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CHAPTER 5

SELECTION PROCESSES AND VOCATIONAL DEVELOPMENT: A MULTI-METHOD APPROACH

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ABSTRACT

In this chapter, we use prospective data collected at ~~age~~ 18, 24, and 25 to classify individuals into career aspiration groups labeled "overselection," "underselection," or "one-change." Representatives from each group were interviewed at age 27. Themes related to selection, optimization, and compensation (SOC) metatheory (Freund & Baltes, 1998), work commitment, and the stressful character of vocational development were compared across groups. Overselection and one-change groups were somewhat advantaged in the education and career arenas when compared to others. Findings indicated goal setting is associated with more positive outcomes within the career domain and selection is an important component of the SOC process at this time of life.

Adolescence is widely considered to be a crucial period for vocational exploration and identity formation. Classic theories of vocational psychology situate key elements of the processes of vocational development and occupational commitment in the second decade of life (Ginzberg, Ginsberg,

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Axelrad, & Herman, 1951; Osipow, 1968; Super, Starishevsky, Matlin, & Jordaan, 1963). Models of status attainment in sociology likewise emphasize the importance of occupational aspirations, expectations, and plans in adolescence for subsequent occupational achievement (Sewell & Hauser, 1976; Spenner & Featherman, 1978). Investigators of vocational identity development have usually defined exploration as a process of gathering information about oneself and the environment in order to make vocational choices and to set career goals (e.g., Blustein, 1997). For example, Grotevant (1992) defined identity exploration as a process of information gathering to make individual choices and commitments. Adams and Marshall (1996) note that this process involves experiences of distress, inconsistency, and confrontation, followed by resolution. Expressions of vocational commitment can include the number of occupational interests or choices under consideration, the specificity and certainty of career plans, and the strength of commitment to occupational choices (Blustein, Pauling, DeMania, & Faye, 1994; Vondracek & Skorikov, 1997).

All of these perspectives allude to the *selection* of aspirations and the setting of goals that orient choices and development (Freund & Baltes, 1998, 2000; see also Weise, Freund, & Baltes, 2000, 2002 for studies in the work domain). They also describe processes of *compensation* that might occur when goals and commitments must be modified because of internal or external difficulties. For example, an individual may plan to enter law upon entrance to college, but finds limits in her capacity (an internal constraint) or difficulty in financing legal studies (an external constraint). Lerner, Freund, De Stefanis, and Habermas (2001) applied a dynamic model of development during adolescence and young adulthood derived from the theories of Freund and Baltes (2000). In this model, identity formation is conceived as a process of selection, optimization, and compensation (SOC) that includes goal selection, goal pursuit, and goal maintenance/alteration, all of which occur under the usual conditions of limited time and energy. Selection of goals must occur because limited resources are available. For example, occupational training can be expensive and time-consuming and preparation for one vocation generally precludes selection of others. When there are insufficient resources or resource loss, compensatory processes are used to manage and regulate goals. More realistic aspirations may have to supplant prior, loftier objectives. Optimization includes acquiring, allocating, and refining resources to maintain goal pursuit. Hence, individuals are goal seeking and purposeful and capable of managing complex circumstances and adapting to external and internal changes. Other models of vocational development (e.g., Lent, Brown, & Hackett, 1994), including those based on

self-efficacy and social-cognitive theory (Bandura, 1996; Lent et al., 1994; Vroom, 1964), also draw attention to similar facets, including interests, activity involvement, skill development, and performance. In general, planning is a key part of the career development process (Savickas, 1999).

It is during adolescence that most young people begin to think about their future goals. Many of these goals reflect the age-graded developmental tasks of adolescence and emerging adulthood, specifically work and the formation of partner relationships (Cantor, Norem, Niederthal, Langston, & Brower, 1987; Nurmi, Salmela-Aro, & Koivisto, 2002; Weise et al., 2002). In the process of goal pursuit, the person must make critically important decisions that are linked to subsequent occupational attainment. Such decisions include whether to enter the labor force directly following graduation from high school, or whether to go on with further schooling, and if so, what kind of post-secondary institution to attend (Featherman, 1980). By the mid-20 s, a person is expected to become established in work, having attained an occupational identity, and, in some cases, having become positioned in the initial phase of a life-long career. According to Erikson's classic theory (1968), the inability to explore and commit to an occupational identity during adolescence is a source of significant disturbance among young people.

These perspectives assume a substantial degree of agency and some continuity in young people's vocational development. Vocational developmental theorists (e.g., Blustein et al., 1994), drawing from self-determination and intrinsic motivation theory (Deci & Ryan, 1985), have formulated models of agentic vocational exploration during adolescence and young adulthood. In these models, individual motivations and interests become more stable with age and are thought to influence subsequent career pathways. Some past empirical evidence supports this claim. In a study of 250 Finnish young adults (mean age 24) first assessed 4 months before leaving vocational school, individuals who identified career goals and placed high importance on these goals were more successful in obtaining professional work (Nurmi et al., 2002).

In view of these perspectives, one might think that career exploration would be a fairly salient and planful pursuit among young people today. Yet, there is evidence that only a minority of U.S. high school students seriously considers potential career paths by seeking occupational information or by engaging in exploratory activities, even though most will report occupational aspirations when asked (Schneider & Stevenson, 1999). Adolescents often lack basic information about what they need to do to successfully pursue their aspirations. Moreover, because parents, counselors,

and other adults usually expect them to go to college, teenagers' delay in making occupational choices is seen as quite appropriate, enabling them to take advantage of the many resources colleges provide to explore interests and abilities. Young people may even be discouraged from active engagement in the exploratory process, so as to not deflect them from pursuing post-secondary education. Some commentators applaud this situation, noting that contemporary youth enjoy extensive freedom to go to school, to explore alternative fields of higher education (which often involves shifting majors and extension of college well beyond the traditional 4-year period), to travel, and to try out various work situations before "settling down" (see, for example, Arnett, 2000). Others question whether this delay is optimal and worry that many young people experience a prolonged period of "floundering" (Kerckhoff, 2002) during which time there is relatively little investment in human capital (Hamilton, 1990, 1994). The postponement of occupational commitment is linked to other manifestations of prolonged transition to adulthood, such as the delay of marriage, the tendency to return (after leaving) to the parental home, continuing economic dependence on parents, and the continuation of schooling well into the third decade of life (Shanahan, 2000).

SELECTION, OPTIMIZATION, AND COMPENSATION

It is clear that the identification and pursuit of work and career goals can be a complex process that is often not made explicit in the theoretical accounts of career development (Patton & McMahon, 1999). Given that vocational developmental trajectories may include complicated processes of SOC, it is not surprising that many young people have difficulties that result in an extended period of exploration or some floundering. Others may evade the process of exploration by selecting one course early on and being firm in the pursuit of their initial goal. Still others experience unplanned and opportune events that determine their vocational futures (Betsworth & Hanson, 1996; Williams et al., 1998). Of course, a focus on work and career will compete with the many other activities that interest and engage young people. Having vague ideas and keeping one's options open, on the one hand, or being focused and making an early decision, on the other, may be two common strategies to delay or bypass this process. Short-term goals and interests may

sometimes take precedence over serious, long-term career development processes, and impact the selection of vocational goals and choices.

Freund, Li, and Baltes (1999, see also Lerner et al., 2001) described the difficulties of selecting too few (“overselection”) or too many (“underselection”) goals. Overselection may not provide the necessary number of options for optimum development given the possibilities of historical changes, poor initial matches between choices and individual interests and skills, and other obstacles. Underselection may result in too little focus, impeding the attainment of a level of mastery that would enable occupational achievement. However, selection is just one part of this process. Compensatory activities and optimization strategies probably become increasingly important as vocational development proceeds.

STUDY DESIGN AND AIMS OF THE CURRENT STUDY

The current study relied on two sources of information, prospective surveys and structured, retrospective interviews, to identify young people whose early career aspirations were nonvarying from adolescence to early adulthood (suggesting overselection) versus repeatedly changing over time (suggesting underselection). We also identified a group with limited age-related changes. Since this latter group is apparently not characterized by overselection or underselection, we expected that this group would experience advantages in their vocational development, such as greater educational attainment and enhanced career progress.

We focused on patterns of continuity and change in career aspirations from high school (grade 12) to the mid-20 s. As both prospective, quantitative data and retrospective, qualitative (narrative) data from the same subjects were available, we applied a mixed research methodology that Tashakkori and Teddlie (1998) and others call Across Methods Triangulation. We compared quantitative data gathered prospectively via questionnaire with qualitative interview data that retrospectively described experiences of vocational development from adolescence to early adulthood. The survey data were collected as part of an on-going prospective study of adolescent and young adult development. Questions assessed respondents’ attitudes, anticipations about the future, job characteristics, and career attainment. The interviews gathered detailed retrospective descriptions of past attitudes and goals from a subset of the participants in the larger prospective study.

This mixed design provides unique insight into the complexity of life course development in the vocational domain, the exercise of human agency, the potential impact of overselection and underselection on vocational experiences, and how people reconceptualize or selectively remember their life paths and patterns.

In the current analysis, we examine how patterns of career aspirations obtained from prospective surveys were linked to descriptions of the process of vocational development reported during interviews. Prospective data allowed the identification of individuals with different patterns of career aspirations during adolescence and young adulthood. Continuity/change in career aspirations over time among the entire prospective sample was assessed, enabling comparison of individuals with different objective career aspiration patterns with regard to several pertinent factors (e.g., educational plans and income). Qualitative, life history interviews of a subset of individuals were also completed and coded for patterns of career aspirations. Previously, Mortimer, Zimmer-Gembeck, Holmes, and Shanahan (2002) summarized general topical themes related to vocational development derived from the interviews, including challenges, supports and resources encountered, perceptions of being on-time or off-time, the timing of decisions and turning points, and changes in vocational plans. In the present paper, we link subjective experiences of continuity and change in career aspirations to individuals in each prospectively defined category.

Two additional objectives reflect theoretical propositions of Freund, Baltes, and colleagues (Freund & Baltes, 1998, 2000; Freund et al., 1999) and a model of adolescent identity development (Lerner et al., 2001). First, we investigate the thesis that overselection (i.e., no changes in career aspirations over time) and underselection (i.e., persistent change in career aspirations over time) are associated with less salutary vocational development when compared to a group who evidence some, but more modest, change in career aspirations over time. Second, we identify strategies of SOC used within and across prospectively identified career aspiration groups. We also summarize themes of commitment to work, priority of work, and the stressful character of the vocational development process within each group.

DATA AND METHOD

Youth Development Study

The Youth Development Study (YDS) is a longitudinal study conducted in St. Paul, Minnesota, USA. The YDS began in 1988 and participants have been contacted annually since grade 9 (when respondents were about 15-years old). After randomly selecting ninth grade students, annual assessments during high school were completed in the students' classrooms (see Mortimer, 2003 for a more detailed description of the study). Participants represented the population of ninth grade students in St. Paul public schools. Overall, 74% were white, 10% African American, 5% Hispanic American, and 4% Asian American. The median household income was in the range of $30,000–39,999. The highest degree earned for 59% of fathers and 61% of mothers was the high school diploma. After high school, the participants were surveyed by mail annually. Of the initial sample of 1,010 respondents, 76% were retained through 1998, seven years beyond high school. Each survey included detailed information about educational and occupational experiences.

The current study included survey data from 787 individuals and structured interviews from 67 participants. Participants were excluded from the analyses reported in this paper ($n = 223$, 22%) if (a) they participated in fewer than two of the three data collection waves that were of interest in the current study, or (b) they did not answer the career aspiration question in more than one of the three waves. Since indecision could engender non-response, this research could underestimate the prevalence of underselection in youth. The three waves of interest in the current study were grade 12 (about age 18; wave 4), age 24 (wave 9), and age 25 (wave 10). Variables of interest included educational aspirations and attainments, career establishment, job satisfaction, income, and career/vocational aspirations.

Measures

At age 25, participants reported the highest level of education they planned to attain. Response options included elementary or junior high school (1), high school or GED (2), technical or vocational school (3), associate's degree, other degrees, certificates, or diplomas (4), some college (5), bachelor's degree (6), master's degree (7), Ph.D., or professional degree (8). This yields a measure of *educational aspirations* and could be equivalent to education

already obtained (which was also assessed). Additionally, participants reported how the jobs they held at age 25 related to long-term career goals. *Career establishment* was defined by the following response options: "it will probably continue as a long-term career" (3), "it provides skills or knowledge that will prepare me for my future work" (2), and "it is not linked to my long-term career objectives" or "I don't know" (1).

To measure *job satisfaction*, respondents evaluated their satisfaction with the job held at age 25. Responses ranged from extremely dissatisfied (1) to extremely satisfied (6). At age 25, *income* in U.S. dollars was measured by asking respondents to report how much money they earned through paid employment during the past year, 1997 (before taxes and including tips). Finally, participants reported their career/vocational aspirations at ages 18, 24, and 25 by answering the following question: "What is your long-term career goal (include homemaker)?" Answers were not restricted by response options.

Career Aspiration Patterns and Groups

Using repeated assessments of career/vocational aspirations, a typology that reflected the degree of career aspiration continuity was developed and four groups were formed. The first three categories included individuals who returned all three surveys of interest, differentiated into groups labeled "overselection," "one-change," and "underselection" based on their occupational choices at ages 18, 24, and 25. The overselection group reported the same career aspirations in all waves. Persons in the one-change group reported occupational aspirations that changed after high school (between ages 18 and 24) but were consistent through their mid-20s (at age 24 and 25). We assume that the career aspirations of individuals in this one-change group stabilized in early adulthood. The underselection group included participants who reported different career aspirations at age 18 compared to 24, and at age 24 compared to age 25 (i.e., their choices were different at all three occasions of measurement). For this group, career aspirations had not yet stabilized in their mid-20s. A fourth group of participants either (a) completed all three waves, but failed to answer the question about career aspirations in one wave or (b) failed to complete the survey in one year. This group was labeled "missing."

Assessment of change in career aspirations was based on the functional similarity of earlier as compared to later aspirations. The goal was to identify a significant change in career direction rather than a slight modification

or specification of earlier goals. We made the decision not to use shifts in occupational categories based on three-digit Census codes as we did not want to consider career choices that were functionally similar as registering change in aspirations. For example, we did not consider the following as changes in career aspirations: elementary school teacher to high school teacher, school counselor to psychologist, and sales manager to department store manager. The following are examples of changes: architect to manager, mathematician to forester, and musician to accountant. Hence, one investigator and one research assistant used an iterative process of coding, discussion, and recoding. A list of typical sequences constituting change and stability in career aspirations was also generated to guide the coding process. All classifications are available upon request.

Interviews, Participants, and Procedure

Participants completed a structured interview about life experiences, focusing on their vocational development, and career establishment. We planned to interview 60 individuals. To do this, we randomly selected 250 YDS participants to receive a letter inviting them to participate in the interview. We followed up with individuals by telephone to schedule interviews and completed 69 interviews in mid-2000 when most respondents were 27-years old. Of these, 67 also had survey data when they were 18, 24, and 25, and were included in the current study.

More women (63%) were interviewed than men, but as Table 1 reveals there was no significant difference by gender in the prospectively identified career aspiration groups. The underselection and missing groups were somewhat underrepresented in the interview sample, while the overselection group was overrepresented. Attempts were made to maintain a distribution of interviews that approximated the proportions of groups within the larger sample, but the overselection and one-change groups were more easily contacted and scheduled for interview than individuals in other groups, resulting in some deviation from our target. About 57% of the interviews were completed in person, while others, specifically those who had moved out of the area, were conducted over the telephone. All interviews were audiotaped, and transcribed; they were approximately 1-h in length.

The interview was organized by life periods. Initial questions focused on participants' current work and on their general and vocational interests (see the appendix). Following this, interests in high school, especially in the career domain, were discussed, and any interests and future goals recalled

Table 1. Comparisons of Prospectively Identified Career Aspiration Groups.

	Prospectively Identified Career Aspiration Groups[a]				For χ^{2c}	Pairwise comparisons
	Overselection (O)	One-change (C)	Underselection (U)	Missing (M)[b]		
Prospective survey data						
N, %	70, 9%	131, 17%	233, 30%	353, 45%	-	
Male %, Female %	47%, 53%	43%, 57%	38%, 62%	46%, 54%	χ^2(3,	
~~N = 787) = 3.6~~						
White race/ethnicity (%)	89%	81%	82%	75%	χ^2(3	
~~N = 787) = 9.5*~~	~~O > M~~					
Parents' education, M (SD)	3.52 (1.78)	3.42 (1.79)	3.23 (1.69)	3.05 (1.57)	F(3, 755) = 2.6	
Family income, M (SD)	6.51 (2.19)	6.53 (2.60)	6.00 (2.33)	5.76 (2.22)	F(3, 755) = 4.6**	C > M
Age 25[c]						
College degree (%)	34%	39%	22%	20%	χ^2(3,	
~~N = 787) = 22.8**~~	~~O, C > U, M~~					
Yearly income, M (SD)	$20,581 ($11,870)	$19,756 ($11,091)	$19,061 ($11,597)	$18,342 ($10,078)	F(3, 645) = 0.9	
Career establishment, M (SD)	2.12 (0.70)	2.24 (0.80)	2.15 (0.75)	1.86 (0.76)	F(3, 650) = 9.7**	C, U > M
Educational aspirations, M (SD)	5.96 (1.59)	5.80 (1.78)	5.36 (2.02)	5.08 (2.00)	F(3, 700) = 6.3**	O, C > M
Job satisfaction, M (SD)	4.69 (0.83)	4.65 (1.03)	4.53 (0.99)	4.27 (1.09)	F(3, 635) = 5.7**	O, C, U > M

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39

Interviews at age 27					
n interviewed, % of total N	13, 19%	16, 12%	16, 7%	22, 6%	–
Males, n, %	4, 31%	9, 56%	4, 25%	8, 36%	χ^2(3, N = 67) = 3.7
Females, n, %	9, 69%	7, 44%	12, 75%	14, 64%	above

*$p<0.05$.
**$p<0.01$.
[a]Determined by prospective reports of occupational aspirations at age 18, 24, and 25.
[b]Missing 1 career aspiration response. Two additional interviews were conducted with individuals missing more than 1 career aspiration response or survey.
[c]The N ranged from 649 to 787 when comparing prospective survey data.

from earlier periods of life (e.g., junior high school) were discussed briefly. The remaining portions of the interview asked about work experiences and interests between high school and the present, returning to current work and interests. The interview concluded with questions about perceptions and feelings about the life trajectory, turning points, and a summary of the interview.

Career Aspiration Patterns and Groups from Interviews

Information provided in qualitative interviews was used to categorize individuals into "overselection," "one-change," or "underselection" groups. Particularly important interview questions for this categorization were those that asked about aspirations in high school, beyond high school, and at the time of the interview. The number and type of career/vocational possibilities discussed in the final portion of the interview were also considered (see the appendix). One investigator coded all retrospective interviews and was blind to the prospective categorization.

RESULTS

Prospective Career Aspiration Groups

Table 1 describes the distributions of the four prospectively identified career aspiration groups among the entire prospective sample ($N = 787$). The overselection group was small in size when compared to other groups. Only 9% of the included panel made a firm occupational decision in high school that remained constant into early adulthood (about age 25). The fairly large missing group (45%) is also noteworthy. About 69% of individuals in this missing group completed surveys but simply failed to answer the question regarding career aspirations in at least one wave. The other 31% did not complete an entire survey. In view of the very low non-response rates in other sections of the survey, many participants seemed to have some difficulties answering the career aspiration questions at some time. In addition, there did not appear to be an association between missing data and age; the percentage of missing responses to the career aspiration question was similar in later years of the prospective study as compared to grade 12. It is unclear what this non-response indicated, but these results may reflect the absence of

well-crystallized vocational aspirations or a refusal to report those aspirations.

Comparisons of Prospective Career Aspiration Groups

Table 1 also summarizes the results of χ^2 and ANOVA (F) tests used to compare demographic, vocational/career and educational characteristics of the career aspiration groups within the entire prospective sample ~~(N = 787)~~. Groups did not contain significantly different proportions of males and the proportion of white participants was similar in the overselection, one-change, and underselection groups. The missing group had fewer white participants than the overselection group. There were ~~also~~ few group differences in parent education and income reported by parents when the respondents were in grade 12. Parental income was only higher in the one-change group as compared to the missing group.

Annual income at age 25 did not differ when the overselection, one-change, underselection, and missing groups were compared. However, a significantly higher percentage of the overselection and one-change groups ($>30\%$) had graduated from university compared with underselection and missing groups ($\approx 20\%$). The missing group was also disadvantaged with respect to career establishment and job satisfaction, and had the lowest educational aspirations at age 25.

Comparison of Prospective and Interview-Based Career Aspiration Groups

Table 2 compares membership in the four career aspiration groups (identified based on prospective survey data) to the breakdown of three groups identified based on retrospective interview reports. Sixty percent (27/45) of individuals in the overselection, one-change, and underselection groups based on prospective data were in the same group when retrospective interviews were used for classification. Cohen's kappa statistic indicates this is a moderate level of agreement, $\kappa = 0.39$ (Cohen, 1960).

In the next sections, interview themes are summarized to illustrate processes of selection in the prospectively defined categories. In addition, themes are highlighted that illustrate compensatory and optimizing strategies that were used within and across groups. As will be apparent from the findings, individuals who were interviewed followed many different career paths and made various career choices. While some made their careers a primary

focus, others had spent more time developing other areas of their lives, such as ~~building~~ a family or pursuing hobbies.

Interview Narratives of SOC Processes

The (Prospective) Overselection Group

The overselection group reported similar career aspirations at ages 18, 24, and 25. The narrative interviews of the overselection group revealed similarities as well as discrepancies between the prospective record and the retrospective interview accounts of occupational aspirations. One-half of the retrospective reports of those placed in this group revealed this continuity. For example, a female, health technician stated:

> "I think I always knew I was going to do nursing. In high school, I knew for sure in high school. Like when I was younger I had ideas, but when I was in high school, I knew eventually. I didn't know if it would be right after high school or how long it would take me, but, yeah, I knew definitely nursing."

Still, other interviewees in this group reported difficulties deciding on career paths and revealed their perceptions about how goals were selected. A history of considering alternative careers was revealed. For example, one female who was working as an elementary teacher at the time of the interview remarked on the extended length of time it took to finish the undergraduate degree as she considered her career options and changed her interests. She did not seem to recall her consistent career aspirations to be a schoolteacher that were indicated on her prospective surveys. She commented:

> "That was kind of long process. I didn't quite know what I wanted to do when I started college and it took me awhile to finish. I finished in about six years, but about half way through I got a job {in the public educational system} and really enjoyed that and that's what started to get me on the right path as far as thinking about what I wanted to do and I thought maybe a counselor and I thought a social worker and then finally thought about teaching …"

Others reported undertaking new processes of selection in their mid-20 s or questioning whether they had explored enough. Yet, such questioning had not been accompanied by a change in career direction or new pursuits. For example, a female was currently questioning her long-term choice of photography as a career. She commented:

> "I think the big turning point is about when I was turning 26 … I actually went through a pretty serious bout of depression where I was just like, what the hell am I doing? Why am I doing this? I don't know what I want to do and that's where {my mentor}, he was

> the only person who recognized it as, you need help … I was actually ready to quit photography entirely, get a job as a bartender or something like that."

Similarly, a female police officer was questioning whether she had explored her options enough before making her career choice:

> "I think, I mean, I think in every job, obviously, people are unhappy and there are drawbacks. Maybe I just think that I would enjoy something else more, but I don't know what it would be. But then sometimes you think, could you give up having that badge and the gun and going out and telling people what to do and bossing people around?"

Her experience, and that of the photographer, illustrate the questioning that might emerge during the mid-20 s and beyond as a result of a history of overselection during adolescence and emerging adulthood.

Other interviews evidenced uncertainties (e.g., questioning of their career goals) and obstacles that were not directly revealed in the survey reports. These narratives gave evidence of compensatory strategies that seemed influenced career aspirations and future plans in the face of loss or challenge. For example, one male in this group was an aspiring physician throughout high school and young adulthood, who recently gave up trying to gain admission to medical school. He described his relinquishment of this goal as a turning point. While working in social service at the time of the interview, he noted:

> "A turning point in my life. I guess, your big one is on my third MCAT, when I didn't get in {to medical school}. That was it. I pretty much decided I've given that an honest shot. For now that door is closed. I don't ever say it's closed forever, but I do say that door is closed for right now. That's the biggest turning point in my life."

In sum, most of the overselection group reported fairly continuous career goals in both their prospective and retrospective accounts. In addition, the qualitative interviews revealed that most were very committed to their work (69%) and almost all of these individuals placed work as central or as a very high priority in their lives. Nevertheless, there were career doubts, uncertainties, compensatory strategies, and temporary shifts in direction for some individuals. Of the 13 individuals, 54% (7) reported that the process of selecting and making a career was a stressful process because of planning uncertainties, concerns over making the "right" career decisions, job interviews, and balancing different aspects of their lives.

The (Prospective) Underselection Group

Based on prospective data, 16 interviewees had changed their career aspirations between high school and ~~about~~ age 24 and had changed their career aspirations again between the age 24 and 25 surveys. These individuals were

classified into a group labeled underselection. Most of this group also described changing career interests during interviews. More than 60% were classified as underselection using both prospective survey data and interview narratives (see Table 2).

The fields of work reported by this group were quite varied, including homemaker, store clerk, daycare provider, waitress, factory worker, attorney, news producer, and puppeteer. Some in this group were seemingly straddling different involvements as 56% were married, 50% had children, and almost 40% had two or more children. In comparison, only one individual (8%) in the overselection group had a child and only four (31%) were married. Moreover, over one-half of the underselection group described work as a way to make money rather than a career. Overall, 56% described fairly low commitment to their current jobs and work as a lower priority than family or other interests, including hobbies, artistic pursuits, religion, and volunteer work. As a female clerical worker stated:

> "… I would rather be doing something more creative. I'm really interested in photography and I'm trying to break out into that in a side business."

At the most extreme, one individual in this group had so many jobs that she had difficulty recalling each position:

> "I mean, realistically, I think that I've never … thought about work much actually. I mean I never thought about a career in high school and I always thought it was crazy when people knew what they wanted to go to college for."

Table 2. Comparison of Prospectively and Retrospectively Identified Career Aspiration Groups.

Prospective Career Aspiration Groups (age 18, 24, 25)[a]	Retrospective Career Aspiration Groups (age 27)[b]		
	Overselection	One-change	Underselection
Overselection	7 (54%)	4 (31%)	2 (15%)
One-change	3 (19%)	10 (63%)	3 (19%)
Underselection	1 (6%)	5 (31%)	10 (63%)
Missing	7 (32%)	6 (27%)	9 (41%)

Note. Numbers and percentages indicate cell sizes and row percentages.
[a]Determined by prospective reports of occupational aspirations at age 18, 24, and 25.
[b]Determined by coding of career aspirations reported during interviews at age 27 (see text). Measure of agreement for overselection, one-change, and underselection ~~(prospective)~~ groups: $\kappa = 0.39$.

Conversely, a subset of this group seemed to have found careers that they were very committed to at the time of the interviews. One female working as a health educator stated:

> "I'm very committed, you know, I like this …. I've started to think about doing graduate work in a way that would enhance what I'm doing right now, um, because that's kind of really why I've waited to go to graduate school."

A key characteristic of the underselection group is that they mentioned many careers during their interviews. At the same time, when they were interviewed, they often neglected to mention many of the choices reported on their prospective surveys. For example, one male participant (702) had listed artist, supervisor, and farmworker on prospective questionnaires at age 18, 24, and 25, but when interviewed at age 27, he described his earlier interests in architecture and automotives. A recurrent theme within this group was the emphasis on families, personal problems, hobbies (e.g., travel), and religion or creative interests (e.g., art, writing), rather than their current jobs and the career paths that might follow from their current work. Hence, examining selection within a domain such as work and career may not identify selection that occurs across domains such as family, work, and leisure activities.

Some of this group had additional histories of difficulties with commitment to education or future careers. For example, almost 20% ($n = 3$) had not graduated from high school. In comparison, all members of the overselection and one-change groups had completed high school. On the other hand, the process of vocational development did not appear to be any more stressful or challenging when compared to other groups. A similar percentage (about 50%) described their experiences of career development as entailing no or minimal stress. For example, a female working as a health educator commented: "No, I think it was weird, I mean like I wasn't worried at all. I was like this is just for now and I'll do something else that's better later on." This was unexpected in view of classic vocational developmental perspectives that would lead one to predict a greater degree of anxiety and less life satisfaction stemming from prolonged vocational indecision (Ginzberg et al., 1951; Osipow, 1968; Super et al., 1963). This is ~~also~~ inconsistent with our hypothesis that underselection would be disadvantageous based on recent theory (e.g., Lerner et al., 2001) and empirical evidence (Nurmi et al., 2002; Weise et al., 2002). Still, others in this group did feel that they were not as focused as they should have been. A female homemaker summarized such feelings:

"I think I put a lot of pressure on myself to … to really feel, to be directed and have this really clear idea of what I'm doing and where I'm going and, and I never really have that, so I always kind of beat myself up about that. …I feel like I've just found mostly that things just kind of, I don't know they just kind of happen, like they just kind of fall in your lap and end up being what you need at the time."

The (Prospective) One-change Group

The 16 individuals in the prospectively identified one-change group reported different aspirations in grade 12 as compared to aspirations at age 24, but the individuals in this group had not changed career aspirations between age 24 and 25. Most (81%) were engaged in work at the time of the interview, which reflected their recently articulated career goals. Many in this group were also beginning to form families with children. Eleven members (69%) of this group were married and two were engaged. About one-third (38%) had one child by the time of the interview; one of these individuals had two children.

Most of this group (63%) also indicated one-change in career aspirations during their interviews at age 27. As a result, their retrospective descriptions of career pathways reflected a change in career aspirations, which was fairly consistent with the prospective record. In fact, the narratives of this group sometimes provided evidence of additional continuity in underlying interests that was not revealed by the prospective survey data. One individual always knew he wanted to be in a business environment; more than one respondent was always interested in math and science, and multiple persons reported their interests in working with and helping people. The individuals in this group seemed to have selected more abstract "higher order" goals. In other words, they seemed to have selected broad areas of interest that directed their pursuit of specific careers rather than selecting a specific career path (e.g., police officer) as was more often the process reported by individuals in the overselection group.

A minority of this group did report more changes in their career aspirations than were found by summarizing the prospective data. A few individuals in this group were classified as underselectors based on interview data (i.e., they reported multiple changes in career aspirations), and described their paths as somewhat haphazard or unexpected. For example, a male working in forestry as an arborist commented:

"I never saw any of the options before they came. The options were opportunities that fit, they were right fits. I didn't have them picked out before. I didn't know I was going to do forestry before I did it. I didn't know I was going to do urban forestry until I did it. I didn't know I was going to ... so they just fit. I found things that fit ... I mean, I didn't know what I wanted to do, but I knew I didn't ... I realized that, I didn't have anything

to put in the box for career, so it worried me, but I was just actively seeking them out as they occurred, when I suddenly needed a career or needed to decide something I would choose and make the choices along the way."

Overall, this was a mixed group when themes of career commitment were examined. About 50% of this group expressed clear and strong commitments to their careers. Yet, some were exploring their "dream" careers or alternative careers like officiating at sporting events, golf instructor, computer repair, or owning a business. The majority of this group (63%) did not find the process of vocational development to be stressful. This was a slightly higher proportion than was found in the "overselection" and "underselection."

In sum, most of the members of the one-change group seemed to have been similarly or more active than the overselection group in selecting and constructing their career paths. They considered more options, but became committed to a career somewhat later in life. A few were more similar to the underselection group – they were still considering their options and exploring their interests to optimize their career trajectories. Alternatively, they were in the process of making choices in other domains and had other priorities.

Many individuals in this one-change group were in the process of adjusting to their situations and forming their commitments, similar to the processes of compensation and optimization proposed by Freund and Baltes (1998, 2000; see also Freund et al., 1999; Lerner et al., 2001). This is also consistent with Becker (1981) who considers adult development as a process of *situational adjustment* as a person moves through a variety of social situations, learning new roles and what it takes to succeed. If there is a match between situational demands and personal capacities, the person comes to think of the self as someone who can succeed in the situation. Commitment to the new role or situation follows. For example, a male described why he has become so committed to his current career and company by noting how his goals, interest, and personal style fit with the company he now works for:

"the company, it happens to be … there are many people here that have been here for 30, 40 years, which is unusual in a corporate environment like we're in and that happens to fit my style in terms of the stable, all the kind of stuff, types of personality traits. It's an honest-type company. It isn't real flashy or gimmicky and stuff like that …. I do like to present a good image, but yet not trendy or flashy-type of stuff …."

Even though persons adjust to their situations, people exhibit some consistency as they move from situation to situation, and change tends to be

restricted (Freund & Baltes, 1998, 2000; Becker, 1981). Shanahan (2000) further examines this kind of process in relation to structural constraints to individual decision-making and goal attainment that produce "bounded agency."

Combinations of agency, selection, constraints, compensation, and optimization were thus evident in this one-change group. Most were adjusting to their situations, and most were consistent in their commitment to a restricted set of interests and goals. While some had changed their interests along the way, these changes were becoming more and more bounded by individual characteristics and social phenomena including previous history, goals, motivation, skills, supports, and interests. As a male working in academic administration commented:

> "Well, the experience that one builds up has a direct influence on what will happen in the future, in other words like if I wanted to go into experimentation of the development of a new type of semi-conductor, no possible way, because of the choices that I made before … so that is limited by my own experience and by my own choices …. It's more of a sense of focusing … I don't see it as my options being limited, I see them as being more focused …."

The (Prospective) Missing Group

When the interviews conducted at age 27 were used as data for group classification, the prospectively identified missing group was approximately evenly divided between the overselection, one-change, and underselection groups (see Table 2). Regardless of these classifications, this group as a whole clearly differed from other groups when data from prospective interviews were examined (see Table 1) and when interviews were analyzed. Overall, the interviews reiterated many of the prospective survey findings (e.g., lower educational attainment). The interviews also revealed a group that contained many of the motivated, but directionless high school students described by Schneider and Stevenson (1999). About 64% of this group reported that they had no career goals in high school other than going to college or making money (e.g., continuing in high school jobs, waitressing, retail work). Interestingly, this group included one of the most socioeconomically successful respondents, a 27-years old female attorney, who commented:

> "No, for it me it was just automatic college. So, no matter what we did or no matter what I wanted to do it was just college – {college} was just like an extension of high school. It wasn't like a choice at all."

When asked about high school interests, rather than providing us with their career aspirations as a response, many described their interests in leisure and

artistic pursuits such as sports, reading, music, fun, and partying rather than noting specific career goals. Most had to be prompted to think about their career goals in high school. Yet, it was clear some members of this group were motivated and involved in their activities. For example, multiple individuals were quite politically active and focused on community development while in high school. This group seemed to be taking more time to make other commitments as well, such as forming families. Compared to the other three groups, far fewer in the missing group were married (18% versus 53%).

A few individuals (18%) in this group were pursuing graduate degrees or medical school at the time of the interviews. The jobs associated with these goals were not clearly formed in high school and seemed to have emerged when they found they liked their areas of study in college. These individuals within this missing group also did well in college and found that they had the opportunity to pursue further education. As a third year medical student noted, "In college I was playing around with biology or English. I like both a lot and I went more towards biology … I basically divided biology into research or medicine so I dedicated to go to medicine, but it was difficult."

Fifty percent of this group was not directly trained for the positions they held at the time of the interviews and only 4 (18%) were working in the career areas they noted on surveys at age 25. Most had either not completed college or had earned college degrees in fields without well-defined career paths (e.g., majoring in English, history, and communication). Some individuals had found their current positions by signing up to do temporary work until this turned into full-time employment, applying for a range of job openings or networking with friends/family. As a male working as a telecommunications engineer described, "I applied at a temp agency for jobs. {my current position is a job} that I was sent to. It was a much better atmosphere than other places that I went to, I liked that, so I took that job." The interviews indicated that this group recognized the need to work for an income but that external opportunity rather than individual selection of careers, or pursuit of planned and defined work lives, primarily influenced their choices for work. As the environment changed or it was discovered that an opportunity taken was not acceptable for some reason (e.g., the job was too stressful), plans changed. In sum, the missing group seemed less involved in the selection of their career goals and more reliant on the opportunities that presented themselves as they moved through this stage of life.

The process of vocational development was also more stressful for the missing group. Only 36% of individuals in the missing group reported that

this process was *not* stressful, while 63% of individuals in other groups reported that the vocational development process was *not* stressful. Stress was thus a common experience for the missing group. As a female editorial assistant described, "Um, it was kind of tough sometimes. I would really get, I would really get stress myself out too much. My friends always used to pick on me because I used to stress out so much about everything." Sometimes individuals pointed out that it was the process of finding work rather than the selection of career goals that was stressful. One female graduate student noted:

> "I don't think it's been particularly stressful in terms of figuring out what I want to do. I think what has been stressful is not being able to find a job … even with a college degree, that's you know, that is full time, that has benefits."

There was also evidence of a lack of commitment to work. Similar to the underselection group, 45% of the individuals in this group expressed low commitment to their current jobs, while only 23% said they were very committed. Almost all others were somewhat vague about their levels of commitment stating, for example, that it depended on the day of the week or other external factors. As a male, multimedia designer offered: "I'm fairly committed {to my job}. It depends. It really depends what day it is and whether, well, a lot of it depends on whether my boss tells me I did a good job or not." Likewise, many had made time-limited commitments. A female working in a flower shop stated, "I'd say for right now I'm very committed, at least for a year." Others were committed because of friendships with co-workers or other interpersonal factors, as a female in retail work commented: "The only reason I'm committed to my job is because my boss … he's been my boss for three years and he's kind of my friend."

DISCUSSION

In this multi-method study, we used three waves of prospective survey data collected in grade 12 (age 18), and 6 and 7 years later, and retrospective interviews completed when most participants were age 27, to identify groups with stability/change in career aspirations. Groups were labeled as overselection if they showed no changes in career aspirations over time, one-change if they changed career aspirations between high school and age 24, but were stable thereafter, underselection if they changed career aspirations between each of the three waves of measurement, and "missing" if they did not answer the question on career aspirations in one wave of data collection

(or failed to complete an entire survey). We then compared the career and educational achievements of these groups, and identified and compared relevant themes of work and home commitments, and stressfulness of the vocational developmental process. Themes of selection, optimization, and compensation (SOC; Freund & Baltes, 1998) were also summarized for each group. Based on the SOC metatheory of Freund and Baltes (1998, 2000; see also Freund et al., 1999), the one-change group was expected to have some advantages in the career and educational domains when compared to the overselection and underselection groups. The current study findings revealed processes of SOC in each group even when career goals were relatively continuous from high school. In other words, many individuals use these SOC strategies to manage their vocational lives, but these processes seemed most salient in the overselection and one-change groups.

As the use of SOC strategies would suggest, individuals in the overselection and one-change groups are somewhat advantaged in the educational and/or career arenas when we used prospectively collected data to compare groups. Our results add to the evidence (Weise et al., 2002) that mobilizing SOC processes provides advantages for educational and career success, and that the setting of goals, placing importance on personal projects in the career domain, and vocational planning in adolescence and emerging adulthood are associated with greater objective success later in life (Nurmi et al., 2002; Savickas, 1999). Still, it is unclear from this study what underlies these individual differences in agentic processes. One possibility is that dispositional traits initiate different environmental experiences, such as positive responses from others and opportunities to exhibit competency (Weise et al., 2002). Together, individual dispositions and environmental experiences may combine to produce individual differences in goal setting and pursuit. This continues to be a question for future research.

Unexpectedly, there were *not* as many differences between the overselection, one-change, and underselection groups when comparing survey indicators of educational attainment and career establishment at age 25. It may be that greater group differences will emerge as participants move into middle adulthood. At this age, the interviews may be most revealing of these future differences. The interview narratives collected when participants were age 27 revealed more career advantages in the overselection and one-change groups when compared to the other groups, including somewhat more commitment to work and more focus on optimizing vocational pathways.

Taken together, there was some orderliness to many career trajectories of the overselection and one-change groups that occurred as a result of processes of selection and optimization. At times, a common theme emerged

during interviews, perhaps reflecting a higher level goal, which linked seemingly disparate career interests (e.g., design or working with people). Yet, other interviewees, especially those who were not yet settled on career aspirations by their mid-20 s (the underselection group) or who could not identify career aspirations at some time during this period of life (the missing group), did not report as much orderliness in the vocational domain. They described more indecision and ''floundering'' in the vocational arena, and did not appear as active in constructing their careers. From the available interview data, it seems that individuals in the overselection and one-change groups had a more coordinated and effective use of SOC strategies than those in the underselection and missing groups. Although consistent with theoretical propositions of ''selective optimization with compensation'' (Freund & Baltes, 2000, p. 53; Marsiske, Lang, Baltes, & Baltes, 1995), individuals in the overselection and one-change groups also seem to have better positioned themselves for future career development. It is likely that they will have adaptational advantages in the future because they will be the most likely to successfully coordinate SOC in the face of new opportunities, challenges, and obstacles. Future research should assess this hypothesis.

We conclude tentatively that underselection (multiple changes in career aspirations, especially when this is still occurring in the mid-20 s) is associated with slower progress in educational attainment and also appears to be associated with more distress in response to vocational issues. Still, underselection of career aspirations did not seem to indicate a period of prolonged adolescence generally, as some of these individuals had established themselves in their family lives or had become committed to other pursuits (e.g., religion, a hobby).

Compared to other groups, the missing group had not made as much educational and career progress. These individuals were consistently lower in educational attainment and career progress and were less satisfied with work, than individuals in the other groups. The retrospective interviews also revealed that this group had other difficulties, including the experience of more stress and a lack of commitment and interest in their work lives. They also seemed to have difficulty forming commitments in other areas, as they were less likely to be married. Overall, findings from both prospective survey and retrospective interviews suggest some lack of commitment to education, and less progress in other early adulthood tasks, such as relationship formation (Erikson, 1968; Furman, Brown, & Feiring, 1999; Havighurst, 1953; Kroger, 2003; Zimmer-Gembeck & Collins, 2003). This group is apparently in a period of prolonged transition to adulthood, having made little commitment to either the work or relational domains.

Our mixed method findings also suggest some caution when drawing conclusions about continuity and discontinuity in career aspirations from one method. While the career choice categories on the prospective survey imply inconsistency or consistency in subjects' career intentions, these were sometimes contradicted by participants' retrospective reflections. Retrospective narrative data sometimes overemphasized continuity over time, but also illustrated greater indecision for some individuals than revealed by the prospective data. The use of both methods considered in tandem allow a more complete understanding of the various ways that young people meet the challenges of establishing themselves in the world of work, often in the absence of structured school-to-work bridges.

This study showed that prospective and retrospective reports can provide complementary information, but that there are certain limitations in using either a survey or narrative approach, or a prospective or retrospective approach, each in isolation. For example, the interviews revealed that the single survey question about career aspirations might not have allowed enough flexibility in answers. While still in high school, many classified in the missing group, as well as in other groups, were clearly more focused on college and had not yet begun making career decisions. Perhaps survey questions about plans for courses of study in college or other further training would have provided important additional information about early selection processes that would be useful in future prospective studies of vocational development.

This study illustrates the dynamics and complexity of vocational development, illustrating how SOC processes are important developmental resources associated with better educational and vocational attainment in adolescence and young adulthood. One important question to emerge from this theory regards the optimal number of goals to promote development (Freund & Baltes, 2000). This study has taken us forward by showing that particular patterns of goal setting during transitional times of life, and the use of compensatory strategies to maintain and to adjust goals when losses or challenges occur, are promotive of adaptation within the career domain. As has been hypothesized by others (Weise et al., 2002), the findings presented here also suggest that selection is a very important component of the SOC process between the ages of 18 and 27. This may be an age- and context-related phenomenon. In a longitudinal, survey study of individuals age 25–36 living in Germany, selection was found to be of less importance to success in the career domain when contrasted with optimization (Weise et al., 2002).

It also illustrates that the selection of vocational goals may *not* be salient in the narratives of a fairly large proportion of young people even during a period of heightened normative focus on this domain. Nevertheless, some youth are engaging in SOC processes in other spheres of adult adaptation that parallel, and may co-occur with, these activities in the domain of work. At least for a time, some youth may "specialize" in focusing on one or another domain, actively relying on SOC processes in the family domain, for example, while giving less attention to career. Others may be predominantly occupied with travel, hobbies, community involvements, or other pursuits. Given limited time, energy, and other resources, such differential involvements may facilitate effective adaptation, in the long run, across domains. Just as patterns of comfort and challenge across contexts are promotive of well-being in adolescence (Call & Mortimer, 2001), so too it may be beneficial for young adults to be able to set aside the developmental tasks or goal seeking called for in certain domains to free up the capacity to resolve others. Further research is necessary to identify such patterns across contexts, and to discover the factors that may lead to distinct processes of SOC within each during this formative period of the life course.

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APPENDIX: PRINCIPAL INTERVIEW QUESTIONS

1. Can you tell me something about your interests in high school? When would you say you became interested in this? [If no mention of work interests, Probe: Did you ever think about work you might do once you left high school?]
2. Thinking back before high school, do you recall your interests? When would you say you became interested in this?
3. Can you tell me something about your interests after you left high school?
4. Could you tell me about your experiences between this job and your current job?
5. Thinking about your current work, could you tell me how it fits or doesn't fit into the other aspects of your life? How committed are you to your current work?
6. Thinking about your life since you left high school, has it worked out as you expected it would? How so? How hasn't it? [Probe: Have there been negative things/positive things affecting how your life has unfolded?]
7. Thinking about your life since you left high school and your work interests, how many possibilities have you actually considered? Do you feel like these options have changed? How so? When? Why? How do you feel about this?

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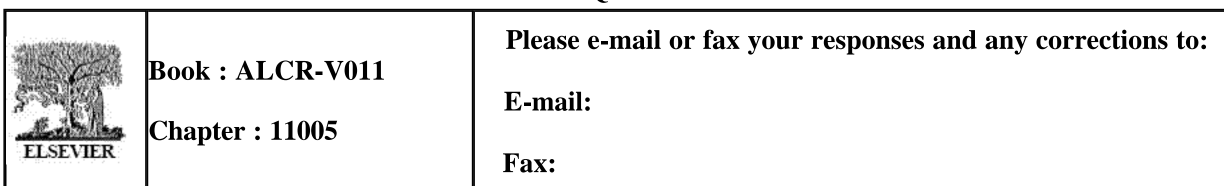

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