figure 6).

T E R M I N ϕ A L
T E ϕ M P O R A L

Figure 6. An illustration of alignment.

Conventionally, the top sequence of the pair, say A, is called the source sequence, and the bottom one, say B, is called the target sequence. The optimal matching works to transform sequence A to B by retaining the optimal correspondences between the elements of A and B, given the costs of element operations already assigned. The alignment is dotted with null characters, which are normally marked by ϕ . The ϕ (s) on the top (i.e., $\{\phi\}$) denote insertions, and the ϕ (s) on the bottom (i.e., $\{\phi\}$) denote deletions. The places without ϕ (i.e., $\{a_i\}$) denote substitution or identical elements.

The recursive process of the algorithm can be illustrated as a comparison table, in Figure 7. In this example, source sequence A= [6 5 3 3] needs to be transformed to target sequence B= [6 1 3 5 3]. Supposing the number of elements in A is m, and the number of elements in B is n, the algorithm would thereby be performed in a table $m \times n$, with the addition of a row and a column on the top and left because of the null being added to the beginning of both sequences. To transform (align) such a sequence entails moving through the matrix downward and to the right. The destination is the last cell at the bottom right (Abbott & Forrest, 1986; Sankoff & Kruskal, 1983).

Each cell, except those in the leftmost column and uppermost row, can be arrived at from three predecessor cells: the one above, to the left, and to

the upper left. To arrive from the left or, in other words, to move rightward, is to insert an element. Moving downward is to delete an element. To move diagonally is to substitute two elements.

Let a_i represent an element in source sequence A at position i and b_j represent an element in target sequence B at position j . To move from cell (a_{i-1}, b_j) to cell (a_i, b_j) is downward movement and thereby denotes the deletion of element a_i from sequence A. To move from cell (a_i, b_{j-1}) to (a_i, b_j) is rightward movement and denotes the insertion of element b_j to sequence A. Lastly, a move from cell (a_{i-1}, b_{j-1}) to cell (a_i, b_j) is diagonal movement and denotes a substitution of b_j for a_i . Each of the three movements incurs certain predetermined costs. Hence, the cumulative sum for the cell (a_i, b_j) is taken from:

$$d(a_i, b_j) = \min \begin{cases} d(a_{i-1}, b_j) + (a_i, \phi) \\ d(a_{i-1}, b_{j-1}) + (a_i, b_j) \\ d(a_i, b_{j-1}) + (\phi, b_j) \end{cases}$$

The recursive process will record all of these values within a cell. Inside each cell (see Figure 7), the insertion cost is placed in the lower left corner, the deletion cost is in the upper right corner, the substitution cost is placed in upper left corner, and the final minimum cost of arriving at the cell is placed in the lower right corner.

After all the numbers are filled in, the recursive algorithm will “backtrack” the cells to search for the optimal alignments (Sankoff & Kruskal, 1983). To do this, it starts at the final cell and makes its way towards cell $(0, 0)$. There may exist several paths. In Figure 7, the arrows indicate the possible routes for achieving the minimum total cost. Six routes can achieve the minimum distance. The corresponding alignments are shown in the figure.

For some applications, the paths are of interest, and for others, the final cost is of interest since it represents the distance between the sequences.

	ϕ	6	1	3	5	3
ϕ	0	2 2	2 4	2 6	2 8	2 10
6	2 2	0 2	5 2	3 2	1 2	3 2
5	2 4	2 2	4 2	2 2	0 2	2 2
3	2 6	3 2	2 2	0 2	2 2	0 2
3	2 8	3 2	2 2	0 2	2 2	0 2

Substitutional cost = $|a_i - b_j|$, Insertion= deletion = 2

6 5 ϕ 3 ϕ 3	6 ϕ 5 3 3	6 5 3 ϕ 3
6 ϕ 1 3 5 3	6 1 3 5 3	6 1 3 5 3
Alignment 1	Alignment 2	Alignment 3
6 ϕ 5 3 ϕ 3	6 ϕ ϕ 5 3 3	6 ϕ ϕ 5 3 3
6 1 ϕ 3 5 3	6 1 3 5 3 ϕ	6 1 3 5 ϕ 3
Alignment 4	Alignment 5	Alignment 6

Figure 7. An illustration of the process of dynamic programming

Cluster analysis

Once the distance matrix among every pair of sequences is achieved, the matrix can be subject to a conventional cluster algorithm in order to identify the homogenous classes of sequences.

Cluster analysis is a kind of classification method whose purpose is to discover the inherent structure in the data. The statistical process of cluster analysis is designed to utilize schemes in order to group objects into mutually exclusive classes so that the cases within the classes are as similar as possible and the cases between the classes are as heterogeneous as possible (Bergman, Magnusson, & El-Khoury, 2003). There have been many methods for grouping objects into classes. The most commonly used is the agglomerative hierarchical cluster analysis. The agglomerative method starts by treating each case as a cluster. In the steps that follow, either new cases are incorporated or prior clusters are combined until all of

the cases are attributed to one cluster. After this process, a decision has to be made on where the optimal partitioning takes place.

Different types of agglomerative methods are further divided according to how the two cases are grouped. The common methods include the single linkage method, the complete linkage method, the centroid method, the median method, the group-average method [including UPGMA (Unweighted Pair Group using arithMetic Averages) and WPGMA (Weighted Pair Group using arithMetic Averages)], the beta-flexible method, and Ward's method. No one method performs better in all areas of application because the performance is dependent on the characteristics of the data [e.g., Bowman, Patel, & Lu's (2004) study of different clustering algorithms applicable to neuroimaging data]. Different clustering algorithms were tested, and Ward's method and the beta-flexible method performed best in terms of the size, homogeneity, and interpretability of the resulting classes. The chaining problem, for instance, was prominent when the single linkage method was used, in that cases tended to gather at one big cluster.

The solution of cluster analysis (number of clusters) can either be determined beforehand, or the analyst will have to decide the points at which the merge or partition should stop (stopping rules). Different rules have been utilized for deciding the number of clusters (for a review of the stopping rules and their performance, see Bergman et al., 2003; Milligan & Cooper, 1985). In this thesis, different rules were used for Ward's method and the beta-flexible method.

Ward's method. Ward's method (Ward, 1963) is based on group variance. It calculates the sum of the squares of each case to the group mean. Iteratively, a new case of another group is included, and the one who incurs the least increase of the sum of the squares are merged in the group. This method has the advantage of creating compact groups. In addition, this method has been shown to be robust against error perturbations (Milligan, 1980). This method was used in study I. The increase in the error sum of squares manifested between adjacent cluster solutions and the degree of homogeneity inside each of the merged clusters were used as criteria for determining the number of clusters in the data set. This method was performed using a modified version of the CLUSTER module in SLEIPNER (Bergman & El-Khoury, 2002)

Beta-flexible method. The beta-flexible clustering method (Lance & Williams, 1967) is a generalized clustering algorithm that is able to integrate different agglomerative clustering methods into a unified form. In the equation, β is weight assigned to the distance between two objects that are going to be merged into a cluster (Milligan, 1989). When $\beta = 0$, the

method corresponds to the WPGMA (weighted pair group using arithmetic averages) method. The beta-flexible method has been found to exhibit good recovery of underlying cluster structure (Milligan, 1989). This method was used in study II and was performed using ClustanGraphics (Ver. 6.0, Wishart, 1999).

Milligan's (1989) simulation study indicated that a β value of - 0.25 is desirable in achieving excellent recovery compared to other clustering methods. However, when there are outliers, different β values are needed. To eliminate the disturbance of outliers and reduce the number of clusters to a manageable quantity, 3% sequences (about 20) with furthest distances from other sequences were then precluded.

The stopping rule for this method in study II was based on a bootstrap validation test. Bootstrap Validation is used to find the partitions that are furthest from random (Wishart, 1999). The actual fusion values acquired for the given data are compared with those yielded from a randomization of the same data.

Analysis of the relationships among study variables

One-way ANOVAs, supplemented by Tukey HSD post-hoc comparisons, were used to examine the relationships between life career patterns or occupational career patterns and antecedents (except parents' occupation) and consequences.

The relations between life career patterns and occupational career patterns, and between occupational career patterns and parents' occupations were examined by Chi-square tests supplemented by the Fisher four-field hypergeometric distribution test. The Chi-square test indicates whether two categorical variables are independent. However, it cannot provide information on the specific relations between different categories of one variable to the different categories of another variable. The exact cellwise tests by Fisher four-field hypergeometric distribution test can perform such elaborate analysis. This method compares observed frequencies to expected frequencies for each cell in the contingency table between two categorical variables. In this way, significant *types* (observed frequencies are significantly higher than expected) or *antitypes* (expected frequencies are significantly higher than observed frequencies) can be identified (Bergman & El- Khouri, 1987, 2002). The exact cellwise tests were performed using the EXACON module in SLEIPNER (Bergman & El-Khouri, 2002).

Summary of the studies

Study I

Women's career patterns: A study of Swedish women born in the 1950s

As it has been recognized that work career is embedded in the development trajectories of other roles over the life course (Richardson, 1993; Savickas, 2002a; Super, 1980), the aim of this study was to investigate how women combine their multiple roles over the life course to disclose the personal context for work career development. Furthermore, related factors, such as life value, aspiration, early experiences, and socioeconomic consequences were also explored. This aim is considered significant due to the fact that few empirical studies have been conducted in this regard in vocational psychology and since previous research has tended to ignore other life domains in studying career. In this study, the multiple role perspective (e.g., Arnold, 2001; Super, 1980), developmental perspective (Super, 1980; Vondracek et al, 1986), and gender perspective (e.g., Betz & Fitzgerald, 1987; Burke & McKeen, 1993) formed the theoretical framework. The theoretical foundation of this study thus centers on viewing career as a process involving the dynamic evolution of individuals within broader life structures; hence individuals' work role development is examined by taking into account the interactions taking place between the various life roles over the life course. Previous categorizations of women's career patterns, focusing on either paid work and homemaking simultaneously or only on paid work, were reviewed.

Through the use of retrospective reports, career biographies, covering the ages of 16 to 43, were composed for a representative sample of Swedish women who were participating in a longitudinal program. Career sequences were then formulated by coding and combining the information from entire period into seven career-related activities. The activities were full-time study, parental leave, study and work combined, full-time work, part-time work, unemployment, and other unclassified activities. In analyzing the career patterns, the timing, ordering, and duration of role transitions were taken into account simultaneously with the aid of optimal matching. The results identified nine distinct career patterns, differing in respect to their timing, ordering, and duration of activities, which were categorized according to their most salient features.

In line with previous work, three main career patterns were witnessed in this study: those centered on work career, family career, or adaptive

patterns characterized by varying ways of combining work and family. However, work-centered women and women who combined various roles were more pronounced in this study. In addition, part-time employment was distinctly present in women's career pathways. In order to discuss the diversity of patterns that emerged in this study, consideration was not only given to life course theory, but also to the potential role that having options played, since the choices of the women involved were made against the backdrop of a society providing childcare assistance, parental leave, and other types of support for working parents.

Among the work-centered patterns, *Full-timers* designated those women who worked full time, with few interruptions, over their life course. Few of them had children. Another group, *Career-oriented women*, was comprised of those who had invested a great deal of time in education, chiefly worked full time, and gave birth late.

The adaptive patterns found included *Early mothers full-time*, which was comprised of women who gave birth early and, in most cases, returned to full-time work after childbirth. In contrast, *Working mothers* tended to work full time early and give birth late. *Delayed family builders* were also late in entering motherhood, but they subsequently worked part-time. *Early mothers part-time* were those who scheduled childbirth and part-time employment earlier than those considered *Delayed family builders*. *Early family builders* scheduled motherhood and part-time work at a time intermediate to that of *Delayed family builders* and *Early mothers part-time*. *Scandinavian family builders* were those who worked full time before raising children and then working part time again. Taking advantage of their legal right to reemployment, they subsequently returned to full-time work.

Another category, the family centered career, included a small group of women, falling under the label *Non-employed*, whose gainful employment experience was negligible. They spent considerably more time on parental leave than other women, and were also more often associated with unclassified activities and unemployment.

Significant differences were found between the career patterns when it came to early sexual experiences and early educational aspirations as well as life-role values and socioeconomic status in middle age. In regard to the consequences of career patterns on wellbeing, significant differences in self-rated health were identified, but not in job satisfaction or life satisfaction. Overall, the results suggest that women choose career patterns according to their own preferences, which leads to them being equally satisfied with their work and their lives.

Study II

Women's occupational career patterns over 27 years: relations to family of origin, life careers, and wellness

The general purpose of this study was to examine occupational career development in terms of its occupational structure and how it was related to multiple role combination trajectories (findings of study I). Despite the efforts that have been made to investigate the occupational careers of women, most of the existing research has been small-scale and cross-sectional, with too much emphasis being put on well-educated women in the western world. Furthermore, most of the identified career patterns were pre-determined and based on specific hypotheses (e.g., Wilensky, 1961) or, in some cases, reached through qualitative methods such as interviews (e.g., Gerson, 1985; Lee, 1994). To identify such patterns through pre-defining or interviews may not cover the diversity of occurrences in women's real-life careers, which are formed by combining their vocational activities and other activities, such as homemaking, in a wide variety of ways (e.g., Hakim, 2000; Lee 1994). All these limitations called for a study, such as this, that utilized a longitudinal design, included women in general instead of only elites, and employed a robust pattern searching method.

The aims of this study were: (1) to identify women's occupational career patterns by examining occupational sequences over a 27-year period, and (2) to systematically examine the influence of occupational career patterns on a series of work wellbeing indicators, including intrinsic and extrinsic job satisfaction, job involvement, organizational commitment, perceptions of the work situation (e.g., workload, work role conflict, goal clarity), and quality of life (e.g., work-family conflict and life satisfaction).

Each occupation that the women participated in between the ages of 16 and 43 was coded according to the Swedish Standard Classification of Occupations 1996. To identify occupational career patterns, optimal matching was performed on occupational sequences. The resulting patterns were labeled according to the predominant direction of mobility and the typical occupational categories.

Ten patterns were identified, and three exhibited predominantly upward mobility. *Entrepreneurs in small business* were those who, after being employed as service workers, retail salespersons, or clerks for several years, came to own their own small businesses. *Professionals* were women who had become health professionals, education professionals, social workers, and business professionals and who had attained their professional occupations after being employed at lower levels. Upward mobility was

also apparent in the career trajectories of *Associate professionals upward* who primarily worked in the areas of administration, education, and health and nursing.

Relatively stable careers were found in four of the patterns. *Associate women professionals*, in contrast with *Associate professionals upward*, tended to remain in the same occupation over the duration of the period studied. Another group, *Stable at lower level occupations*, was comprised of those who were employed in personal care and clerical work. The occupational trajectories of *Clerks* were quite stable. Even more stable were those of *Service and shop sales workers*, who were chiefly recruited as assistant nurses, childcare givers, and home-based personal care givers.

Unskilled workers were those who were hired into low-level occupations within the industry or service sectors, and who experienced downward mobility. In contrast, *Drifters*, who were also recruited in low-level occupations such as personal care or unskilled jobs, had met with considerable fluctuations in their occupational development. Lastly, a smaller group, *Labor market outsiders*, was made up of women who were primarily engaged in activities outside the labor market.

In summary, women's occupational mobility trajectories were found to be diversified. In regard to the direction of occupational mobility, stable careers and patterns of upward mobility were most prevalent. When it came to occupational categories, women were found in a limited number of occupations. Most women worked in the fields of personal care, education, and office work.

This study indicates that occupational career does matter when it comes to work attitudes, perceptions of the work situation, and quality of life. The results lend support to the traditional notion that it is advantageous to have upward mobility and a stable occupational career. Those who fared worst were women with fluctuating and downward careers. However, the findings show that those professionals who led highly prestigious careers, despite being more satisfied with work itself, reported more stressful work situations, including higher role conflict, less goal clarity, and higher bi-directional work-family conflicts.

Study III

A life-span perspective on women's careers, health and wellbeing

Richardson (1993) pointed out that the aspects of health and wellbeing have not been given enough attention in career research. The chief index of vocational choice and development, in the literature, has been aspects of

success and satisfaction within the work system. With the increased emphasis on how career development is embedded in life, the question of how career development affects life in general has become more critical. Cross-sectional research, relying on variable-oriented analyses, has been the basis for the majority of our knowledge about the interrelations between work, on the one hand, and somatic and mental health, on the other. Efforts have been made to estimate the health consequences of the accumulated exposure to various psychosocial and physical work conditions within epidemiological research, but the follow-up periods often associated with such studies have rarely exceeded more than a few years. Hence, the aim of this study was to extend career research by systematically examining the relationship between career development and later health and wellbeing.

Two types of career patterns, life career and occupational career, based on the findings of study I and II, were included. Life careers were characterized by the ways in which individuals integrated educational, paid work, and family involvement throughout their adult lives. Occupational careers were characterized by the trajectories of occupational movements. The two career patterns were related to outcome measures, collected at the ages of 43 and 49. Outcomes included work- and nonwork-related aspects of stress, health, and wellbeing, such as allostatic load, mental distress, psychological wellbeing, job satisfaction, and life orientation.

Results showed that life career was relevant for the midlife health and wellbeing of only one group: *Working mothers*, comprised of women of low education who worked full-time early in their career and who experienced career changes in midlife. This suggests that midlife changes can be stressful for these women. Women who followed other life career patterns fared equally well. The few differences in health and wellbeing were explained by Hakim's (2000) preference theory and life course theory (Elder, 1992; Elder et al., 2003) which hold that lifestyle choices are largely based on personal preferences. In contrast, occupational career patterns displayed a stronger relation to midlife health and wellbeing. Women who reached higher occupational positions were better off in most respects than those at lower levels. These women, however, also experienced more interference from work and family. This study clearly illustrates the significance of long-term career development when it comes to midlife health and wellbeing.

Discussion

The present thesis examines the nature of women's career development, including the long-term career patterns, their antecedents, and consequences. Two key tenets have permeated throughout the entire thesis: that paid work is embedded in one's whole life, and that career is a long-term process. The specific perspectives concerning the nature of career that have inspired this thesis include the multiple-role perspective (e.g., Arnold, 2001; Super, 1980), the developmental perspective (e.g., Super, 1980; Vondracek et al, 1986), and the life course perspective (Elder, 1992; Elder et al., 2003), as well as other views that emphasize the importance of the diversification of lives and the heightened role of agency (Hakim, 2000; Heinz, 2003; Shanahan, 2000). While centering on two aspects of career, the life career and occupational career, this thesis has sought to address three research questions. The first question concerned life career, which involved examining how women organize multiple roles over the life course, why women have different patterns of role combinations, and what the consequences of the different patterns are in terms of SES. The second question concerned occupational career, which included examinations of the trajectories of occupational movement, occupational career's relation to life career, and its antecedents and consequences in terms of work attitude, perception of work situation, and quality of life. The third question focused on the longitudinal consequences of life career and occupational career in regard to health and wellbeing. The three studies included in this thesis were designed to investigate these three sets of questions.

Half a century ago, Super (1953) posited that career development is a long-term process that expands over the life course. Prior to Super, career had been regarded as a onetime matching of people to jobs. In the new economic era, the rapid growth of technology, intensified competition, and constant demands for organizational efficiency and flexibility have all had a direct impact on individuals' careers. The old view of career, as being based on a stable and life-long engagement in a onetime choice of occupation, is no longer valid. Instead of seeing career as a destination, it should be viewed as a journey that is constantly unfolding. Many aspects of the nature of this journey were uncovered by the studies in this thesis.

The nature of career development

Career development– a journey with many paths

Life course research suggests that people's lives are both manifold and individualized. In contrast to the socially constrained life pathways that were typical of industrialized societies, there has been an intensified diversification of lives in the postindustrial era (e.g., Elder et al., 2003; Han & Moen 1999; Heinz, 2003; Rindfuss et al., 1987). This diversification, however, has not received enough attention in career research. Another influential contribution of Super's, next to his developmental perspective theory (1957, 1980), concerns his career stage propositions. Super's (1957, 1980) stage perspective posits that career development passes through standard career stages, including growth (birth till age 12-14), exploration (adolescence, age 14-25), establishment (early adulthood, age 25-45), maintenance (middle age, age 45-65), and decline (old age, age 65 and older).

This viewpoint was questioned by Vondracek et al. (1983) who were influenced by findings within developmental psychology which unambiguously showed that individuals do not follow normative stages unanimously. The recent philosophical movement in vocational psychology further challenges the stage propositions. For example, constructivism and social constructionism cast doubt on the notion that careers progress through normative and predictable developmental sequences, and favor the position that development is individualized, variable, and less predictable than before (Young & Collin, 2004). In the present thesis, a developmental perspective was adopted, as it provided a proper basis for the study's examination of individuals' life careers and occupational careers over a life span of 27 years, covering the period from adolescence to midlife. The findings of this thesis lent empirical evidence to these postmodern ideas.

Life career. In terms of life career, study I indicates that the ways in which women integrate different roles appear to be highly diversified. Nine different life career paths were identified which varied in terms of timing, ordering, and duration of career activities. Based on Hakim's categorization (2000), the nine patterns can be sorted into three major groups: work-centered, family-centered, and adaptive women who combined both work and family roles.

About one third of the women committed themselves to their work roles by limiting other role engagements. They also differed in that some women dedicated themselves earlier to full-time work, after finishing compulsory school (*Full-timers*), while other women invested considerable time in both

education and paid work (*Career-oriented women*). When it came to childbirth, these work-centered women either chose not to have children or postponed childbirth. For example, the proportion of childless women was much higher among the two groups than for women of other groups.

Another group displayed life trajectories that were quite opposite (*Non-employed*). These women had little contact with the employment system, but had more of a marked status in homemaking, childrearing, and unemployment.

The majority of women tended to integrate various roles. For these women, part-time employment was a common strategy, enabling them to balance work and family while remaining in the labor market. However, for these women, a most notable finding is that their career trajectories differed considerably in terms of the timing, ordering, and duration of role transitions. These differences were grouped into six career patterns. Three of them shared the same ordering of activities, although the timing and duration of these activities were different. The timing of childbirth and subsequent part-time employment varied in these three patterns, with some women beginning as early as their 20s (*Early mothers part-time*), some in their 30s (*Early family builders*), and others after their 30s (*Delayed family builders*). Another group of women scheduled childbirth also around their 30s, but returned to full-time employment afterwards (*Scandinavian family builders*). The other two groups engaged in less part-time employment. In one group (*Early mothers full-time*), the women gave birth in their early 20s and carried on full-time work after a short part-time work period, whereas, in the other group (*Working mothers*), they had longer full-time work periods before giving birth and starting part-time employment.

In comparison to women's life careers in other countries, the women in this thesis exhibited a higher involvement in gainful employment. For example, there were more women in the work-centered group. Furthermore, the diversification of career patterns was greater. More patterns, for example, were found in this study than were found in the previous major studies of Gerson (1985), Hakim (2000), Super (1957), and Zytowski (1969). Since part-time work was more salient for Swedish women than for women in other countries, unique patterns emerged for the varying combinations of full- and part-time employment. It was also observed that through part-time employment, the Swedish women in this thesis were able to maintain their connections with the labor market while taking care of their children, which was less possible for women in other countries, who tended to leave the labor force for childcare reasons.

Occupational career. Occupational careers were also found to be diverse. Ten patterns, differing in their categories of occupations and directions of occupational movement, were found. Predominantly upward mobility was evidenced in the career histories of three patterns: the *Entrepreneurs in small business*, *Professionals*, and *Associate professionals upward*. They accounted for one-third of women's occupational career paths. The majority of women's (over 50%) occupational careers exhibited stable features. They either remained in the same kind of jobs or took on different jobs at the same level. The stable career trajectories were further divided into the following four groups according to the levels and categories of the occupations: *Associate professionals*, *Stable at lower level occupations* (women who were employed in personal care and lower-level clerical work), *Clerks*, and *Service and shop sales workers* (e.g., childcare givers, assistant nurses, home-based personal care givers, and shop sales persons). With the exception of the group composed of associate professionals, the middle level occupations appeared to show characteristics consistent with the stable career pattern. A third group of women (*Unskilled workers*) experienced downward mobility in their career histories. They were normally employed in low-level occupations, such as plant workers or other types of unskilled workers. Another group of women (*Drifters*), who were also employed in low-level occupations, showed fluctuating career histories. In sum, most women were found to work in traditional female fields, such as personal care, education, and office work, while women's careers were found to be predominantly stable and upwardly mobile, with only a minority exhibiting fluctuating or downward tendencies.

The diversity of life careers and occupations among the women in this study was remarkable considering their backgrounds. They had grown up in the same city, where most of them were still living, and they were of the same age, which meant that they had been subject to identical social policies and geographic characteristics, as well as similar schooling and community surroundings. Moreover, as the labor market was sex-segregated at the time when the women joined the labor force, they were only involved in certain types of occupations. Yet, their life careers and occupational careers ended up varying widely in spite of this.

Career development— a journey towards a harmony of life

Evidence from western countries has shown that the discrepancies between the amount of responsibility taken by men and women in respect to family care and homemaking have been decreasing, although gaps still exist (Halpern, 2005). With women increasingly entering the labor market, men

are, in turn, increasingly entering the domestic world. Negotiating between work and homemaking roles has always been a concern for women (Betz & Fitzgerald, 1987; Lee, 1994; Meon, 1985, 2001). Nowadays, the need to find a balance among the different roles seems to be a driving force in the career development of men as well (Mirvis & Hall, 1994). Accordingly, more attention is gradually being paid to how individuals develop as whole persons, within career research, as individuals' careers are being recognized as forming a part of their integrated lives (Richardson, 1993). With this changing nature of career, the notion of career success no longer only refers to a person's position or rewards received in the employment system, but also relates to how multiple roles are combined to form an individual's integrated identity (Mirvis & Hall, 1994). The studies in this thesis have shown how the dynamic interactions among the different roles took place over the life course, and how the occupational careers of individuals were embedded in their life careers.

The results from study I showed that the various role activities were interconnected in the shaping of the career development of women. The timing of motherhood, for example, generally served as a turning point in the transition from full-time to part-time employment status, as has also been found in previous research (e.g., Moen, 1985, 2001). In regard to education, it was found that a longer education was related to less involvement in motherhood, and that lesser education was associated with a lower frequency of gainful employment. This was evident, for example, in the pattern characterized by early motherhood transitions, in which those who spent less time studying tended to engage in part-time work more extensively. Some of the other recent studies in this area have missed important aspects. Jacobs (1999), for example, only compared occupational mobility based on current employment status, while neglecting long-term work history. Another, Stewart & Greenhalgh's (1984) examination of work history patterns, was oversimplified since it only categorized the patterns into either "work" or "non-work" periods.

Results from study II indicate that occupational career and life career are significantly interconnected. The occupational paths they traveled were associated with the ways in which women combined multiple roles. Specifically, those who followed upward occupational paths were the women who spent the majority of their lifetimes in full-time work and who had a constrained involvement in other roles, especially family roles. The individuals to reach a professional career level were primarily those who had continuously worked full time, invested more time in higher levels of education, and postponed childbirth. Those who engaged in mother roles earlier and those who had spent less time in the job market tended to be

employed in lower-level occupations, and experienced more fluctuations in their occupational careers. Those who were less educated, yet able to commit to full-time work roles by limiting their engagement in family roles, were also able to hold stable careers. Individuals who preferred long-term, part-time work were often found in occupations such as service worker and retail salespersons. To find this relation between life career and occupational career is indeed uncommon, but the results from this thesis are in line with those of a few existing studies. Jacobs (1999), for example, found that part-time employment was related to downward occupational mobility, while Han and Moen (1999) were able to show that fluctuating occupational careers amongst women were more salient for those who consistently worked part time.

In summary, the results of this thesis indicate that career develops in conjunction with multiple-role constellations. Careers unfold via a constant interaction between work and other roles. To bring a sense of harmony to the whole of life appears to be the concern and driving force of career development.

Career development– a journey of self-guidedness

Career development is a self-directed process. This notion is an essential proposition in vocational psychology, which can be dated back to Frank Parsons's (1909) work. Contributions on this subject have also come from Super (1953) who pointed out that career development is a process in which the self-concept is implemented. Career choice and development have been related to many psychological factors, such as one's aspirations, expectations, values, interests, abilities, decision making style, self-efficacy, locus of control, and so on. More recently, an important advancement was made regarding the developmental perspective when individuals' contexts and environments, as well as their interactions, began to be given more consideration. This view was forwarded by Vondracek and his colleagues (Vondracek et al., 1983, 1986). Although contextual aspects have always been heeded to some extent, Vondracek et al's main argument was that the environment should not be viewed as just something "out there." The context, they claimed, as well as the ways in which it affects individuals' career behavior, should receive focus in the research.

As the western world entered the postindustrial era, the influence of context and individual agency began to exhibit new features. Hakim's (2000) preference theory emphasizes that in affluent countries the social policies enhance the freedom of individual choice. As a result, individuals' choices in regard to work and lifestyle reflect their personal preferences to a greater degree. Recent life course research also indicates that the

diversification and individualization of lives are largely attributed to the lessening of social constraints and the enhancing of individual agency (e.g., Shanahan, 2000; Heinz, 2003).

It is conceivable that the opportunity for women to choose their lifestyles is greater in generous welfare states, such as Sweden, where ample employment opportunities and generous support for women transiting into motherhood are available. Study I of this thesis found that women's life-role values, aspirations, and early sexual experiences were significantly related to the way they constructed their careers. For instance, women who committed themselves intensively to full-time work roles but limited their involvement in family roles had stronger work values and weaker family values compared to other women. Individuals' educational aspirations in early life were also found to predict their actual educational duration in later life, and experiences of sexuality were shown to be related to the timing of the transition into motherhood. These results suggest that individual agency plays an important role in the way life careers unfold.

Vondracek et al. (1983, 1986) proposed that career research should pay attention to influences found in individuals' greater life context, such as society, the economy, and the family, and the interaction of the person and these environmental contexts. As this thesis mainly emphasizes the role of agency in career development, contextual influences are also acknowledged. Given the fact that the women in the studies of this thesis shared identical social, geographical, and temporal backgrounds, the family context came into focus naturally. The influence of family on career has been divided into two types (Whiston & Keller, 2004): influences of family structure (e.g., parents' occupational categories) and influences of family process (e.g., relations to parents). However, less is known about whether family has a long-term influence on an individual's longitudinal occupational career pattern (Whiston & Keller, 2004).

The results from study II of this thesis showed that parents with high-level occupations were related to their children's stable or upward occupational career in high-level occupations, whereas parents with low-level occupations were related to their children's occupational career in low-level and unstable careers. The association with fathers' occupations was stronger. The results are consistent with previous studies that found an occupational transmission between parents and children (e.g., Bell et al., 1996; Mortimer 1974, 1976; Owens, 1992). However, in contrast to previous conclusions, which held that the relationship with the parents mediated the degree of occupational transmission (Mortimer, 1974, 1976; Whiston & Keller, 2004), the quality of the relations with the mother and

father were not found to be significant factors in the occupational careers of the daughters in this thesis.

Although individuals' occupational careers were related to both individuals' life careers and the parents' occupations, the results showed that the association with life career was stronger. These results indicate that the influence of the individuals' own lifestyles on occupational careers was stronger than the influence of family. The thesis thus confirms the claims that there is a heightened role of agency in career construction within the postindustrial society (e.g., Hakim, 2000; Heinz, 2003; Shanahan, 2000).

Career development— a journey towards happiness

Since career development is an integrated part of an individual's life development, career would not only have implications for one's work behaviors, but also for life in general. This is perhaps even more distinct when it comes to the changing nature of careers. The boundaryless career involves more frequent movement between organizations, occupations, and between work and nonwork (Arthur, 1994; Arthur & Rousseau, 1996). An individual's striving after an integrated self is an important aspect of the boundaryless career (Mirvis & Hall, 1994). A recent review by Barnett and Hyde (2001) concluded that multiple roles are beneficial for women and men when it comes to their mental health, physical health, and relationship health. However, less is known about the impact of longitudinal life structure changes and occupational changes on general aspects of life, such as health and wellbeing (Richardson, 1993). The present thesis has made efforts to fill this gap. Beyond the question of what consequences were related to career development, this thesis went further and examined how the influences occurred.

Influences on work wellness. The examination of occupational career and work wellness in study II showed that occupational careers were associated with work attitudes (intrinsic and extrinsic job satisfaction, job involvement, job commitment) and the perception of the work situation (work load, time planning, role conflict, and goal clarity) at age 43. The results show that women with upward occupational careers had more positive attitudes and assessed their work environment more positively, followed by women with stable occupational career, and, lastly, the women with fluctuating or downward careers who were least positive. In addition, interaction effects among the occupational career contours, occupational levels, and occupational categories were found. Specifically, women with similar contours of occupational movement, but located in different levels of occupations, had different evaluations of the work environment, as seen in the contrast between stable careers of *Associate professionals* and *Stable*

at lower level. Women at the same level of occupation, but who had achieved it through different career movement, also differed in their work attitude and in their perceptions of the working environment. Finally, women with similar occupational career contours and the same level of occupation, but in different types of occupations, also differed. Study III found that both life career and occupational career were related to job satisfaction at age 49. However, life career had no relations with job satisfaction at age 43, although it was associated with socioeconomic status at age 43 (study I)

Influences on health and wellbeing. In study III, life career and occupational patterns were related to a series of outcome measures, collected at the ages of 43 and 49, including allostatic load, mental distress, psychological wellbeing, job satisfaction, life satisfaction, and optimism. Results showed that occupational careers were significantly related to most of the indicators, except life satisfaction. This could be seen in the fact that professionals and associate professionals reported more optimism, better psychological wellbeing, and job satisfaction. On the other hand, they also experienced higher-level bidirectional work-family conflicts. In contrast, life careers were related to the outcome indicators to a lesser extent. Life career was found to be relevant for the midlife health and wellbeing of only one group, namely *Working mothers*, composed of women of low education who worked full time early in their careers and who experienced career changes in midlife. Life career was also found to be unrelated to life satisfaction at age 43, but *Working mothers* reported lower levels of health for that year (study I).

In summary, the studies in this thesis suggest that career development is not only associated with later work wellness but also, to some extent, with health and wellbeing. These associations have also been found to be long lasting. However, the findings also indicate that, in contrast to occupational career, the different levels of commitment to various roles and the different ways of combining them seem to make little difference when it comes to health and wellbeing. In other words, regardless of the timing, ordering, and duration of the different roles, the focal individuals are equally healthy and happy.

Theoretical implications

This thesis indicates that career development is actually the process in which an individual develops as a whole person. Paid work is arranged according to its fit into the overall life career pattern. Occupational career development is not a process that occurs in the isolation of an employment

structure, but rather a process that occurs within an individual's life structure. This conclusion implies that the study of career should take into account individuals' other roles. It has also been found that the individual life career is mainly a result of individual agency, which implies that in order to understand career development, individuals' lifestyle preferences and values should be taken into consideration as fundamental aspects.

Although it has been repeatedly emphasized that the existing career models and theories are ill-suited for the life situations of women, little empirical research has focused on women's careers (e.g., Arnold, 2001; Betz & Fitzgerald, 1987; Burke & McKeen, 1993; Driver, 1988; Gallos, 1989; Gutek & Larwood, 1987; Marshall, 1989). Lee (1994) characterized the unique situation of women as follows: their careers involve a constant negotiation between work and homemaking; family care has a stronger impact on their careers; and involvement in work and family has different implications for women and men. The need for career research to focus more on gender differences, in particular, has been increasingly called for within vocational psychology, and this thesis provides some important findings in this area, which points to there having been distinctive individual differences amongst the women. The potential differences in the career paths of the women studied in this thesis were shown to be quite large. Hence, Lee's (1994) above summary of gender differences may also apply to the differences among women.

The number of studies to have examined the diversification in women's careers is even fewer. Compared to these few existing studies, the findings from this thesis have identified a broader range of patterns and a higher degree of adaptiveness to contemporary society. Super's (1957) categorization of women's life careers was based on his theoretical assumptions in anticipation of substantiating empirical support. His categorization was furthermore limited by the social situation at the time the theory was developed. At that time, for example, part-time employment was uncommon and thus did not appear in the patterns. His proposition of the career patterns for women is also obsolete for similar reasons. Other research on women's life careers appears to lack in-depth examination. For example, Gerson's (1985) differentiation of women's life careers distinguished four patterns, but in so doing only two types of early orientation (to work or to family) were considered, as well as only their later commitments to either work or family. Any career changes that may have occurred in between these times were neglected.

In the present thesis, the timing, ordering, and duration of role activities are considered to be key dimensions in the examination of the life career. Although each of these dimensions has been considered in previous

research, they have not been taken into account simultaneously. Most of the prior research has instead tended to concentrate on the ordering of activities. Super's (1957) categorization, for example, primarily focused on the ordering of paid work and homemaking, without considering the timing of the transitions or the duration of the role occupancies. In Lee's (1994) study as well, the sequencing of work and family involvement was differentiated with little attention being paid to timing or duration. By showing that there may be a great variation in terms of the timing and duration of activities, even among women who tend to follow the same ordering of activities, the present thesis advocates the importance of these dimensions. This variation can be seen in the contrasts among some of the career patterns identified in the present thesis, including those between the patterns labeled *Delayed family builders*, *Early family builders*, and *Early mothers part-time*. These patterns had a common ordering of activities: study → full-time work → childbirth → part-time work. However, the three groups had distinctive differences with respect to the timing of transitions and the length of the activities.

The results of this thesis confirm the importance of separating the aspects of timing, ordering, and duration. The results show, for example, that the women were found to have varying schedules for certain roles: they started work either earlier or later in life; had children at different ages; and completed their educations at different stages in life. Furthermore, they were shown to spend different amounts of time in the same roles, as was evidenced by the varying durations in education, and full- and part-time work. The sequencing of roles also varied. For example, some women worked for a long period before they had children, while other women had children before they entered the labor market. These findings question the career stage propositions (Super, 1957), which assumed that individuals pass through a fixed set of stages at about the same age. As the above evidence implies, this thesis instead concludes that career development processes are diversified.

These variations in timing, ordering, and duration have been summarized and classified into a couple patterns. Heightened diversification, therefore, does not here imply that life courses are disordered to the extent of being accidental or contingent. Along with this, the increasingly prevalent notion of the patterned life course, which has found support in previous research, also applies in this study. For example, in a study of career patterns, Stovel et al. (1996) pointed out that because career behaviors are interrelated with general life course processes, they can be described as systematic rather than contingent or dependent on chance. In a similar vein, Jonsson (2001) posited that individualization does not necessarily mean formlessness.

Thus, as Halpin and Chan (1998) noted, “the sequences that actually exist are drawn from a highly patterned subset of the possible set because there is a ‘logic’ to the progress along the sequence” (p. 114).

This thesis also found that although the discrepancies in terms of the timing, ordering, and duration of role activities were related to the differences in socioeconomic status, their influence on health and wellbeing were minimum. The results imply that women fare equally well regardless of the life career paths chosen – whether it be an ambitious work career-centered pattern characterized by a strong investment in education and full-time work, a family centered career exhibiting little experience in paid work, or one of the adaptive patterns involving different ways of combining work and other roles. (However, there was one exception to this general finding of the thesis, involving the less-educated women who experienced extensive changes in middle life due to childbirth, unemployment, or other activities. This implies that changes in midlife can be stressful.)

Occupational career research has usually focused on women in managerial and professional positions (e.g., Blair-Loy, 1999; Lee, 1994). Little knowledge is available on the patterns of occupational choice occurring over the life course of women in general. This thesis helps to fill this gap to some extent through its examination of a representative sample of women. In the literature, women’s occupational careers have generally been assumed to be unstable because of the career breaks and interruptions. Jacobs (1999), for instance, found that part-time working mothers showed decreased occupational SES levels. Han and Moen (1999) concluded that women who constantly worked part-time experienced fluctuations in occupational prestige. In this thesis, part-time employment, on average, accounted for more than 20 percent of the total activities over the life course from the ages of 16 to 43, and was prominent in four out of nine life career patterns. Alongside this, the majority of women (over 80%) exhibited advancing or stable careers. Hence, this thesis indicates that part-time employment appears to have little to do with the downward mobility in careers, especially in a society characterized by a generous social welfare system.

Although the majority of the occupational careers exhibited upward or stable trajectories, it was found that similar trajectories could emerge in different levels and categories of occupations. Similarly, it was observed that the same type of occupational destination could be preceded by different trajectories. In studying occupational careers, previous research has tended to focus on either occupational categories (e.g., Jepsen & Choudhuri, 2001; Kinnuen et al, 2005) or mobility contours (i.e., upward,

downward, stable, or fluctuating, e.g., Jacobs, 1999). This thesis, however, advances that studying the combinations of occupational categories, levels, and mobility contours is important for enhancing our understanding of the implications of the occupational career. Support for this can be seen in study II, which indicates that there are three factors (category, level, contour of trajectories) that interact in the shaping of work wellness. Among associate professionals, those who reached their position from lower-level occupations had better work attitudes and more positive perceptions of the working environment than those who had been stabilized in their positions. It was also observed that those women who had similar occupational trajectories and were employed in the same level of occupations, but in different categories (e.g., pattern of *Service & shop sales workers* vs. pattern of *Stable at lower level*), also differed in regard to their work attitudes and perceptions of the working environment.

The results in this thesis also indicate that occupational careers are associated with work attitudes and perceptions of the working environment. Research in work psychology has tended to concentrate on the relation of these variables with the psychosocial working environment and employees' personal characteristics, as can be clearly seen from the review research (e.g., Brown, 1996; Mathieu & Zajac, 1990). This thesis is a good reminder of the fact that individuals' occupational histories can be another important factor to consider in the study of individual organizational behaviors.

In regard to individuals' overall health and wellbeing, the life career appears to have had little influence, while the occupational career, on the other hand, appears to have been a significant predictor. Women who had upward mobility and stable careers were generally better off than women with downward and fluctuating careers. However, when the levels and categories of occupations were taken into account, the effects were not that straightforward. The upward occupational careers of professionals were the most controversial occupations in this regard. The professional career exhibited both beneficial and detrimental effects on health and wellbeing. In previous career models focusing on men, however, the achieving of professional and managerial positions has been deemed as important indicators of career success. In respect to such findings, Marshall (1989) has however cautioned that career movements have varying meanings for women and men. It is quite clear, for example, that non-movement periods do not entail stagnation. This seemingly still period, although void of career movement, can facilitate inner deepening. The results from this thesis which show that women of stable career patterns did not necessary fare worse than professional women are in line with Marshall's (1989) argument.

Little research has been conducted to examine the consequences of the different occupational career trajectories on health and wellbeing, except in relation to paid work (Richardson, 1993). Among the few studies, Jepsen and Choudhuri (2001) found that, for both women and men, the changing occupational career patterns (including upward mobility and changes of occupational fields) were more prominently related to better job and career satisfaction than to stable career patterns (stabilized at one type of occupational field). Results from this thesis imply that, for women, upward mobility is not necessarily beneficial, since it was found that the effect of upward mobility depends on occupational type. Although this thesis did not directly compare men and women, compared with Jepsen and Choudhuri's (2001) findings, the results seem to imply that certain occupational careers may have different implications for women and men.

Methodological considerations and future research

There are several methodological aspects to this thesis that deserve commenting on. Each of them is discussed in the following sections, followed by suggestions for future research.

The life history approach

First of all, in searching for career patterns, the approach utilized was based on life history analysis. The life history approach, as well as other related retrospective approaches, such as those that make use of life stories, autobiographies, and biographies, have a long history in psychology and especially in adult development (Allport, 1942; Erikson, 1950, 1958, 1969; Levinson, 1996; Levinson, Darrow, Klein, Levinson, & McKee, 1978). It is also a major approach in psychological counseling practice (Howard, Maerlender, Myers, & Curtin, 1992). Concerns have been raised in the past regarding the reliability and validity of this approach. The issue with reliability typically concerns the accuracy of memory due to the retrospective rationalization (e.g., Halverson, 1988; Janson, 1990; Ross & Conway, 1986). In respect to validity, the concerns mainly centered upon whether psychological constructs can really be assessed through life histories (Runyan, 1982). Despite this, more recent literature reviews and empirical studies have all confirmed that retrospective reports are reliable and as valid as standard instrument measurements (Brewin, Andrews, & Gotlib, 1993; Howard et al., 1992). The evidence, therefore, supports the legitimacy of the life history approach. It has also been applied successfully in the study of adult development. In regard to this approach, Levinson (1986) wrote the following:

For the study of life structure, we have no other method of comparable value. The biographical method is the only one that enables us to obtain a complex picture of the life structure at a given time and to delineate the evolution of the life structure over a span of years. It is well suited for gaining a more concrete sense of the individual life course, for generating new concepts, and in time, for developing new variables, measures, and hypotheses that are rooted in theory and are relevant to life as it actually evolves. (p. 12)

In the empirical studies of the present thesis, individuals' life histories primarily focused on objective career information, such as the transition to different career activities and occupations. Hence, any possible effects of retrospective rationalization were minimized. Moreover, the accuracy of the career information was guaranteed in the following ways. (1) The information was collected at the women's homes. This was done to secure and facilitate their access to all available resources at home that could help their recollection (e.g., documentation of employment history, etc.). (2) A life plot was completed beforehand by the women (marking important life events), which they could later refer to, as a memory aid, when constructing their reports. These strategies aimed at keeping the information as relevant and objective as possible.

Future research in career studies can also benefit from the life history approach in a number of ways. In this thesis, the life history analysis was applied to objective career information in particular, which is but one way of considering the career. Stebbins (1970) differentiated between three focuses in the study of career: generally recognized career patterns, individual-objective careers, and subjective careers. According to Stebbins, the term 'generally recognized career pattern,' as the name suggests, refers to a "consensually recognized course of movement through recognized stages with a beginning and an end" (p.37). In contrast, the individual-objective career is the "progress of an individual (or cohort of individuals) through a career line" (p.39). The subjective career is then defined as the "actor's recognition and interpretation of past and future events associated with a particular identity, and especially his interpretation of important contingencies as they were or will be encountered" (p.34). The empirical research in this thesis showed a diversification in individual objective careers and a decrease in the generally recognized career pattern. The present thesis also related human agency to career development in the study of subjective career. However, there are still many questions regarding the subjective career that remain for future investigation. A primary question concerns the subjective processes that correspond to each career movement or tranquil state. This can include, for example, why certain occupations

were chosen, how an individual interprets her own career line, which transitions were most influential to individuals and why, what factors were taken into account when making these career movement decision, and so forth. To address these questions, in-depth interviews, focusing on individuals' life histories, would be needed. Although support for the use of life histories in career counseling practice can be dated back to Super (the thematic-extrapolative approach, Super, 1954, a later emphasis was made by Jepsen, 1994), this type of approach to empirical research has been especially called for by recent postmodern movements in career research.

One postmodern philosophical stance that is increasingly being discussed in vocational psychology is constructivism (Young & Collin, 2004). Rooted in developmental and cognitive psychology, constructivism is concerned with the cognitive process that underlies our perceiving of the world and its role in generating knowledge. In contrast to logical positivism, constructivism argues that the world can only be known through the constructions formed in the mind. Constructivism thereby pays special attention to individual agency and subjectivity. In career research, constructivism is reflected by the notion of the subjective career, and by the narrative approach, which aims at extracting the meanings that are created through an individual's telling of his or her own story (e.g., Campbell & Ungar, 2004a, 2004b; Cochran, 1997; Collin & Young, 1986; Savickas, 1995, 1997; Young & Collin, 2004). Since the narrative approach is an "emerging" method (Campbell & Ungar, 2004a, 2004b), more research is needed. This type of research will no doubt be important in guiding career counseling practices. Furthermore, this research is also not only critical in light of the fact that the new economic era has brought insecurity and challenges that require new adaptation patterns, but also because the boundaryless career has carried with it a shift in career management responsibility, from organizations to individuals (e.g., Arthur & Rousseau, 1996). How successful individuals exert their agency is an important question.

Moreover, the research concerning life histories in this thesis could be further expanded in several ways. One way would involve taking another look at the life span of career development. Gottfredson's circumscription and compromise theory (Gottfredson, 1981) illustrates that the development of occupational aspirations starts as early as childhood. Towards the other extreme, it has been witnessed that, nowadays, an increasing number of elders are remaining actively engaged in the labor force after retirement (e.g., Kim & Feldman, 2000; Warr, Butcherr, Robertson, & Callinan, 2004). Since career development is the process wherein an individual develops as a whole person, it should not be

truncated to a limited life span (Levinson, 1986). Since this thesis focused on role activities that were closely related to career, a second way in which to expand life history research could be to include the examination of more activities from other life domains, such as those that are leisure or community related. These domains have been shown to interact with vocational development (Kremer & Harpaz, 1982; Munson & Savickas, 1998; Steffy & Jones, 1988). In a similar vein, future studies of occupational career could include, besides occupational category and occupational level, other variables, such as the size of the organization (Blair-Loy, 1999) and the number of organizations served (Han & Moen, 1999), which have been found to be informative in elucidating career patterns. Thirdly, a comparison of women's and men's career patterns would be interesting. Halpern (2005) summarized the available evidence regarding gender differences in role involvement and concluded that, although gender gaps still exist, men are more and more often engaging in family care and homemaking (Halpern, 2005). Hakim (2000) conducted a pioneering work when she applied the preference theory to men in order to examine men's work and lifestyles in affluent modern societies. A major question in regard to this topic is whether men's preferences are also diversified. Hakim found that, compared to women, the majority of men were homogeneous in this respect, although there were also family-centered and adaptive men. However, she also commented that the finding was based on insufficient research evidence, since men's preferences for having children and family sizes were, for example, unavailable. More elaborate research on gender differences in terms of longitudinal life career and occupational career is needed.

The social context: limitations and illustrations

The studies included in this thesis were based on data from Sweden. Data from a country with a generous welfare system may shed some additional light on women's opportunities to form their careers in a variety of ways, given the generous support systems (e.g., paid parental leave, subsidized public childcare, paid leave for taking care of sick children). This appears to be the case in the findings of this thesis, which support and extend the applicability of the preference theory in regard to women's career choice and development in postindustrial society (Hakim, 2000), although the fact that the data originated from a single country may limit the external validity of these findings.

The findings from this thesis may be a reflection of the particular structural conditions that existed in Sweden at the time. In comparison to evidence collected in non-Nordic countries (e.g., Hakim, 2000; Han &

Moen, 1999; Jacobs, 1999; Lee, 1994), the women in the present thesis had a higher paid work involvement. Furthermore, compared to Hakim's (2000) estimates of the different preference groups of British and American women, Swedish work-centered women were overrepresented, while home-centered women were underrepresented. The Swedish welfare systems have been widely recognized as being generous, extensive, and consequential for the promoting of gender egalitarianism (e.g., Esping-Andersen, 1990; Jonsson & Mills, 2001). Especially during the early phase of the period studied here, Swedish women have enjoyed both *opportunity* and *security* compared to other countries, in the form of ample job opportunity for women in the public sector, entitled parental leave, unemployment insurance, good quality public childcare, and a legally established right to re-employment with the same employer after parental leave. These factors can no doubt facilitate women's free choice in career decisions. While the specific Swedish social context of the study may limit the generalizability of the results, it nonetheless serves to reveal the career choices made by women under generous structural conditions. The findings add to our knowledge of the career development process of women in a postindustrial society. In addition, the findings show that women, at least when circumstances so allow, can construct their careers in a variety of ways, which lends additional support to the notion of preferences in life style (Hakim, 2000).

A natural direction for future research in this area would involve direct cross-country comparisons of career patterns. Such comparisons should also involve an examination of the social welfare systems of these countries. Esping-Andersen (1990) classified three worlds of welfare capitalism: liberal regimes, such as the United States and Britain; conservative regimes, such as Germany; and the social democratic regimes of Scandinavian countries, including Sweden. A comparison could also involve countries at different development levels. Such a comparison could shed some light on the balance between human agency and social constraints and how it compares between affluent countries and developing countries. Comparisons over time when welfare systems change would be another alternative.

Sequence analysis

There are several different methods that can be utilized for the analysis of sequential data within the social sciences. One difference concerns the patterns, which may be defined prior to the analysis and thus before their actual occurrences are counted (e.g., Kinnunen et al., 2005; Wilensky, 1961). To predetermine the patterns in this way, however, is likely to lead

to a looser connection with the data under analysis, which is a notable limitation. A more straightforward alternative is to instead settle upon the patterns by examining several chosen points in time in the occupational sequences. Jepsen & Choudhuri (2001), for example, used such an approach to identify occupational career patterns when they examined the occupational categories in their study at 5-year intervals over a 25-year span. With this method, the results become highly dependent on which time points are chosen (Pollock et al., 2002), and any changes that may happen in between the examined time points are neglected. Other methods that can be quite effective for certain purposes include the use of saturated loglinear models, class time budget studies, and event history models (Chan, 1995; Halpin & Chan, 1998). Event history models, for example, are commonly used in life course studies in order to test causal assumptions in the unfolding of events (Allison, 1984; for an example of an application, see Carroll & Mayer, 1986). Since this event history method is variable-oriented, little consideration is inherently paid to the individual. Furthermore, it also tends to focus on single events rather than complete sequences of activities over the course of a lifetime.

In this thesis, life career and occupational career were classified by optimal matching, a sequence analysis technique. This thesis indicates that optimal matching is a powerful tool for the analysis of lengthy sequences with recurrent categorical elements. Compared to the conventional ways of dealing with career sequences that only involve the ordering of properties (e.g., Jepsen & Choudhuri, 2001; Kinnunen et al., 2005; Lee, 1994), optimal matching has the advantage of being able to take into account the timing, ordering, and duration of each element simultaneously while comparing sequences. Compared to conventional methods that can only examine a single transition at one time, such as event history analysis, optimal matching takes in entire sequences as input, which allows them to be analyzed wholly and directly. This method has found an increasing number of applications in career research (e.g., Abbott & Hrycak, 1990; Blair-Loy, 1999; Chan, 1995; Han & Moen, 1999; Pollock et al., 2002; Scherer, 2001; Stovel et al., 1996).

Since the application of optimal matching within the social sciences is still in its infancy, some aspects of this method deserve scrutiny. One such aspect deals with the assignment of costs for element substitution, insertion, and deletion (Abbott & Tsay, 2000). This process is considered arbitrary. How the costs are set might affect the sequence comparison results. In the present thesis, the setting of costs for occupational career was straightforward. The substitution costs were determined by the differences in occupational levels. The assignment of substitution costs for life career

was based on each career activity's estimated relative importance in promoting occupational career development. This method of cost setting thereby guaranteed the reliability of the cost values. Other schemes do exist for assigning the costs along other dimensions, but previous applications have found that optimal matching produces stable results under different cost setting strategies (e.g., Chan, 1995). Nevertheless, further research of this method is still needed to investigate its robustness with varying cost schemes (Abbott & Tsay, 2000).

The antecedents and consequences of career patterns

Some methodological aspects may have affected the results concerning the relationships between career patterns and antecedents and consequences. One limitation emerges from the sample sizes. When the clusters were identified, some of them involved small sample sizes. To have unequal sample sizes is not unusual, considering the fact that people do not necessarily distribute themselves into equally sized groups. However, this also means that there were fewer possibilities of identifying the statistically significant differences between all of the groups (Cohen, 1992). One issue in particular, the power issue, drew attention to the minor differences in the consequences of life careers (the ways that women construct multiple life roles). An examination of the level of consequence variables shows that their values were rather similar, suggesting that power is not a major problem. A related issue concerns mass significance problems while conducting post-hoc comparisons and the Fisher four-field hypergeometric distribution tests (Bergman et al., 2003; Ryan, 1959). To prevent Type I error, it would be desirable to adjust the significant value. However, given the small sample size for some groups or cells, this would further lower statistical power. Although the results from the tests appear reasonably compatible with previous research and theories, a repeat of the analyses in a larger sample in future research would be wise.

This thesis was based on a longitudinal design. Hence, most results regarding the relations between career and antecedents and consequences can be taken with confidence due to the availability of the direction of relationship. For example, educational aspirations at age 16 were related to actual educational duration up till midlife, and occupational career patterns from ages 16 to 43 were related to health and wellbeing at age 49. Nonetheless, even longitudinal studies cannot prove causality (e.g., Bollen, 1989; Bergman, Eklund, & Magnusson, 1991). To conclude causality would not only require that the variables be related but also that the variables be isolated from the disturbances of other potential variables (Bollen, 1989). The longitudinal research design cannot guarantee this

degree of isolation. Even though relevant theories (e.g., Richardson, 1993; Super, 1980) and empirical studies (e.g., Han & Moen, 1999; Jacobs, 1999) imply that life careers “cause” occupational careers, the use of cross-sectional designs in these examinations renders it impossible for them to establish causality. Also worth noting is that, in the present thesis, one antecedent for life career (i.e., life role value) was based on the measure taken in midlife (age 43). Despite the fact that life values have been regarded as stable dispositional characteristics (e.g., Kanungo, 1982), retrospective rationalization may still occur and should be taken into some consideration when interpreting the results (e.g., Janson, 1990). Prospective longitudinal research is mostly turned to in order to compensate for these limitations.

In longitudinal design, time lag length has always been a critical factor in the association between antecedents and consequences (Gollob & Reichardt, 1987). This is exemplified in the fact that different types of organizational stress have been found to develop at different paces (Zapf, Dormann, & Frese, 1996). In the studies of this thesis, most of the consequence variables (i.e., work-to-family conflict, family-to-work conflict, job satisfaction) that were measured at two waves of data collection (age 43 and age 49) exhibited consistent results in regard to the differences among patterns. However, since some health and wellbeing indicators, especially chronic diseases, such as cardiovascular disease and diabetes, become manifest in the population at later ages, future research could benefit from a study that incorporates a longer time lag.

Concluding remarks

Despite there being a number of potential limitations to the studies, the results of the present thesis disclose the nature of women’s career development in an affluent society. The thesis indicates that career development is a life-long process. It is a process of constantly balancing different life roles over the life course, as well as a process of constantly fitting oneself to certain types of occupations over time. Moreover, it was observed that paid work was arranged according to its fit into the overall life structure, and that the occupational career development pathway is determined by the life career, manifested in multiple role constellations over the life course. As has also been indicated in previous research (e.g., Blair-Loy, 1999; Gerson, 1985; Han & Moen, 1999; Lee, 1994; Super, 1957; Zytowski, 1969), careers may take different paths, and thereby give rise to diversified career patterns. The present thesis shows that individuals’ life careers vary considerably in terms of the timing, ordering, and duration

of role activities. Individuals' occupational careers differ considerably in terms of the category of occupations and contour of mobility. Furthermore, it has also been demonstrated here that the life career is mainly determined by human agency, as evidenced via aspiration, life role values, and early experiences (study I), as well as that occupational career is more strongly related to life career in comparison to family background (study II). A most important finding of the present thesis is that the differences in the ways of combining multiple roles did not seem to make much of a difference for health and wellbeing. For instance, study I and III show that the differences among the different life careers in regard to life and job satisfaction, psychological wellbeing, optimism, and allostatic load were marginal. However, as shown in study II and III, occupational careers are more significantly related to health and both work and life wellbeing, as the upward and stable career patterns fared better than the downward and fluctuating careers. Occupational careers also function through the interaction of occupational categories, occupational levels, and mobility direction (study III).

As noted in the preceding section, extensive individual differences in the career constructions of women were found in this thesis. Gerson (1985) pointed out that previous gender research tended to overemphasize gender differences and view women as a homogeneous group. As a result, women's active role in life construction was largely neglected. The empirical evidence in this thesis, however, attests to the diversification in women's careers and the role of individual agency, as it also emphasizes that occupational careers should be examined in the fabric of multiple life roles. The thesis updates the career patterns associated with women in the literature by adding more patterns which capture women's contemporary work and life situations. For example, part-time employment takes on a more prominent role in the career patterns as compared to previous categorizations of women's careers. In spite of the greater extent of part-time work, the majority of women's occupational careers exhibited upward mobility and stability. The thesis indicates that in the examination of life career patterns, it is important to simultaneously take into account the timing, ordering, and duration of role activities. The variations in the timing, ordering, and duration of role activities can be organized into a set of patterns, where the variations matter little in terms of health and wellbeing. The thesis also indicates that in the examination of occupational career patterns, it is important to simultaneously take into account occupational categories, occupational levels, and mobility directions, which were found to have an interactive impact on health and wellbeing. For example, although this thesis shows that, in general, upward mobility and

the stable career were beneficial for an individual's work and life, certain types of occupations deviated somewhat from this, such as the professionals. The thesis also affirms that individuals' occupational histories should be given adequate attention in organizational behavior research.

Some important practical implications for career counseling can also be discerned in this thesis. Firstly, since individuals' whole lives have been found to be of importance in regard to careers, career counselors could benefit from taking into account their clients' broader life concerns, including their life values and preferences, and not just their work concerns. Krumboltz (1993), Richardson (1993), and Zunker (2002) have all suggested that career counseling and personal counseling should be united. Their appeal implies that career counselors should strike a better balance between aiming to help clients achieve career success in the employment system and aiming to help them harmonize their lives. Secondly, career-counseling service, which is usually only encountered during school age, should be extended into adulthood, and preferably at least into middle life (Jepsen & Choudhuri, 2001). Accordingly, career counseling should stop focusing primarily on onetime career choices and concentrate more on helping individuals to make smoother occupational transitions, which is likely to help prevent degrading and fluctuation in career paths. In conjunction with this, it would also behoove career counselors to pay greater attention to the wellbeing and health consequences that may be connected with different transition patterns. For example, persons in certain types of occupations should be more on guard, such as those in professional careers, as this thesis has shown that this type of career may not have advantageous effects on wellbeing.

This thesis also has important implications for social policy. Life careers have been shown to be diversified, with the different life career patterns being mainly related to the choice and preferences of individuals. The results of the studies included in this thesis suggest that as long as individuals make their own choices, they may end up being equally healthy. Although the generalizability of the data in this thesis may be limited by the specifically Swedish context, indications are that certain social policies can provide women with opportunities to construct their careers in a variety of ways. According to Leisering (2003), social policies that are relevant to people's life courses involve three core fields: education, old-age pensions, and systems of risk management (e.g., social assistance, social insurance in health and unemployment, personal social services). There are several aspects of Swedish educational policy that enable people to have flexible and decentralized educational patterns,

which could be of interest for other societies. These policies include a well-developed study allowance, a highly varied and liberal adult education system, labor market training, and the availability of educational opportunities for people in weak positions in the labor market (Henz, 2001). There are also certain generous risk management systems embedded in the social policy to facilitate smooth career transitions for women. These policies include paid parental leave, subsidized public childcare, paid leave for taking care of a sick child, and a legally established right to re-employment with the same employer after parental leave. Under these welfare policies, the results from the thesis indicate that women's careers are more diverse compared to other societies. Since the de-standardized life course is on the increase across western societies (e.g., Hakim, 2000; Shanahan, 2000), it is recommended that social policy be reconstructed to accommodate and facilitate individual's varying life choices (Leisering, 2003). The Swedish social policy discussed in this thesis may provide useful hints in this area.

This thesis has important implications for organizations as well. Widespread changes in the new economic era have made individuals' careers increasingly more boundaryless in nature (Arthur, 1994; Arthur & Rousseau, 1996). This new type of career is described using key terms such as flexibility, frequent changes across boundaries of organizations, more work and nonwork interaction, and personal control (Arthur, 1994; Arthur & Rousseau, 1996). Hence, the individual career path has become more and more diversified (Peiperl & Baruch, 1997). Although career development is increasingly considered to be a responsibility of the individual (Arthur & Rousseau, 1996), organizations should nevertheless take steps to accommodate individuals' diverse career paths to some extent so that the employees' different career needs can be met. To this end, Brousseau, Driver, Eneroth, and Larsson (1996) provided an intriguing solution for organizations to use when addressing the boundaryless career. They argued against using approaches that would solely focus on de-structuring or that would favor changing career management in order to adapt to the changing nature of careers. What they advocated was the opposite approach – a 'pluralistic approach' for organizations – which aimed at integrating diverse types of organizational structures with individuals' diverse career paths. They summarized some emerging career management practices in implementing the pluralistic approach. Some of these practices included providing counseling to help employees to identify personal career paths, providing career-related training, and designing a human resource management system that combines performance appraisal and compensation with consideration to individuals' career paths. They

also advocate continually evaluating the organizational career-related strategy along with the individuals' preferences for different career paths, in order for there to be a timely match. Brousseau et al.'s (1996) approach, however, is limited to individuals' occupational career concerns and motivations. Their approach could be further expanded by taking into account individuals' multiple roles. One example would be to unite their approach with a family friendly organizational policy so that individuals could integrate family roles. Such a step may also protect an individual's occupational career from degrading or fluctuating.

The new economic era has intensified the pace of change in the working environment, carrying with it intensified competition, downsizing, outsourcing, and an increase in temporary employment (e.g., Howard, 1995) while influencing careers in numerous ways. It has challenged stable career pathways and fostered others that are characterized by frequent changes in jobs and lines of work. This requires an even more "open approach" to the understanding of careers. In these new types of careers, people remain in closer touch with their own lives, which can be seen in the fact that individuals' lifestyles are more enriched with the organization of work being embedded in their overall lives (Hakim, 2000; Richardson, 1993). The new careers thereby facilitate an integrated identity (Mirvis & Hall, 1994). This thesis represents a step in the recognition of this development, by taking into account an individual's multiple roles and showing that careers may be very heterogeneously constructed. As changes continue to happen in the workplace, we can expect even more diversified patterns to emerge in the future, and the study of career theory needs proper tools for identifying the different ways of timing and ordering multiple roles, and the durations of the involved activities (e.g., family, community, and leisure). This would allow us to better understand and keep up to date with the variety of the patterns – and their potential implications. The combination of the multiple role perspective, the developmental perspective, the life course theory, and the individual agency perspective, along with the sequence analysis methods presented in this thesis, provide such a set of tools for understanding changing careers.

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