Self-Regulation Before and After a Developmental Transition:

A Study of Adaptive Goal Change in Retirement

by

Ann Karen Aspnes

Department of Psychology and Neuroscience
Duke University

Date: ________________________
Approved:

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Timothy J. Strauman, Ph.D., Supervisor

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Philip R. Costanzo, Ph.D.

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Linda K. George, Ph.D.

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David C. Steffens, M.D.

Dissertation submitted in partial fulfillment of
the requirements for the degree of Doctor
of Philosophy in the Department of
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ABSTRACT

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Abstract

Retirement is the quintessential transition from mid-life to late-life for many working Americans. However, questions about the positive and negative effects of retirement have sparked widely divergent empirical findings. Developmental theories of self-regulation may add to the understanding of the subtle differences and transitions within retirement. Retirement may be viewed as a transition in resources (e.g., psychological, social, and financial), so that individual mental health outcomes are linked to how well these resources are reallocated. According to goal disengagement perspectives, failure either in disengagement from past goals or reengagement in new goals can lead to decreased well-being and increased depression. Further, as individuals enter late-life, their focus may turn away from growth and achievement and more toward preventing losses and maintaining current resources. In the present study, it was hypothesized that when pre-retirement individuals were compared against early and late post-retirement individuals, engagement in developmentally relevant goals (e.g., self, family, and leisure) in retirees would be associated with better mental health outcomes while retirees who reported continued engagement in less developmentally accessible goals (i.e., occupational and financial) would report worse outcomes.

A total of 100 study participants (aged 50 to 84) were interviewed about their current goals and completed self-report measures of depression, well-being, social support, physical health, and regulatory focus. Interview data were coded for goal content as well as for regulatory focus. Findings did not support the hypotheses, as there were no significant differences among the 47 pre-retirement, 29 early post-retirement, and 24 late post-retirement participants in their goal content or regulatory focus. Goal content also was not associated differentially with depression or well-being.
among the three groups. However, the interview data did provide valuable information about the heterogeneous and fluid nature of retirement. Retirement, rather than a clear loss in certain resources (i.e., financial and occupational) and a clear gain in others (i.e., time and personal freedom), seemed to be a renegotiation of those resources. Furthermore, even pre-retirement participants named retirement goals, suggesting that, if a goal transition did occur, it may have been a more conscious, gradual process.
I dedicate this work to my mother Edna Joyce Hall Aspnes. I have had moments of joy along the way when I remember how proud you would be.
Contents

Abstract ................................................................................................................................. iv
List of Tables ......................................................................................................................... ix
List of Abbreviations ............................................................................................................ x
Acknowledgements ............................................................................................................. xi
1. Introduction ....................................................................................................................... 1
   1.1 Overview ..................................................................................................................... 1
   1.2 Retirement ................................................................................................................ 4
   1.3 Theories of Self-Regulation .................................................................................... 17
   1.4 Developmental Theories of Self-Regulation ......................................................... 27
   1.5 Summary and Hypotheses ...................................................................................... 42
2. Research Design and Methods ....................................................................................... 46
   2.1 Recruitment, Rationale, and Selection of Participants ........................................... 46
   2.2 Participants .............................................................................................................. 47
   2.3 Procedure ............................................................................................................... 53
   2.4 Materials ................................................................................................................. 54
   2.5 Statistical Analyses ............................................................................................... 58
3. Results ............................................................................................................................. 60
   3.1 Hypotheses 1-2: Differences in Goal Content by Retirement Stage ................. 60
   3.2 Hypotheses 3-4: Retirement Stage and Goal Outcomes Predicting Psychological Outcomes .............................................................. 75
   3.3 Hypothesis 5: Retirement Stage Differences in Regulatory Focus ................... 90
   3.4 Post Hoc Analyses .............................................................................................. 97
4. Discussion ........................................................................................................................ 103
References .......................................................................................................................... 110
List of Tables

Table 1: Demographic Information ..................................................................................................................49
Table 2: Demographic Information by Group ..................................................................................................52
Table 3: Number and Percentage Means (and Standard Deviations) and Overall Occurrence of Each Goal Content Domain ......................................................................................................62
Table 4: Number and Percentage Means (and Standard Deviations) and Percent of Sample with Occurrence of At Least One Goal for Each Goal Content Domain by Retirement Status ........................................................................................................68
Table 5: Means (and Standard Deviations) Recalled within ............................................................................73
Table 6: Bivariate Associations Among Variables Used in Testing Hypotheses 3 and 4. ..............................83
Table 7: Count and Percentage Means (and Standard Deviations) of Goals as well as Percent of Participants with at least One Goal According to Regulatory Focus. ..............................92
Table 8: Number and Percentage Means (and Standard Deviations) and Percent of Sample with ..................................................................................................................................................94
Table 9: Summary Count Means (and Standard Deviations) of Goal Content and Goal Regulatory Focus by Work Status Groups ..................................................................................................99
## List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>BDI-II</td>
<td>Beck Depression Inventory - II</td>
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<td>DSSI</td>
<td>Duke Social Support Inventory</td>
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<td>PCS</td>
<td>Physical Component Scale</td>
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<td>RFQ</td>
<td>Regulatory Focus Questionnaire</td>
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<td>RFT</td>
<td>Regulatory Focus Theory</td>
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<td>Ryff</td>
<td>Ryff Scales of Psychological Well-Being</td>
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<td>SF-36</td>
<td>Medical Outcomes Short Form- 36 Health Survey</td>
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<td>SOC</td>
<td>Selective Optimization with Compensation</td>
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</table>
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1. Introduction

1.1 Overview

Retirement is an expected developmental transition for nearly all American workers. For many, it represents entry into the final stage of life. With the departure from full-time work, old values and the goals of career life must be relinquished and replaced by new values and new goals. However, there is little social structure or norms to guide individuals through this transition. Whereas jobs provide clear status, responsibilities, and schedules, retirement presents a much more open and uncertain period of life. For some, this is a period of opportunity to do things they have always wanted to do and spend their time exactly as they desire. For others, this period is challenging precisely because there are no guidelines and no specific demands.

The purpose of this study is to examine how individuals adapt and change their goals before versus after they retire. I will begin my discussion by reviewing the sociological literature on the advent and definition of retirement. Because retirement is itself a fairly new social phenomenon, the literature on retirement is relatively new, too. However, sociological theorists have considered retirement within a life-course perspective of roles and role transitions (Atchley 1976; Ebaugh 1988; George and Maddox 1977). For some theorists, it is the most overt indicator of the transition from adulthood to older adulthood, characterized by the loss of formal social roles. Others have acknowledged that with the loss of these roles, there is a need for retirees to form new roles for themselves without guidance from social structures.

From a psychological perspective, roles are social constructions that both guide and are guided by personal goals. Therefore, as retirees move out of old roles, so must they move away from older, work-related goals. Because this transition happens
individually instead of en masse or with much social ritual, the disengagement from old goals and development and reengagement in new goals is a primarily personal task. Yet, the retirees’ success at this task may greatly influence their sense of well-being throughout this transition and their later years, as is suggested by theories of self-regulation.

At this point, it is necessary to discuss the manner in which individuals select goals and make progress toward them. The basis of my theoretical approach comes from Carver and Scheier’s (1981) control theory. Their premise, which will be discussed in greater detail later on, is that individuals are constantly evaluating their progress toward their goals and consequently adapting their behavior to increase that progress. Discussion of affect in control theory is limited, but Carver and Scheier do posit that an evaluation of sufficient progress toward a goal results in positive affect while an evaluation of insufficient progress toward a goal results in negative affect.

A more thorough discussion of the influence of goals on affect is provided by Higgins’ (1997) Regulatory Focus Theory (RFT). According to RFT, different kinds of affect correspond to different kinds of goals. Progress toward promotion goals, or “making good things happen”, provide the individual with a sense of happiness, while failure will result in dejection. On the other hand, there are prevention goals, which are intended to “keep bad things from happening.” Successful progress toward these goals results in quiescent feelings while failure causes anxiety. RFT provides a basis for understanding why those retirees who remain focused on goals without opportunity for success will feel dejected.

RFT has not been directly applied to developmental theories of the life span, although control theory has helped to shape some theories of goal transitions. However, the literature on self-regulation and aging is grounded in life-span developmental theories. Baltes’ (1990) theory of Selective Optimization with Compensation (SOC)
provides a foundation for much of the later work on how individuals manage changes in their lives, including how they adapt their goals to these changes. According to Baltes, decreased resources are an inevitable consequence of entering late-life. Therefore, as a significant transition into late life, retirement might be framed in terms of decreased financial and social resources. Baltes suggests that these losses are manageable with the use of three adaptive strategies. In terms of goals, the first strategy would be for retirees to be more selective in their goals, so that they may maximize their resources for a greater chance of success. The second strategy involves optimizing their means for attaining their goals. The last strategy requires that older adults find ways to compensate for lost resources in order to maintain progress toward an overarching goal.

By building on Baltes’ (1990) strategy of selection and Carver and Scheier’s (1981) control theory, Wrosch and Heckhausen (1999) have developed a more specific model of the adaptation of goals during development transitions, called goal disengagement. Goal disengagement is a normal self-regulatory process that occurs throughout life. According to this model, individuals must relinquish goals that become unattainable when circumstances change and then reengage in new goals that are more appropriate to the present circumstance. Failure to disengage appropriately from unattainable goals may result in psychological distress. In the case of retirement, there is often an abrupt end to work-related goals and a need to develop new goals. However, where employed labor usually provides structure and guidance to goals, retirement is an open space where individuals must be more self-directed in their goal choices and reengagement.

The purpose of this study was to conduct a cross-sectional examination of the content of older workers’ goals before versus after they retire to better understand what goals they may be disengaging from and what goals they are (re)-engaging in. The primary hypothesis of this study was that their success in goal disengagement would be
likely to affect their sense of well-being and their level of psychological distress. Given the current state of the literature, a cross-sectional study is an appropriate design for obtaining initial data regarding how goals may change as people move through the process of retirement.

Pursuit of valued goals establishes a sense of identity and meaning in life. However, the normal transitions of human life pose a challenge in the rearrangement of these goals. Old goals become irrelevant or unattainable, and new goals must take their place. The inability to relinquish old goals can lead to a chronic sense of failure while the inability to invest in new goals can lead to stagnation (Wrosch 2002; Wrosch and Heckhausen 1999; Wrosch and Scheier 2003; Wrosch et al. 2003).

The retirement process provides a particularly good example of a challenging developmental transition. Earlier in life, goals are more structured or formal whereas after retirement, individuals have more freedom and less direction in the developmental of new goals (Rosow 1967). While some older adults thrive in this period, others become lost and depressed. In the following sections, I will review briefly the relevant literatures on retirement outcomes, on self-regulatory theories, and on developmental theories of self-regulation.

**1.2 Retirement**

The end of full-time employment is an important transition experienced by most adults. Not only does it mark the end of long-held personal identities and social roles, but it also signifies a dramatic change in day-to-day routines and activities. Evidence is mixed regarding whether retirement causes increases or decreases in well-being or psychological distress. In the following section, I will examine first how retirement is defined and described in the psychological literature and then review the literature on adjustment to retirement in terms of well-being and psychological disorders.
Understanding Retirement

Retirement has been defined as the full cessation of employment within the formal labor market (Atchley 1976). This is not to say that retirees are wholly inactive, but only that they are no longer participating (at least primarily) in paid labor activities. Guillemard & Rein (1993) also make the distinction that retirement is not the end of labor caused by disability, but usually precedes serious disability in old age. Therefore, retirement is a transition of social construction rather than physical necessity that has appeared only within the past two centuries with the advent of the pension system.

Before pensions and social security, older adults generally worked until they became too disabled to continue or they died (Atchley 1976). In the former case, it was up to families and communities to meet their basic needs. However, pension systems changed the character of old age. Rather than a time of disability and deprivation, pensions allowed older workers to retire without losing their economic sustenance at a time while they were still healthy enough to enjoy their release from the workforce.

In the United States, retirement became a protected social institution by the 1960s, when pensions and social security support increased to the point where retirees could maintain a standard of living after retirement that was similar to that which they enjoyed prior to retirement (Han and Moen 1999). In addition, with legislation that made contribution to national social security reserves universal throughout the American workforce, retirement became established as a right of old age rather than a welfare program. Whereas seniors might have been hesitant to be seen as wholly non-contributing members of the workforce, the standardization of the contribution to Social Security made recouping those contributions a universal reward of old-age.

By the mid-1960s, retirement had become a transition increasingly defined by government and economic institutions, so that retirement at age 65 became the norm.
(Han and Moen 1999). Indeed, many places of employment mandated retirement at age 65. However, the degree of structure around retirement has become more relaxed since the 1970s, with legislation that prevents forced retirement, as well as a noticeable trend towards early retirement (Guillemard and Rein 1993). In all industrialized societies, including the United States, there has been a trend over the past two decades for men between the ages of 55 and 65 years old to leave the workforce in significantly larger numbers (Kohli and Rein 1991). In 2000, about 77% of Americans aged 55 to 59 were employed in any capacity while only 55% of Americans aged 60 to 64 were employed in any capacity (Yntema 2001). Though less research has followed the employment of older women, they too appear to be retiring more frequently before the age of 65.

There are a number of social and economic explanations for the “early exit” phenomenon. For example, eligibility for pension programs has been expanded to allow individuals to take pensions earlier than before. Similarly, minimum age for receiving limited social security benefits has been lowered (Han and Moen 1999). Employer practices have also encouraged earlier retirement with many American business retiring their older workers through early retirement incentives (Guillemard and Rein 1993). Economists have also suggested that variability in expected retirement benefits makes withdrawal under present known circumstances more attractive (Quinn and Burkhauser 1990).

There are also workers who remain in the workforce longer. Though considerably more workers are taking earlier retirement, without forced retirement others are choosing to continue their careers much later. Later retirement seems to occur most frequently among higher socioeconomic classes (Brown et al. 1996; Yntema 2001). Yet even among lower socioeconomic groups, individuals may retire from their primary employment and maintain some kind of part-time employment (Kohli and Rein 1991). With more variability in retirement age, there may also be more personal initiative involved in the
decision. However, there is a great deal of heterogeneity with some workers having full control over their retirement while others indirectly enter retirement when they are dismissed from jobs with little chance of being rehired (Guillemard and Rein 1993; Quinn and Burkhauser 1990).

One trend that is particularly important is that the length of retirement is increasing on average (Guillemard and Rein 1993; Han and Moen 1999). This is partially due to the trend toward early retirement, but also reflects the increased life spans of Americans. With better health care, older Americans are living significantly longer and may be retiring while still fit and healthy. These circumstances may provide retirees with a better base for which to engage in new goals, but also means that there exists a longer period in which these goals must be adapted and renewed.

**Adjustment to Retirement**

Retirement presents an interesting transitional period in the life course of any American worker. In terms of personal experience, it is important to understand what is lost when individuals retire from the formal workforce. According to Friedman and Havighurst (1954), employed labor is an integral part of many levels of the psychological and social life of an individual. A job provides a source of income as well as a routine with which to structure one’s time. Furthermore, for Americans, jobs are one of the ways in which they define their own identities and status. Jobs also provide a context for long-term and day-to-day relationships. Finally, employed work creates an arena for goal progress and mastery. The cessation of formal labor then requires that an individual find new ways to structure their time, to establish identities and status, to establish relationships and to find attainable goals.

Where prior life roles, such as working, contain more social guidance and restriction, being a retiree is a role that comes with considerably less structure and
direction. According to one early sociological perspective, retirement was a “roleless role” (Burgess 1960; Donahue, Orbach, and Pollack 1960). That is, retirees lacked status or duties generally attached to a status. A somewhat different perspective was described by (Rosow 1967) in regard to aging in general. Rosow suggested that older adults become increasingly alienated from society because clear social roles, or formal roles, substantially decrease with age. Retirement is one example of this phenomenon, wherein older workers go from holding clearly defined roles around financial and work responsibilities to a void of formal roles. Those previous roles provide the foundation for daily activity as well as individuals’ sense of self within the society. Rosow believed that a resulting alienation in late life was inevitable. However, it is possible and, in fact, common for older people to take on new informal roles, such as babysitting the neighbor’s children or volunteer tutoring. In these cases, though, there is a greater responsibility for the individual to choose and sometimes create these new informal roles. Yet when older adults become invested in these more informal roles, they are able to remain integrated into their communities and find meaningful goals to pursue. Still, there will inevitably be individuals who are not able to generate their own meaningful roles without the social specifications. These people may hold on to past roles or find themselves to be altogether roleless. Therefore, the transition from worker to retiree, though practically universal among American workers, is a transition that often comes without clear guidance or expectations.

Adapting to the role of retiree also may be difficult, too, in light of the values that Americans hold with respect to working. Based on a 1960s anthropological survey of 600 San Franciscan adults aged 60 and above about their life circumstances, their concerns, and their quality of life, Clark and Anderson (1967) suggested that those older adults who adapted to the changing status of later life were better able to negotiate between manifest and latent American values. For example, the need in American
culture to establish one’s own sense of autonomy and accomplishment is a manifest value. As we would expect, when Clark and Anderson interviewed their study participants, many of them described a profound loss in their own sense of self-worth when they could no longer contribute to the workforce. These adults may also fear that in addition to this specific loss of autonomy, they will become increasingly dependent on others, and that fear increases a desire to isolate themselves from others and to avoid becoming a burden. Yet Clark and Anderson also posited that some older adults move away from manifest American values toward latent and more personal values. These older adults may make certain substitutions: “conservation instead of acquisition and exploitation; self-acceptance instead of continuous struggles for self-advancement; being rather than doing; congeniality, cooperation, love, and concern for others instead of control of others” (p.429).

Clark and Anderson (1967) summarized how some of their interviewees made this shift in their values through five adaptive tasks. First, the individual must recognize what new limitations exist in his life, whether they are financial, physical, or social. Second, the individual must “redefine his social life space.” In other words, the individual will begin to disengage from roles and responsibilities that he can no longer maintain. One interviewee told the authors that the key to successful aging was, “Well, keep your expectations within limits so that you can achieve your goals” (p.406). Third, those adults in the sample who maintained good morale found alternate sources of satisfaction and pursuit of satisfaction. That is, they were able to substitute new pursuits and relationships for those they could no longer maintain. In the fourth adaptive task, older adults had to adjust their criteria for self-evaluation. The authors gave the example of a man who had judged himself primarily by his productivity in his work, but found that he could still be very active in leisure activities and social pursuits. In contrast, another man who was proud of his usefulness while employed failed to
make this adaptation and was unable to find a sense of self-worth in activities beyond his previous employment. Fifth, Clark and Anderson pointed to a group of study participants who had completed all of these previous four tasks and then were able to integrate these new pursuits, goals, and criteria for self-worth into a larger picture that fit within the society as a whole. This larger picture can be seen as a set of overarching goals that maintain a sense of meaning in that person’s life. However, success (as in all the tasks) requires recognition of the worth in those subtler, latent American values. These tasks do not present a clear road to the participants, but their accomplishment certainly seemed to distinguish those study participants who maintained high morale past retirement and into the last stages of life.

Atchley (1976) presented a similar model of the process of adaptation through retirement. Atchley reviewed the stages before and after retirement that help individuals adjust to their change in social roles. Atchley stated that prior to retirement people go through a learning process in which they prepare for the next period of their life. For some this is primarily instrumental, such as smart financial planning to ensure comfortable income after retirement. For others who may have been quite devoted to their work, this is a good time to develop other leisure pursuits to provide, as Clark and Anderson would say, alternate sources of satisfaction when work is no longer available for this purpose. However, this learning period is not one of clear socialization and, thus, many retirees are not adequately prepared for the actual challenge. The time immediately after retirement is thought to be a “honeymoon phase” in which retirees revel in their new freedoms. Unfortunately, the honeymoon phase appears to apply mainly to those whose level of financial support, quality of health, and family resources permit it. For those who do enjoy a honeymoon phase, they also run the risk of a subsequent “disenchantment phase” where they find their actual retirement to be less than their fantasy and experience consequent sadness and disappointment. Atchley
noted that this may be a particular risk for those who were extremely devoted to work before retirement and for those who are less able to provide their own structure for themselves. Ideally, the disenchantment phase is followed by a “reorientation phase” in which retirees begin to take a more realistic assessment of their circumstance and abilities. In this phase, they may develop new goals and new routines that provide attainable and regular satisfaction.

Ebaugh (1988) studied the experience of individuals who were leaving a number of different social roles, including a group of retiring persons. Although their experiences may not be identical to the experiences of individuals who were leaving their order of nuns or going through sex change operations, there is a common thread across groups who experience a change in their social position in the world. Ebaugh found that after the decision was made to undertake the transition, many interviewees described the transition as a mixed experience. There was relief in their new freedom as well as apprehension about what they would do with that freedom. Many people also described feeling lost when the responsibilities and routines of their former role dropped away. One retiring physician stated, “I had a period of feeling lost and useless. I was so used to getting up early to go to work and being called any time of the day or night for emergencies. All of a sudden, I was no longer needed.” However, Ebaugh found those who were able to adjust and establish new roles for themselves most effectively had built “bridges” which sustained them through their transition. Most often, these bridges consisted of relationships that could be maintained despite the individual’s changing circumstances. Ebaugh also noted that the degree to which retirees attempted to hold on to their past identity differed by job status. That is, professionals expressed considerably more nostalgia over their past work roles than non-professionals, which suggests that some retirees may experience more difficulty relinquishing their roles because their identities are more involved with their work roles.
Well-Being to Retirement

Given the literature on role exits and transitions, many theorists have expected to see a decrease in well-being after an individual retires. Indeed, some research has found that retirement preceded a reduction in self-esteem and personal morale (Elwell and Maltbie-Crannell 1981; Walker, Kimmel, and Price 1981). Others have also found that psychological distress and disorder have increased after retirement (Bosse et al. 1986, 1987). However, other researchers have reported contradictory findings. For example, several studies have found that retirement appeared to have no effect on life satisfaction (Gall, Evans, and Howard 1997; Palmore, Fillenbaum, and George 1984; Stull 1988). Another study found that retirees had no more psychological distress than their working counterparts (Ross and Drentea 1998). Additional studies have found, contrary to general expectations, that physical well-being did not suffer with retirement (Bosse et al. 1991; Ekerdt et al. 1983). Some findings even suggest that retirement is beneficial because it causes a decrease in stress (Ekerdt et al. 1983; Midanik et al. 1995). Thus, the general picture of retirement holds many conflicting results when taken as a whole.

It is important to note that many of these studies did not take into account gender and often included only male participants. However, gender may help to explain differences in retirement satisfaction and later well-being (Calasanti 1996; Kim and Moen 2002; Moen 1996; Reid and Hardy 1999; Richardson and Kilty 1995). Historically, women were thought to be under greater regular stress than men because of the numerous and varied roles they held. By that account, retirement should reduce the number of demands on their time and therefore reduce their overall stress. However, one study found that it was not the number of roles that women occupy that mattered, but the degree of choice they had and the satisfaction that they gained from those roles (Ross and Drentea 1998). More simply, those women who find their jobs burdensome
are likely to be the ones who benefit from retiring. Another theory suggests that women will have more difficulty in adjusting to retirement than men because they are generally less financially prepared (Kim and Moen 2001). While there is support for the hypothesis that women may not be as well prepared for retirement (Hatch 1992), it is not clear that women are less satisfied or more distressed as a result. There is evidence that women adjust more poorly to retirement (Seccombe and Lee 1986), but there is also evidence that men have more difficulties than women with adjustment to retirement, especially in the case of early retirement (Butterworth et al. 2006; Buxton, Singleton, and Melzer 2005). Therefore, just as there are no simple trends among male retirees, the experiences of female retirees also varies, even though they may be affected by different factors (Moen 1996).

It is likely that the inconsistent findings on the effects of retirement reflect a failure to account for differences among retirees that influence their adjustment to retirement. As suggested by Atchley’s (1976) model of retirement, individuals may have different experiences at different points in their retirement. In a cross-sectional study including recent and later retirees, the more recent retirees reported greater happiness than those who had been retired for more than 5 years (Wells and Kendig 1999). This finding was supported by a longitudinal study in which people who had retired within the last two years had higher morale than those who had been retired for longer (Kim and Moen 2002). Similarly, Gall et al. (1997) found that recent retirees reported greater well-being than those who had retired more than six years ago. These findings support the idea of a “honeymoon period” immediately following retirement. However, Gall et al. (1997) also noted that adjustment to retirement was not simply a function of time, but depended on other factors as well. Those individuals with comfortable financial resources and good physical health reported greater well-being immediately post-retirement. Those who retired by their own choice also reported greater well-being.
Therefore, the honeymoon period may be a very real phenomenon for some, but unlikely for others. Other differences may have more influence in both the short-term and the long-term. Most notably, there are individual differences in terms of resources when entering retirement and in terms of the stressfulness of the actual retirement process (Kim and Moen 2001). In terms of the latter, degree of choice in retirement appears to be an important factor, and unwanted pushes to retire may also come from different sources. Certainly, the trend in early retirement is partly explained by employers urging older workers to take early retirement packages. Early retirement may also occur when individuals are laid off without any likely opportunity of finding a new job. At least one study has suggested that forced retirement is a greater burden for those with less financial resources, and that those with comfortable financial security are not ill-affected even when retirement is forced (Gallo et al. 2006). The need to retire may also be influenced by personal and familial factors. For example, individuals who are forced to retire because of health problems have more difficulty adjusting to retirement (Gall, Evans, and Howard 1997).

Similarly, in a study of individuals who retired to care for an ailing spouse tended to show more depressive symptoms when they felt that their spouse’s disability had forced them into retirement too early (Szinovacz and Davey 2004). Thus, choice in the timing of retirement may offer one explanation for why some retirees fare better than others.

The question of resources is more complex because it involves several domains: economic, social, and personal (Kim and Moen 2001, 2002). As seen in Gallo et al.’s study of forced retirement, greater economic resources buffered against psychological distress. Likewise, another study found that forced retirement accompanied poorer health outcomes only for those with lower wealth and income (Gallo et al. 2000). There is also evidence that individuals with less income and lower status occupations are more likely to be pushed into retirement either directly or by less tolerable working conditions, often combined with health problems (Brown et
In a Midwestern longitudinal survey of retirees during their first year of retirement, financial circumstances proved to be one of the most important factors in determining how well individuals adjusted to retirement (Richardson and Kilty 1991). On several measures of satisfaction, it appeared that those retirees with lower occupational status and income prior to retirement were most likely to show a decline. This trend was especially true for women. Interestingly, the other group who seemed to adjust poorly to retirement had had high income before retirement, but suffered a sharp drop in income after retirement. Again, women in this group suffered the most, possibly because women are often less financially prepared for retirement than men due to less continuous work histories. Economic resources also have a profound effect on how retirees spend their time. Those with more resources tend to have more options and nicer facilities, although there is little evidence that these benefits affect well-being after retirement (Brown et al. 1996).

As observed by Clark and Anderson (1967) and Ebaugh (1988) in their respective studies, social connections appear to be a crucial resource for adjustment to retirement. Maintenance of positive social and familial relationships has been found to predict continued well-being after retirement (George and Maddox 1977; Mutran, Reitzes, and Fernandez 1997; Vinick and Ekerdt 1989). In addition, social integration appears to improve adjustment to retirement (Moen 1996). A number of studies have supported this hypothesis by showing that maintenance of multiple social roles in later life is associated with better physical and psychological health (Moen, Dempster-McClain, and Williams 1989; Spreitzer, Snyder, and Larson 1976; Verbugge 1983). Marital quality also appears to be an important social resource. In an early study, Lee (1978) found that marital quality was significantly linked to higher morale for both men and women. However, marital quality appears to both affect and be affected by retirement satisfaction. Other studies have reported that marital conflict goes up and marital
satisfaction goes down in most couples after retirement (Moen, Kim, and Hofmeister 2001; Szinovacz and Davey 2005). Although one of these studies found that the effect was short-lived (Moen, Kim, and Hofmeister 2001). That is, marital conflict was lower and marital satisfaction was higher when subject participants were re-interviewed two years after retirement. This picture may also be complicated by the number of couples who have both been participating in the workforce. In these cases, the retirement of one while the other continues working appears to put a strain on the marriage which in turn negatively affects the well-being of the individuals (Kim and Moen 2002; Moen, Kim, and Hofmeister 2001; Szinovacz and Davey 2005).

Individuals’ personal resources are somewhat more difficult to define. They may include their physical and psychological health, their sense of self-efficacy, and their adaptability (Moen, Kim, and Hofmeister 2001). In a longitudinal study of more than 400 men and women two years before and after retirement, Kim et al. (2002) found that those individuals who reported high morale prior to retirement tended to report high morale after retirement. Likewise, individuals who had better physical health at retirement also reported high morale after retirement. Self-efficacy and belief in personal control tend to be more long-standing personality characteristics that aid adjustment in any number of circumstances, but research has also shown that retirees who are high in both tend to report less worry and psychological distress (Fretz et al. 1989). Adaptability is a personality resource that directly affects the ability of individuals to manage transitions by exchanging older, no longer relevant goals for newer ones. As will be discussed in greater detail later, those individuals who are more adaptable tend to report greater well-being after all life changes, even when they are unexpected (Wrosch et al. 2001).

In summary, the research findings on retirement present a mixed view. Outcomes may depend on a variety of factors and how those factors interact. However, an individual’s ability to relinquish old goals in favor of new ones may represent a largely unexplored personal resource
which can greatly enhance that person’s transition and adjustment to retirement. In the next
section, I will review several major theories of self-regulation to lay the groundwork for the
developmental theories of self-regulation which best describe this hypothesized process of goal
adaptation.

1.3 Theories of Self-Regulation

Self-regulation is broadly defined as those processes, both internal and external,
that are associated with selecting and pursuing goals (Forgas and Vargas 1999; Karoly
1999). Goal-directed behavior is influenced by the individual’s beliefs and goals as well
as environmental cues, such that individuals are always adjusting their behavior toward
their goals (Zimmerman 2000).

Basic Mechanisms

Goal pursuit appears to be an ongoing evaluative process based on the concept
of a feedback loop (Carver and Scheier 1981; Ford 2006). For each type of goal,
individuals gauge their present state against their internal representations of desired (or
undesired) states (Austin and Vancouver 1996). This process can occur at many levels,
from moment-to-moment goals to goals that cover the entire lifespan. Furthermore, the
levels of goals work hierarchically in concert with one another both as standards for
behavior and as a means by which to organize information gained from the outside
world, and in turn, the perception of both external events and internal states is shaped
by the demands of currently relevant goals (Kelly 1955).

Once this intake of information is accomplished, the goal system evaluates
present behavior for possible discrepancies with currently active goal states by means of
what Miller and colleagues (1960) called a TOTE cycle – Test-Operate-Test-Exit. The
initial intake of information is gauged against the goal standard (Test). Next, the system
attempts to alter behavior to meet the requirements of the standard (Operate) before conducting a second Test to evaluate the new behavioral output against the standard. When newly altered behavior is considered adequately congruent with the standard, then the system Exits the cycle. The cycle should continue to run until the goal standard is satisfied (Austin and Vancouver 1996). For example, a man driving a car may intend to drive at a rate of 55 miles per hour. When he looks at the speedometer and finds that it reads 65 miles per hour, he adjusts his behavior in order to meet his standard by releasing some of the pressure accelerator pedal in his car. He again looks at the speedometer and ceases to make adjustments once the needle marks a speed of 55 miles per hour. The TOTE cycle represents the theoretical basis for understanding the cognitive processes involved in goal pursuit.

Though apparently a simple process, these regulatory cycles do not exist in isolation, but are part of a much larger system of goals and a resulting hierarchy of feedback loops (Austin and Vancouver 1996; Karoly 1993). The highest order of goals form a framework for how an individual defines him or herself. These goals are generally abstract principles or values that span a long period of time, such as being an honest person. The higher-order goals guide the selection of lower-order goals, which in turn guide the selection of even lower-order goals, so that there exists within each individual a top-down structure of goals. Lower-order goals establish the specific means by which individuals can meet their higher-order goals. For example, the man who wishes at the highest order to be an honest person fulfills this goal with smaller, more concrete goals, such as not cheating on his taxes or telling his friend an uncomfortable truth.

It should be noted that the selection and activation of goals and the resulting self-regulatory mechanisms may occur with or without conscious intent. Goals are often subject to routinized programs of action and cognition that are easily activated to make
decision-making more efficient in known circumstances (Karoly 1999). In many cases, this kind of automatic regulation is subject to contextual cues, so that certain goals are activated only when immediately relevant (Shah 2005). Social cognitive processes, such as social scripts, schemas, beliefs, and attitudes, are often connected to goals, which are activated by relevant situational cues. For example, within a student-teacher relationship, a number of goals are embedded that may never be fully conscious, but are clearly activated when the relevant cues (such as a classroom environment) are present. The student raises his hand to ask a question, usually without considering how that action relates to his behavioral standard of respect towards teachers. It would be impossible to process consciously every relevant goal in every situation, so the coherence of the self depends on the ability to automatically connect goals at many levels throughout the lifespan (Karoly 1999).

Affect in Self-Regulatory Processes

Because theories of self-regulation have primarily focused on cognitive processes, affect has often been regarded as a related, but not integral, outcome of these processes (Forgas & Vargas, 1999). In simplest terms, when there is perceived progress toward a goal, a positive affective state is expected to result; as when failure (or lack of progress) is perceived, negative affect results. A large body of research supports the general prediction that attainment of goals is associated with positive affect and overall well-being, whereas failure or perceived inability to succeed is associated with negative affect (Austin and Vancouver 1996; Emmons 1986; Karoly 1999).

Some theorists have argued that the most salient determinant of affect in self-regulation is the perception of progress towards a goal rather than the content or type of goal (Carver and Scheier 1990, 1999). In an interesting diary study, an undergraduate sample was asked to report on daily measures of affect and goal progress at different
points during the semester (Sheldon and Kasser 1998). Progress in the short-term was significantly associated in both decreased negative affect and increased positive affect. When the researchers examined the trends in the data over the course of the semester, they found that students who maintained progress reported significantly greater positive affect. Semester-long progress was not significantly associated with a decrease in negative affect, but the trend was in that direction. Unfortunately, similar studies have not been conducted in older adults. We can assume that progress in self-regulation will have a similar emotional outcome in older adults, but, at this point, no data directly testing this assumption are available.

*Control Theory*

Theories of self-regulation generally describe how individuals select and pursue goals, with the understanding that these processes underlie an individual’s entire psychological life. Indeed, people may define themselves by their goals, such that their successful or failed pursuit of specific goals can have a profound impact on an individual’s estimation of self and resultant sense of well-being. The purpose of this section is to review a specific theory of self-regulation on which I will build throughout the rest of the manuscript: Carver and Scheier’s control theory (Carver and Scheier 1981, 1998, 1999). Control theory postulates a basic psychological structure within which individuals interact with their goals. Using the concept of a feedback loop from Miller’s theory of goal-directed behavior (Miller, Galanter, and Pribram 1960), Carver and Scheier suggested that individuals constantly compare themselves to their “behavioral standards,” or goals, and adjust their behavior to reduce differences between their present state and the a goal (in the case of a desired end state) or to increase differences between their present state and a goal (in the case of an undesired end state) (Carver and Scheier 1981).
According to Carver and Scheier (1981, 1998, 1999), goals serve as “reference values” for an individual’s desired behavior. These reference values are one component of a feedback loop, which operates in the service of self-regulation. The other three components are an “input function,” a “comparator,” and an “output function”. The input function is the act of perceiving information relevant to the reference value. The reference value, or goal, is a set point for behavior. Once information is received through the input function, the system compares the perceived current state against the reference value and determines the degree of congruence or discrepancy between the two. If the comparator finds no discrepancy between the two, there is no need to change behavior and therefore the output function is not adjusted. When the comparator does detect a discrepancy, the output function is altered – that is, current behavior is adjusted (Carver and Scheier 1981, 1998, 1999).

Control theory includes two different types of feedback loops. A negative feedback loop (the type of loop described above) is based on a desired goal, which a person wants to attain. In this case, the comparator function judges the degree of discrepancy between the input information and the goal, and then the output behavior is adjusted in order to decrease that discrepancy. Integral to this process is a system of affective regulation as well. Carver and Scheier have postulated that when the discrepancy is small between goal and perception of behavior, an individual will experience positive affect. When individuals perceive a wide discrepancy between their goal and their present state without acceptable progress towards the goal, negative affect is experienced (Carver and Scheier 1981, 1998, 1999).

The second type of feedback loop is a positive feedback loop. In contrast to the negative feedback loop, these loops are based on reference values for undesired states, or “anti-goals” (Carver and Scheier 1981). The positive feedback loop functions to increase the discrepancy between the input information and the anti-goal. The
behavioral output in this system works to avoid the anti-goal. For example, an individual may wish to avoid a car accident or a late charge on a bill. More abstract examples might include not wanting to tell lies or to be hurtful towards others. In this system, an individual will experience positive affect when a discrepancy exists between the current state and the anti-goal. Negative affect occurs when there appears to be a small discrepancy between the anti-goal and the present state without sufficient progress away from the anti-goal.

Goals may differ in more than their valence (Carver and Scheier 1981, 1998, 1999). That is, they may also differ in their time span, their importance to the individual, and their level of abstraction. Some goals are built on short-term outcomes. For example, a short-term goal would be to pay one’s phone bill on time for the month. A longer-term goal would be to be financially responsible. These goals also differ in their level of abstraction, since paying a phone bill presents a clear and concrete task. Being financially responsible encompasses a much greater scope of behavior. In this way, goals may exist in a hierarchy where the more abstract goals filter down to determine lower level more concrete goals. In the above example, paying your phone bill is subsumed by the larger goal of financial responsibility. Goals that are abstract and lifelong concepts may provide the guiding principles for all other goals. Higher-order abstract goals may be especially salient to older adults, because such higher-order goals are potentially more long-standing than those of shorter-lived adults.

Goals also differ in how important they are to the individual (Carver and Scheier 1999). The concept of goal hierarchy is related to this dimension as well. Higher level goals are generally more important than lower level goals (Austin and Vancouver 1996). Different goals within levels may differ in their level of importance as well. Goals that are more salient to the individual’s self-definition will be valued more greatly than less salient goals. The value placed on a goal will then influence the degree of effort an
individual will expend in pursuit of the goal, as well as the consequences of failure and individual’s ability to relinquish the goal.

The Role of Affect in Control Theory

The focus in control theory has been primarily on the cognitive processes that determine decision-making and goal-directed behavior. Consequently, the theory’s conceptualization of affect has been less developed. Affect is seen as an outcome of the feedback loop’s comparative function (Carver and Scheier 1981, 1990). That is, affect is produced in response to the detection of discrepancy or congruency between goals and the present state. For a negative feedback loop, if acceptable progress is being made toward a desired goal, the individual should experience confidence and positive affect. When the individual perceives insufficient or no progress toward a goal, or actual movement away from a goal, he or she should experience negative affect. If progress is being made, but not at a rate at which is expected by the individual, he will also experience negative affect. The actual size of the discrepancy is not as important in this framework, but rather the rate and direction of movement determines affect.

In contrast, positive feedback loops are based on anti-goals, or undesired states, so the production of affect should be reversed. Therefore, positive affect is experienced when the rate of progress away from the goal meets expectation. Negative affect should result from inadequate progress away from the anti-goal as well as no movement away from the anti-goal or movement toward the anti-goal. However, most of the elaboration on affect in control theory has been focused on negative feedback loops.

In one recent study of undergraduates, Lawrence et al. (2002) manipulated the feedback given on an ambiguous task, so that one group of students received feedback of no progress, the second group of students received feedback of improving
performance, and the third group of students received feedback of worsening performance. The students were asked to rate their mood before and after completing the task. Those students who were told that they were making progress toward better performance reported increased positive mood. Those students who believed that they were moving away from the goal by getting worse reported less positive mood. The researchers argued that this supported the rate of progress hypothesis, although the findings seemed to have more bearing on how the general perception of progress produces positive affect.

Other theorists have elaborated on how affect relates to control processes. According to self-discrepancy theory (SDT; (Higgins 1987; Higgins, Klein, and Strauman 1985), people are motivated to reduce the discrepancy between their present estimations of state (“actual selves”) and two different kinds of desired end-states: ideal and ought self-guides. SDT proposes that a discrepancy between the actual self and the ideal self will induce dejection-related affect and, in some cases, depressive symptoms. In contrast, a discrepancy between the actual self and the ought self will induce agitation-related affect and, in some cases, anxiety symptoms. Extensive research has supported this conceptualization both in short-term situations, as well as more long-term orientations (Strauman 1992; Strauman and Higgins 1987). Because older workers experience definite losses with retirement, it may be important to consider whether, and how, their goal orientation and goal-relevant self-evaluations affect their emotional responses.

Regulatory Focus Theory

Based on earlier self-regulation theories, Higgins (1997) proposed regulatory focus theory (RFT) to better explain how people are motivated to move toward different kinds of desired states. RFT also provides a self-regulatory framework that can help to
explain the occurrence of depression and anxiety. Therefore, unlike some of its predecessors, RFT is potentially more directly relevant to how goal successes and failures may contribute to mental health outcomes.

Higgins (1997) proposed that humans begin with two basic kinds of needs: nurturance needs and security needs. The satisfaction of nurturance needs helps to shape people’s experience of positive outcomes in their early development. The experience of nurturance in early life sets a motivational path in which humans are motivated to experience positive outcomes and emotions. Under this umbrella is included the pursuit of hopes and aspirations as well as goals associated with making gains and pursuing accomplishments. According to Higgins, this promotion focus involves a strategy of approaching states that match imagined positive outcomes, or in colloquial terms, “making good things happen.”

Security needs have to do with ensuring the absence of negative outcomes (Higgins 1997). According to this motivational strategy, goals are formed to prevent losses and avoid pain. Such a prevention focus includes the use of “ought” self-guides, which determine desired self-states that will encourage the prevention of negative outcomes. Higgins’ conceptualization of prevention is also different from the conceptualization of a positive feedback loop in control theory. Control theory describes a motivation to move away from anti-goals or undesired states. Prevention, on the other hand, describes a motivation to move towards a state of security in which negative outcomes will be absent – a process of attaining a specific kind of positive end-state (the satisfaction of security needs) by “keeping bad things from happening.” Part of this process includes strategies which seek to avoid mismatches with this desired state. This distinction is important in how affect is produced in each process.

Both prevention and promotion goal pursuit are hypothesized to lead to specific affective states (Higgins 1997). RFT postulates that individuals continually judge
themselves against their desired promotion and prevention goals. When an individual makes progress toward a promotion-focused goal, that person will feel happiness and pleasure in the attainment of positive outcomes. When an individual is unsuccessful in his pursuit of a promotion-focused goal, he experiences an absence of positive outcomes, which results in dejection-related emotions such as sadness and hopelessness. On the other hand, an individual who feels that he is successful in meeting his security needs will feel calm and at ease, whereas not meeting prevention-focused goals will cause agitation and anxiety because of the expectation of negative outcomes.

RFT suggests that depressive disorders may result from a chronic inability to attain promotion goals. Previous research findings support the hypothesis that failed pursuit of promotion goals precedes dysphoric mood and depressive symptoms (Scott and O'Hara 1993). Strauman (2002) suggests that when failure is chronic, individuals experience (in addition to dysphoric mood) a decreased motivation toward promotion goals and a reduced sensitivity to reward cues. Consequently, these individuals will lack future opportunities for success and resulting positive affect. Findings from a recent study support the hypothesis that promotion failure is associated with depression (Eddington et al. 2007). Those individuals who reported poor socialization of promotion goal attainment also showed decreased activation in the left prefrontal cortex under fMRI, which has been associated with vulnerability to depression (Sutton and Davidson 1997). Specifically, the depressed study participants showed less activation in the left prefrontal cortex than their non-depressed counterparts when each was primed with idiographic promotion goals.

According to RFT, some individuals are predisposed by their familial socialization to be less effective in their pursuit of promotion goals. In particular, individuals with familial histories that did not include a focus on promotion goals will be ill-equipped in their own pursuit of promotion goals as adults and adolescents, which
makes them more susceptible to depression (Higgins, 1989; Higgins et al., 1994).

However, another possibility which will be discussed in further detail later on is that diminished resources for goal pursuit may also result in chronic promotion failure. In turn, under circumstances where promotion goals become less attainable, it may be adaptive for individuals to switch their orientation to prevention goals. Failure to make such a transition to a different goal pursuit orientation may set these individuals up for repeated failure in pursuit of promotion goals and consequent depressive symptoms.

**1.4 Developmental Theories of Self-Regulation**

Self-regulation theories such as control theory and RFT provide a general framework for understanding the mechanisms of goal pursuit. However, they do not account for the unique life circumstances that accompany different stages of adult development. In the following section, I will review related theories of self-regulation that specifically examine these processes in the later stages of adult life.

*Selective Optimization with Compensation*

One of the most influential theories of optimal aging, selective optimization with compensation (SOC) was developed by Baltes (Baltes & Baltes, 1990; Baltes, 1997). The premise of this theory is that old age is naturally accompanied by increasing losses in various arenas of life. Baltes (1997) has noted that the human body is subject to ongoing functional losses as well as increased risk for illness. In addition to physical and cognitive losses, older adults experience losses in social resources, such as shrinking social networks and more limited formal roles within society. In a study testing the hypotheses that multiple losses occur with age, Baltes and Lang (1997) looked at day-to-day behavior with regard to resources in multiple domains and age. In a sample of 516 adults aged 70 to 103, the researchers did find significant correlations between
decreased resources and age in terms of sensory acuity, motor abilities, cognitive capabilities, extraversion, and commitment to personal goals. However, increasing age was not correlated with social losses in this population. These losses were also reflected in their daily activities, so that the participants with fewer resources were significantly less active than those with more resources.

According to Baltes, in the face of such losses the older adults who are able to best maintain their sense of well-being and their lifestyle display a certain amount of adaptability, or “behavioral plasticity” (Baltes, 1990, p. 7). Baltes has also suggested that as individuals lose more resources, they must acknowledge they can no longer maintain all of their previous activities or goals. Rather, optimal aging requires the individual to choose certain aspects of their lives that are most important to them and direct their efforts towards these pursuits while allowing less important aspects to fall away – a process described as “selective optimization.”

In terms of selection, Baltes (1990) notes that older adults may select behavioral domains in which they currently participate as most important, but some individuals also choose new areas in which to concentrate their efforts. Baltes describes an example of someone who has been an avid runner throughout her life. To maintain the same level of competitiveness in this sport despite normal physical losses, this person may give up other activities so she can invest more time in training for marathons. The second aspect of this principle is optimization. Optimization refers to the betterment of the specific domain selected, and can be taken more globally to infer improving overall life by directing resources towards the most salient individual goals. If we again imagine our marathon runner, she may seek help from a coach to develop training strategies that will improve her performance.

In addition to the process of selective optimization, Baltes (1990) posits a third necessary element to aging well, which he calls “compensation.” Compensation directly
manages losses in resources and abilities by employing alternate or supplemental means. Compensation can encompass both abstract cognitive changes and concrete aids to daily living. For example, normal declines in memory ability might be compensated for by the use of new mnemonic strategies. A physical decline, such as an arthritic knee, can be compensated for with the use of a cane. In the case of the marathon runner, she may do most of her training on a treadmill to avoid the greater stress on her joints associated with road running.

Baltes and colleagues (2000) have conducted empirical work testing the predictions of SOC and its utility in understanding adaptive aging. One study compared the performance of young adults (20-30) against the performance of older adults (60-70 years old) walking through a complex track as quickly as possible while trying to memorize a list of words (Lindenberger, Marsiske, & Baltes, 2000). The researchers found that younger adults were faster and more accurate in the walking task as well as more successful in the memory task. However, when they compared word list memory while seated or standing rather than walking, the older adults increased their memory performance more than the younger adults. This suggests that older adults are less able to complete two tasks at once and, therefore, benefit substantially from selective optimization. Another study allowed the use of mnemonic devices and a handrail within the same basic study design to assess the use of compensation in younger and older adults (Li, Lindenberger, Freund, & Baltes, 2001). The researchers found that both groups employed compensatory strategies as both the memory and walking tasks became more difficult. However, when the older adults were faced with more difficult tasks, they tended to focus on the walking course at the expense of their performance on the word list learning. When this occurred, the older adults made use of the handrail significantly more than the younger adults.
Research conducted through interviews has also examined how the use of selective optimization with compensation is influenced by physical losses. In a survey of 248 adults aged 55 and older who had some level of disability due to osteoarthritis, older adults frequently reported the use of selection, optimization, and/or compensation when asked how they managed their illness (Gignac, Cott, & Badley, 2002). When asked to describe how they may have adapted their behavior, their answers stressed the use of optimization and compensation with regard to completing the regular activities of daily living. The participants stressed the use of selection more with regard to their social networks and their personal goals.

**Prevention versus Promotion Orientation in Late-Life Goal Pursuit**

The SOC model has been explicitly applied to developmental transitions and goals by Baltes and his colleagues (Freund, 2003; Freund & Baltes, 1998; Freund & Baltes, 2002) as well as other researchers (Wrosch et al., 1999; Wrosch, 2002; Wrosch et al., 2003b; Wrosch et al., 2003a). Whereas earlier research by Baltes and colleagues focused on behavior, with the implication that the same concepts also applied to underlying goals and motivations, more recent research by Baltes and by Freund have provided detailed examinations of the internal processes of goal adaptation in later life. Freund and Ebner (2005) have proposed that the selection, pursuit, and abandonment of goals is greatly influenced by the greater number of losses than gains in later life. In younger periods of life, the primary focus is thought to be on making gains in terms of skills and resources, but older adults are more likely to use selective optimization with compensation to manage their losses in order to maintain their positive self-image and present functional abilities.

If older adults are more focused on protecting against losses than younger adults, the structure and importance of their goals should differ from younger adults. Both
Freund (2005) and Heckhausen (1995) have hypothesized that older adults will be more focused on prevention goals compared to promotion goals. That is, older adults should put more emphasis on avoiding negative outcomes, such as the loss of independence through driving or loss of physical mobility. In contrast, younger adults should be more focused on making gains, such as acquiring driving skills or improving performance in a preferred sport.

Only two published studies have tested this hypothesis. In one study, 510 adults across three age groups were surveyed regarding the content and subjective importance of their goals (Heckhausen, 1997). The younger adults (aged 20 to 35 years old) showed a significantly greater focus on approach goals than either middle-aged adults (40-55) or older adults (60 years or older). Both older adults and middle-aged adults described more goals to avoid losses than younger adults. Older adults also reported significantly fewer approach-oriented goals and significantly more avoidance-oriented goals than the middle-aged adults. Interestingly, older adults reported greater satisfaction with their life than either of the younger groups, so the transition in orientation to avoidance goals appears to be, at least in principle, adaptive.

In a similar study, 120 adolescents and adults were interviewed regarding the orientation of their goals in terms of gains, maintenance, and losses (Ogilvie, Rose, & Heppen, 2001). As expected, the adolescents (aged 15 to 17) reported more goals for making gains than either the middle-aged adults (aged 35 to 46) or the older adults (aged 66 to 82). Goals to maintain present strengths and abilities, as well as goals to prevent losses, were more prevalent among the older adults than the middle-aged group. Likewise, maintenance and loss-prevention goals were more prevalent among middle-aged adults than among the adolescents. Thus, movement toward a goal orientation involving maintenance and avoidance seems to occur gradually as individuals move into middle and late adulthood.
The focus on avoidance or prevention versus approach or promotion in later life may be linked to specific outcomes in terms of affect and psychopathology. Higgins (1997) has proposed that failure to attain promotion goals will result in depression and hopelessness, whereas failure to attain prevention goals will result in anxiety. Given this conceptualization, older adults would be at greater risk for anxiety disorders in their goal failures, and they may have less opportunity for positive outcomes. However, since the adjustment towards prevention is normative, it seems more likely that there would not be a psychological cost specific to such an orientation (Freund & Ebner, 2005). More problems may occur when older people fail to make this adjustment and remain more strongly oriented toward approach/promotion goals.

To incorporate this change in orientation, Freund and Baltes (2002) further expanded the concept of selection into two types: elective selection and loss-based selection. Elective selection usually entails choosing one goal over another by choice. Loss-based selection describes changing one’s goal hierarchy because personal or environmental losses make the original goal unfeasible. For example, an older man might electively select to retire from his job, so that he can pursue another goal to travel the world. An example of a loss-based selection would be if the same man were forced to take an early retirement due to restructuring at work and therefore refocused his resources toward the goal of traveling the world. In terms of goals, optimization describes the maximization of one’s efforts toward successful goal pursuit through strategies that improve efficiency and productivity. Examples might include learning new skills, patterning actions after the success of others, or increasing time and effort toward realizing a goal. Compensation also has to do with the pursuit rather than the selection of goals, but compensation strategies involve managing losses rather than improving present effort. For example, compensation might include identifying an alternate means to pursue a desired goal when the original pathway is blocked or
enlisting the help of others to overcome new obstacles. Returning to the example of our world traveler, he may optimize his goal to travel by doing research on the travel industry and relevant travel packages. To compensate for the financial loss of his income, he might plan to stay at elder hostels rather than five-star hotels in his travels, so that he will still be able to afford his ultimate goal of going around the world.

Two studies have tested the use of SOC strategies, including both types of selection, in the pursuit of individual goals as related to well-being and other personal characteristics across adulthood (Freund et al., 2002). Results showed that mid-life adults (ages 43 to 67) generally endorsed greater use of SOC strategies than either younger adults (ages 18 to 43) or older adults (ages 67 to 89). The authors suggest that this finding reflects lesser acquisition of SOC skills in young adults and fewer resources available for self-regulation using SOC in later life. The only exception was that older adults reported greater use of elective selection than the other two age groups. Use of each of the elements (elective selection, loss-based selection, optimization, and compensation) were associated with positive measures of subjective well-being across all age groups. Combined use of SOC strategies was associated more strongly with purpose in life than any other facet of well-being. Of all four strategies, optimization showed the strongest association with all levels of well-being. Unfortunately, the authors did not examine these effects by gender or by different age groups. Using the NEO personality inventory, associations between personality traits and use of SOC strategies was also tested. Neuroticism was negatively associated with all SOC strategies while conscientiousness was positively associated with all SOC strategies. Again, however, the analysis of SOC strategies and personality traits was not broken down by age.

The studies reviewed above provide empirical support for the assertion that the self-regulation of older adults is critical for their well-being. Freund and Baltes (2002)
also have suggested that, given the expectation of losses, older adults will use SOC strategies in generating goals and expending energy towards those goals. Selection appears to be particularly important because it allows older adults to target limited resources more effectively. If an older person pursues too many goals, then she or he may be more vulnerable to failure.

Riedeger, Freund, and Baltes (2005) conducted two cross-sectional studies to investigate how both younger and older adults manage multiple goals. Their hypothesis was that older adults learn to either select some goals or to pursue goals that are in harmony with one another (“intergoal facilitation”) in order to maintain progress in the face of the decreased resources of aging. In the first study, a younger group of adults (20 to 30 years old) and an older group of adults (59 to 77 years old) were asked to complete detailed inventories describing some of their primary life goals. In the second study, members of both a younger and an older age group completed descriptive inventories of their goals as well as daily diaries. To control for possible differences due to varied goal content, the participants in both groups all focused on exercise-related goals. The results of both studies showed that the older adults were significantly more likely to hold goals that were compatible with one another, and, interestingly, the older adults tended to pursue such goals more intensely. In the daily diary portion of the second study, the authors found that older adults devoted more time and effort on a daily basis toward their exercise goals than younger adults. Multivariate models in both studies found that the greater intensity of goal pursuit by older adults was partially mediated by intergoal facilitation. From these results, it does appear that older adults may narrow the focus of their goals in later life, but also that this strategy increases their intentional pursuit of the selected goals. Of course, if older adults are directed more single-mindedly toward goals, it would be important to determine what consequences occur when they fail to reach their goals.
Goal Disengagement

The concepts of SOC have also been applied to control theory through the notion of goal disengagement (Carver & Scheier, 2000; Wrosch et al., 2003b). The term describes a process wherein an individual who is not able to achieve a given goal abandons that goal in favor of a more feasible one. Like SOC, the process of goal disengagement is considered an adaptive response to inadequate resources. In the later stages of life, older adults would be expected to abandon certain goals as they lose the resources required to pursue those goals. Furthermore, abandoning goals that no longer fit their present conditions allows them to pursue goals which they can successfully attain, rather than wasting resources pursuing unattainable goals (selection).

Heretofore, this discussion of control theory has centered on how people adjust their behavior to move closer to their goals or further from their anti-goals. However, goals are not necessarily unchanging throughout this process. Carver and Scheier (2000) have suggested that goals themselves also are subject to an ongoing process of evaluation. Although the initial response to a perception of failure should be to pursue a goal more vigorously, later adjustment may need to occur when a person continues to perceive failure. Therefore, when a goal is perceived as unattainable or failure is considered likely, individuals may respond by disengaging from the goal. Disengagement involves the lessening of effort towards the goal and the abandonment of commitment to the goal (Wrosch, Scheier, Carver, & Schulz, 2001).

Put in the framework of development over the lifespan, goal disengagement appears to be an adaptive response to the changing circumstance of a person’s resources (Wrosch et al., 2001). As we age, our personal resources as well as our social resources change and alter our ability to attain certain goals. For example, women who have
experienced menopause no longer have the biological capacity to bear a child. To maintain the goal to bear her own children in these circumstances is to guarantee ongoing failure in goal pursuit. In this case, it makes sense that the woman would cease trying to become pregnant and give up her psychological attachment to the goal. While this example involves a goal that is relatively high in the hierarchical system, disengagement may occur at any level. A man who loses his eyesight may have to give up chopping his own vegetables while cooking dinner. However, disengaging from smaller goals should be easier because they are less integral to the individual’s self-definition than larger-scale goals, such as being a mother. Also, smaller goals generally fit within a hierarchy of a higher-order goal, so that even when the lower-order goal must be abandoned an alternate route to the higher goal may be identified. For example, the man who cannot chop his own vegetables can compensate by buying prepackaged and precut vegetables for his stew. Likewise, if the menopausal woman has the higher-order goal of being a mother, she may choose to adopt a child. Therefore, abandoning one goal does not always mean abandoning the associated higher-order goal, but may require the careful selection of more attainable means to a higher order goal, optimization of the pursuit of lower order goals, and/or compensation for losses that preclude direct pursuit of the goal.

Sometimes people will be able to adapt their standards or their lower-order goals along the path to a higher order goal. However, there will also be cases when the higher order goal becomes unfeasible. This is the hardest set of circumstances; in this case, disengaging from a highly-valued and highly integrated goal will demand more psychological change. Also, a long-held goal may provide a life with meaning, and that loss will shake an individual’s sense of self and self-worth (Freund et al., 2005). Furthermore, long-held goals are subject to the consequences of “sunk costs,” where abandoning the goal is perceived as devaluing past efforts (Arkes & Ayton, 1999). For
example, a man who is forced to retire will no longer be able to earn additional money for his family. If being a provider has been a long-held, highly valued goal, disengaging may leave him with a sense of emptiness as a person (Wrosch et al., 2001). Nonetheless, holding on to an unattainable goal may itself have even graver consequences.

According to control theory, when an unattainable goal is activated, the feedback loop will report an unacceptable degree of discrepancy between the present state and the goal (Carver et al., 1981; Carver & Scheier, 1990; Carver & Scheier, 1998; Carver et al., 1999). Awareness of this discrepancy causes negative affect. Because progress is never made towards the goal, the negative affect will build over time into greater psychological distress and a sense of futility (Wrosch et al., 2001). In the case of a small goal, this distress may be manageable, but continued failure in regard to large-scale and lifelong goals will cause profound distress. Again, the man whose primary goal is to be a provider for his family will fail over and over again in this goal if his now limited income does not meet his standards for success in this arena of his life. He will experience distress over his failures as well as hopelessness because the conditions do not exist for him to succeed.

If holding on to an unattainable goal sets a person up for ongoing distress, then disengagement appears to be a better option (Carver et al., 2000; Wrosch et al., 2001; Wrosch et al., 2003b). However, simply disengaging from a goal can leave a person with a sense of emptiness as well, so a more adaptive response appears to be disengagement with reengagement (Wrosch et al., 2001; Wrosch et al., 2003b). An absence of goals means no opportunity for positive affect or external reinforcement, just as the maintenance of unattainable goals causes negative affect. However, an individual may choose to reduce his efforts towards an unreachable goal and reinvest those efforts towards more attainable goals just as Baltes (1997) described in the process of selection.
In this case, the individual will again be able to experience success and the resulting positive affect (Wrosch et al., 2003b). For example, our retired gentleman who has the long-held goal of being a financial provider for his family may disengage from this goal in favor of being an excellent grandfather.

Being able to reengage with a new or adjusted goal may depend on different conditions (Wrosch et al., 2003b). For example, in order to engage in an alternate goal, such goals must be available to the person. Also, an alternate goal will only be helpful if the person is able to invest that goal with suitable meaning and to begin working toward the alternate goal. The availability of alternate goals may be especially problematic in later life since individual and social resources are shrinking (Freund et al., 2005). These losses may create less opportunity for the identification of new goals.

**Empirical Support for Goal Disengagement**

Carver, Blaney, and Scheier (1979) began exploring goal disengagement as an adjustment to negative feedback and expectations of failure early in the development of control theory. They conducted two studies with undergraduates in which the researchers manipulated the study participants’ perception of their performance and their expectations for later performance. After one task, each participant was told that they had done poorly, but then participants were randomly assigned to receive positive expectations or negative expectations for their performance on a following task. The researchers compared persistence times on a second unsolvable task based on the participants’ expectations. As predicted, participants who expected to do poorly on the second task gave up significantly earlier than participants who expected to do well. This difference was magnified when the researchers left the participants to work in front of a mirror. Therefore, greater self-awareness seemed to cause those participants with negative expectations to withdraw more quickly. This study provides support on a
small scale for the hypothesis that abandoning a goal that one believes is unattainable is a normal process.

Research has examined the adaptiveness of disengaging from much larger-scale goals according to changing developmental resources throughout the lifespan (Heckhausen, Wrosch, & Fleeson, 2001; Wrosch et al., 1999; Wrosch et al., 2003b). Heckhausen, Wrosch and Fleeson (2001) interviewed 143 adult women between the ages of 19 and 46 about their life goals. Women were compared across three conditions: younger women who might bear children in the future, women who already had at least one child, and women who could no longer bear children due to age. The women who had passed the “developmental deadline” for bearing children emphasized goals regarding self-care and relationships with friends significantly more than the other two groups. Women who still had expectations to bear a child reported more interest in child-bearing than the older group, suggesting that the older women had already disengaged from childbearing goals.

The study participants were also shown a group of sentences describing different attitudes and expectations and then later asked to reproduce these sentences from memory. The younger women without children recalled significantly more sentences with content related to babies than either of the other two groups. The missed-deadline group recalled the least number of sentences regarding babies. Sentence recall was also related to affect, so that the women in the missed-deadline group who did recall more sentences about babies also reported significantly higher levels of negative affect than women in the same group who recalled less. Greater positive affect in the missed-deadline group was associated with investment in alternative goals to child-bearing. The findings suggest that women who were no longer able to bear children generally disengaged from this goal and reinvested their energy in other goals. This process appears to be an adaptive response to the unlikelihood of bearing a child since those
women who had passed the deadline without fully disengaging from a child-bearing goal or without moving their energy toward alternate goals suffered some psychological distress. The findings of this study were replicated in a similar investigation (Heckhausen et al., 2001).

Another study considered a different developmental deadline which might affect individual goals (Wrosch et al., 1999). In this study, young adults (ages 23 to 35) and late mid-life adults (ages 49 to 59) who had been recently separated were interviewed about their partnership goals. Given greater access to developing new romantic relationships, the young adults were expected to report more partnership goals. In fact, the older respondents did report significantly fewer partnership goals than the younger respondents. Interestingly, when the same comparison was made between younger and older married study participants, the researchers found that the number of partnership goals did not differ significantly, but the orientation of the goals did. The older adults who were in relationships reported more loss-prevention goals while the younger adults reported more gain-oriented goals. Also, when asked to recall positive aspects about partnership relationships, the separated younger adult group remembered significantly more positive aspects than the older separated group. This difference was not due to better memory in the younger group, as the committed older group participants remembered more positive aspects of partnership relationships than the committed younger group. These findings support the hypothesis that older adults are likely to disengage from the goal for a romantic relationship because of the more restricted social resources of their life stage. When the participants were contacted 15 months later, the separated older adults who had reported fewer partnership goals at baseline reported more positive affect at the follow-up. This last result suggests that responding to unfavorable circumstances by disengaging from the goal allows for greater positive affect in the long-term.
The previous studies have provided support for the utility of disengaging from unattainable goals. However, the other half of this hypothesis suggests that individuals also need to be able to reengage in new or adjusted goals. In a series of three studies, Wrosch and colleagues (2003) examined the effects of goal disengagement and reengagement on self-reported well-being. In the first study, self-report data from a sample of undergraduates showed a clear association between goal disengagement and certain facets of well-being, including less stress, lower incidence of intrusive thoughts, and increased self-mastery. Goal reengagement was significantly associated with all of the above measures of well-being as well as a greater sense of life purpose. Students who reported difficulty in disengaging from unreachable goals and difficulty engaging in new goals had the highest reported stress levels and the lowest levels of self-mastery.

The second study in this series considered how these processes differ between a group of younger adults (ages 19 to 35) and a group of older adults (ages 55 to 89) (Wrosch et al., 2003b). Taken together, high levels of goal disengagement and reengagement were associated with more positive affect and less negative affect in both groups. However, when disengagement and reengagement were separated, goal reengagement was associated with greater reports of emotional well-being among younger adults who reported problems disengaging from unattainable goals. The positive effect of goal reengagement was much smaller when the younger adults reported greater ease of goal disengagement. Older adults, on the other hand, reported significantly greater emotional well-being when they were able to both disengage and reengage. However, in older adults, high goal disengagement with low levels of goal reengagement was associated with the lowest reports of emotional well-being. Therefore, it appears that younger adults benefit most from engaging in new goals regardless of whether they disengage from other blocked goals. Older adults, however, must both disengage from unattainable goals and reengage in attainable alternate goals.
1.5 Summary and Hypotheses

Retirement represents a time of substantial transition, which affects everything from the most mundane daily routines and activities to core definitions of personal goals and self-worth (Freidman & Havighurst, 1954; Kim et al., 2001). As seen in the literature on retirement, there is a great deal of variability in how successfully individuals make this transition. While factors such as financial security and marital quality may partially explain why some people report increased well-being while others report increased psychological stress, the more specific cognitive mechanisms of an adaptive transition to retirement are still unclear.

According to Friedman and Havighurst (1954), the transition to retirement is such a challenging one because it affects every level of life. Not only do retirees lose the roles that gave them structure as a worker, but, according to Rosow (1967), entering later adulthood provides no new formal roles for them. Therefore, retirees are required to build new goals and ways of defining their own sense of self-worth with little guidance from social norms. As described by Clark and Anderson (1967), Atchley (1976), and Ebaugh (1988), retirees who maintain good morale throughout the transition must relinquish their old identities and develop new goals and values in order to adapt to their new status. Sometimes these new goals and values will even be at odds with those of the dominant culture. For example, some retirees may give up on the American ideals of productivity and accomplishment in order to focus their efforts where they will have more success, for example, in self-acceptance and interpersonal relationships (Ebaugh, 1988; Clark & Anderson, 1967).

The sociological models of transitioning roles and values at the time of retirement mirror some of the models of self-regulation and late-life development. First, retirement represents a loss in personal, social, and financial resources. According to Baltes
individuals can adapt to this loss by adopting new strategies to maximize use of their remaining resources toward pursuit of more attainable goals. For some individuals, this strategy will mean giving up goals with less opportunity for success in order to invest more of their time and efforts in the pursuit of goals with greater opportunity for success.

This strategy of goal selection has been expanded upon by Heckhausen, Wrosch, and their colleagues in their model of goal disengagement (Carver et al., 2000; Heckhausen et al., 2001; Wrosch et al., 1999; Wrosch et al., 2001; Wrosch et al., 2003b). According to this model, it is natural and adaptive to disengage from goals that become unattainable in order to reengage in new more attainable goals. Heckhausen et al. (2001) provided an example of this process by comparing women who had passed the “biological clock” deadline for childbearing against those women who were still biologically capable of bearing children. In that study, many of the pre-menopausal women still held goals to have children as would be expected. However, the post-menopausal women had largely given up childbearing goals and replaced those goals with new ones, such as social and self-related goals. I would expect a similar pattern of differences in goal content when the developmental transition is retirement. Workers who have not yet retired will still hold goals related to their careers and financial gain that shape their continuing work experience. However, people who have already retired should have shifted their goals away from work and financial gain to other life domains, such as interpersonal relationships, self-satisfaction, and community benefit. As was the case in the Heckhausen et al. (2001) study, those individuals who have passed through the development transition (in this case, retirement) without relinquishing their old goals for new ones will likely show more distress and report less well-being.

In addition to adapting their goals after retirement, individuals may also adapt their orientation toward goal pursuit. Career-related goals may be more promotional in
nature because they are framed around accomplishment and gain. However, the transition to retirement requires that individuals manage losses in personal, social and financial resources. Taking a prevention orientation toward goals rather than a promotion orientation toward goals is more adaptive for the management of losses in later adulthood (Freund et al., 2005; Heckhausen & Schulz, 1995), and since Baltes (1990) characterizes late life as a continual adaptation to resource loss, this may be the beginning of an increasing and adaptive orientation toward prevention over promotion. Those individuals who remain focused on promotional goals are more likely to experience continued failure, which may result in dejected affect and eventual depression (Heckhausen et al., 1995; Higgins, 1997; Higgins, 1998; Strauman et al., 2001)

**Hypotheses**

1. Pre-retirement individuals will report more occupational and financial goals than individuals who have already retired. In addition, recently retired individuals will report more occupational and financial goals than those who have been retired for longer. Also, on a free-recall measure, statements that describe positive work attributions will be more accessible to individuals who have not yet retired than those who have already retired and more accessible to recently retired individuals than to long-retired individuals.

2. Individuals who have already retired will report more goals related to self, interpersonal relationships, community, and leisure than individuals who have not yet retired. Individuals who have been retired longer will report more goals related to self, interpersonal relationships, community, and leisure than individuals who have retired more recently. Also, when asked to remember statements on work and retirement attributions, retirees will recall more
statements positive statements about retirement and negative statements about working than those individuals who have not yet retired.

3. In a comparison of retirees, we expect that those retirees who report more self, family, social, leisure, and household-oriented goals will report greater well-being and fewer symptoms of depression than those retirees who report fewer of these goals. This effect is expected to increase with length of retirement. Based on the idea that social and personal resources help individuals in their transition into retirement, it also is predicted that social support and health status will moderate the observed association between specific types of goals and well-being and/or depression in retirees.

4. Alternately, a greater focus on occupational or financial goals in individuals who have already retired will be associated with a lower sense of well-being and greater symptoms of distress and depression. Again, this effect is expected to increase with length of retirement, and social support and health status are expected to moderate these associations.

5. Based on the hypothesis that increased losses in later life cause people to become more prevention-oriented, it is predicted that retirees will be more prevention-oriented in their goal pursuit than those individuals who have not yet retired. A regulatory focus toward prevention is also expected to increase with the length of retirement.
2. Research Design and Methods

This study is a cross-sectional investigation of goal content before and after older adults’ transition into retirement. The study was based on earlier research that examined how people’s goals change around developmental transitions, including women’s “biological clock” (Heckhausen et al., 2001) and the decreased romantic prospects of older divorcees (Wrosch & Heckhausen, 1999). In the present study, three groups of individuals were recruited: pre-retirement, immediate post-retirement, and later post-retirement. Members of each of these groups were asked to attend one assessment session in which they completed an interview regarding current goals, an incidental learning task, and self-report questionnaires, which assessed demographic information, retirement status, mental health, psychological well-being, physical health, social support, and goal orientation. Participants were paid $20 for their involvement in the study.

2.1 Recruitment, Rationale, and Selection of Participants

General inclusion criteria for study participants were full-time employment outside of the home for at least 10 years prior to retirement or planned retirement and being within an age range from 50 to 75. Participants who were not working full-time prior to retirement were excluded because their commitment to occupational goals would differ from full-time workers. Age criteria were originally limited to fifty and above in an effort to control for wide age differences between participant groups in analyses. However, interviews with three participants over the age of seventy-five suggested that these older participants’ goals were markedly different from younger participants’ goals for reasons other than retirement per se. During the course of the study, one potential
participant was excluded because he was on disability and another was excluded because he had been unemployed, but not retired, for several years. Two other potential participants were excluded due to age less than fifty and one other potential participant was excluded for being over the age of 75.

Study participants were drawn from the Durham and Duke University communities. Eighteen participants from the Duke community were recruited through on-campus flyers and advertisements in intra-institutional publications, such as Inside Duke magazine. Sixteen Durham community members were recruited through flyers placed throughout the community in libraries, coffee shops, restaurants, Laundromats, and bus stops. Four community members were also recruited through Craigslist (a free online website for local classified advertisements). Twenty-one study participants were recruited by word of mouth through family members, friends, and acquaintances who had already participated or were scheduled to participate in the study. One hundred twenty-three members of the Duke Center for Aging’s volunteer registry were contacted by phone with information about the study and asked to participate. Six were not eligible because their plans for retirement were either less than 2 years or greater than 10 years from the time of the study. Thirty-eight agreed to participate. Those who did not participate either did not return a phone message describing the study or refused to participate, with most frequent explanations being “not interested” or “too busy.”

2.2 Participants

A total of one hundred individuals participated in the study. The sample was 54% female and 46% male, with a mean age of 62.24 years (SD = 7.56; Range 50 – 84 years). The sample was predominantly Caucasian (77%) and African American (19%). Other minority groups included Hispanic (2%), Asian American (1%), and Native
American (1%). The majority of participants were also married or domestically partnered (71%). The sample tended to be well-educated, with three quarters of participants having a college degree or higher (75%). Most participants were average or above in terms of annual household income, with 69% of the sample reporting incomes of $50,000 and nearly half reporting incomes of $75,000 and above (47%). Table 1 presents a summary of the demographic characteristics of the sample.
Table 1: Demographic Information

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The sample was divided into three groups: pre-retirement, early post-retirement, and late post-retirement. For the purposes of this study, retirement was defined as receiving a pension and/or Social Security and working less than 40 hours per week (Kim et al., 2002). People within three years of their retirement date were considered early retirement, people who had been retired four or more years were considered late post-retirement. This distribution was based on model studies conducted by Heckhausen and Wrosch (1999) and Heckhausen et al (2001). There were 47 participants in the pre-retirement group, 29 participants in the early post-retirement group, and 24 participants in the late post-retirement group. The pre-retirement participants planned retirement date ranged from 2 to 10 years with a mean of 6.17 (SD = 3.33). Early post-retirement participants ranged in length of retirement from 2 weeks to 3 years with a mean of 1.44 years (SD = 1.00). The late post-retirement group had a range of 4 to 19 years in terms of length of retirement with a mean of 8.69 (SD 4.61). 68.97% of the early post-retirement participants collected social security, and 62.07% of the early post-retirement participants collected pensions. In the late post-retirement group, 91.67% collected social security, and 70.83% collected pensions. The pre-retirement group was not asked if they collected social security or a pension.

All three groups were fairly evenly distributed between male and female participants with slightly more women in the pre-retirement and early post-retirement groups and slightly more men in the late post-retirement group. As expected, pre-retirement participants (mean age = 57.50; SD 5.88) tended to be younger on average than post-retirement participants (mean age = 66.45; SD = 6.32). Also, early post-retirement participants (M = 63.62, SD = 5.19) tended to be younger than late post-retirement participants (M = 69.86, SD = 5.94). The age range for pre-retirement participants was 50 to 74. The age range for early post-retirement participants was 50 to 73 while the age range for late post-retirement participants was 59 to 84 (with only 2
participants over the age of 75). The majority of participants in all three groups identified as Caucasian (68.1%, 82.8%, and 87.4%), but the pre-retirement group had a higher percentage of African American participants (29.8%) relative to the other two groups (13.8% and 4.2%). In terms of marital status, marital rates were similar across groups with 66.0% of the pre-retirement group reporting that they were married, 69.0% of the early post-retirement group, and 75.0% of the late post-retirement group. However, non-married participants in the pre-retirement group were more likely to be divorced (21.1%) rather than widowed (4.3%). In contrast, non-married participants in the post-retirement groups were more evenly split between divorced and widowed with 13.8% divorced and 10.3% widowed in the early post-retirement group and 8.3% divorced and 12.5% widowed in the late post-retirement group.

Differences were observed among groups in both level of education and annual household income. The pre-retirement group tended to be somewhat lower in terms of level of education as well as household income than both post-retirement groups. Most notably, all groups tended to be well-educated, but both post-retirement groups tended to be very highly educated. About half of both groups had completed graduate degrees in comparison to 34.0% of the pre-retirement group. Also, 95.8% of the late post-retirement group had at least a college degree, in comparison to 79.3% in the early post-retirement group and 62.0% in the pre-retirement group. See Table 2 for a summary of the sample’s demographic characteristics by participant group.
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<tr>
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</tr>
<tr>
<td>Native American</td>
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<tr>
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<tr>
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<tr>
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<td>Education Level</td>
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<td></td>
<td></td>
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<tr>
<td>Under $20,000</td>
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<td>2.1</td>
<td>2</td>
</tr>
<tr>
<td>$20,000 – $34,999</td>
<td>10</td>
<td>21.3</td>
<td>4</td>
</tr>
<tr>
<td>$35,000 – $49,999</td>
<td>6</td>
<td>12.8</td>
<td>1</td>
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<td>7</td>
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<td>$100,000 - $149,999</td>
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<td>19.1</td>
<td>3</td>
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<td>$150,000 - $199,999</td>
<td>1</td>
<td>2.1</td>
<td>4</td>
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<tr>
<td>$200,000 and above</td>
<td>2</td>
<td>4.3</td>
<td>1</td>
</tr>
</tbody>
</table>
2.3 Procedure

Participants completed four phases of assessment within one session, with each participant run individually. The assessment process began with a structured interview about the participant’s current goals. Second, each participant completed a computerized questionnaire assessing basic demographic information and their retirement status or plans. In the third phase, the participant completed a computerized incidental learning task used by Heckhausen, Wrosch, and Fleeson (2001) (see below). Fourth, each participant completed a set of self-report questionnaires measuring well-being, psychological symptoms, social support, physical health, and regulatory focus.

During the initial interview, study participants met with the researcher or an undergraduate research assistant. The interview was modeled from the goal questionnaire used in the original study of goal disengagement conducted by Wrosch and Heckhausen (1999). In our goal interview, participants were asked to describe each of the goals that "are most important to you right now." For the purposes of this study, they were additionally asked to rank each goal in order of importance, explain the importance of each goal, give the time frame for each goal, and rate their confidence in being able to attain each goal.

In the second phase of the assessment, participants completed a computerized demographic questionnaire. A brief retirement questionnaire was also included in this phase, along with questions regarding retirement status. Questions were presented one by one on the computer screen. Participants answered most questions by selecting from one answer from a menu with some exceptions, such as age, where participants were asked to manually enter their answers.

In the third phase, participants were given an incidental learning task modeled from and Wrosch and Heckhausen’s 1999 study. Our incidental learning task contained
thirty-six statements, which participants were shown and then asked to rate their level of agreement or disagreement with each statement. Incidental learning statements in this study fell into different categories related to work, retirement, and unrelated life concerns. The statements were presented in a random order and were displayed on the screen for five seconds each before being replaced by a standard question asking participants to rate their level of disagreement or agreement. Immediately after the incidental learning task, participants were asked to recall as many statements as they could by the researcher or a research assistant. Recall responses were recorded verbatim.

In the fourth phase of the assessment session, participants were asked to complete a set of computerized self-report questionnaires, which measured subjective well-being, psychological symptoms, social support, physical health, and regulatory focus. Questions were again presented individually on the computer screen.

2.4 Materials

Goals

The goal interview was based on self-report questionnaires from similar studies (Heckhausen, Wrosch, and Fleeson 2001; Wrosch and Heckhausen 1999). Idiographic goals were assessed via free response and then coded according to content and self-regulatory focus based on the participant’s description of each goal and their description of the importance of each goal. There were seven content domains: self, family, social, leisure, occupational, financial, and household. Though the initial strategy was to code goals each into single content domains, several examples of goals were reviewed that clearly fit into two content domains. One example was “I am saving money, so that my wife will be able to retire early.” This goal was coded according to
two content domains: financial and family. Most goals could be coded into one content domain, such as “I hope to travel to Europe.” Additionally, goals were each coded into one of three regulatory focus domains: promotion, prevention, and maintenance.

Goal interview data were coded by three undergraduate research assistants. Interrater reliability was calculated for both content coding and regulatory focus coding with intraclass corellalition coefficients (ICC) based on Shrout and Fleiss’ method (1979) and Cohen’s kappa. ICC for the goal content domain coding was .85. ICC for the scoring of regulatory focus domain was .68. Cohen’s kappa for content coding was .78, while Cohen’s kappa for regulatory focus coding was .68. According to these statistics, we achieved excellent interrater reliability for the goal content coding system and moderate interrater reliability for the regulatory focus coding system.

**Demographic Information**

Study participants completed a brief demographic inventory with questions about age, gender, ethnicity, marital status, level of education, income level, number of children, and time of retirement (past or planned). Participants were also asked about their retirement status on this questionnaire as well. Pre-retirement participants were also able to note their expected time till retirement. This group also rated their positive and negative anticipation of retirement. Post-retirement participants were asked for what length of time they had been retired and how they would rate their current satisfaction with retirement.

**Incidental Learning Task**

This task, developed by Wrosch and Heckhausen (1999), was used to assess underlying attributions regarding retirement and work. In this task, a series of statements flashed on the computer screen one at a time. Each statement remained for 5 seconds before it was replaced by a standard question asking the participant to rate their level of
agreement with the preceding statement. The order of the statements was randomized by the computer. The statements themselves were intended to capture popular, implicit beliefs about work and retirement, such as “retirement begins the best years of your life” or “there is no reason to get out of bed when you are retired.”

The incidental recall statements fell into five categories: (1) positive statements about retirement, (2) negative statements about retirement, (3) positive statements about work, (4) negative statements about work, and (5) unrelated statements regarding general concepts, such as travel, religion, and friendship. There were six statements in each of the first four categories and twelve unrelated statements for a total of thirty-six statements. Participants’ incidental learning was quantified in terms of number of accurately recalled statements in each group and number of overall errors. Errors were also quantified according to each of the five categories.

**Measures of Well-Being and Depression**

The Ryff Scales of Psychological Well-Being (Ryff, 1989) have been used to assess psychological well-being across the lifespan in a number of studies. The self-report measure consists of six scales: Self-Acceptance, Environmental Mastery, Positive Relations with Others, Personal Growth, Purpose in Life, and Autonomy. Each scale contains 14 items with a mix of positive and negative items. On a scale from 1 to 6, study participants indicated whether they agreed or disagreed strongly, moderately, or slightly with an item describing how they were thinking or feeling. Negative items were reverse coded so that higher scores on each scale reflect the presence of more positive appraisals. Summed scores were created from all multiple-item scales. Previous research by Ryff (1989) has found internal consistency coefficients for each scale of .83 or above.
Beck Depression Inventory (BDI-II). The BDI-II (Beck et al. 1996) is a widely-used 21-item measure of depressive and dysphoric symptoms. Respondents are asked to endorse items varying in severity from (0) to (3) in a number of life areas. For example, “I do not feel sad” scored (0); and “I am so sad or unhappy that I can’t stand it” scored (3). The highest rating for each item was summed across all 21 items to create a continuous measure of psychological distress.

Physical Health

The Medical Outcome Short Form-36 Health Survey (SF-36) (Stewart, Hays, and Ware 1988) is a self-administered 36-item scale of general health. It measures 8 domains of health including physical functioning (PF), role limitations due to physical problems (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role limitations due to emotional problems (RE), and mental health (MH) during the preceding 4 weeks. The SF-36 is one of the most widely used health status questionnaires and appears in over 200 publications (The Health Institute, 1996).

Social Support

The Duke Social Support Index (DSSI; George et al. 1989; Landerman et al. 1989) is a 35-item questionnaire. It contains four subscales: subjective social support (10 items), instrumental social support (13 items), non-family social interaction (4 items), and social network size (5 items). 3 additional items determine the status of present relationships, such as being married or having a close friend. The DSSI has been used extensively in geriatric research in the Epidemiologic Catchment Area Program and has demonstrated validity in this population (George et al. 1989; Koenig et al. 1993).

Regulatory Focus

Regulatory Focus Questionnaire (RFQ). The RFQ (Higgins et al. 2001) is a 26-item Likert-style instrument designed to measure individual differences in regulatory focus.
toward promotion and prevention goals. The RFQ contains four subscales (two each for promotion and prevention): two history subscales measuring the extent to which individuals were socialized to value and pursue such goals (and hence, the chronic accessibility or likelihood that an individual will construe a situation in terms of promotion or prevention), and two success subscales measuring the extent to which the individual has been successful attaining their promotion or prevention goals. Higgins et al. (2001) reported that each subscale had an internal consistency reliability (coefficient alpha) of .75 or higher, and two-month test-retest reliability (Pearson correlation) of .79 or higher. To our knowledge, this study was the first to use the RFQ within a sample of older adults.

2.5 Statistical Analyses

Hypotheses 1-2 (differences in goal content by retirement stage) were tested using two methods based on the format of the dependent variables. Investment in different goal content areas was first characterized by counting how many goals each individual named in each area. Using the count data as the dependent variable, a series of seven negative binomial general linear model analyses was conducted to test whether group membership was associated with higher counts in each of the goal content areas: self, family, social, leisure, home, occupational, and financial.

An alternative method for quantifying engagement in different goal content areas was to examine the ratio of total goals generated by each individual for each of the seven goal content areas. Using ratios as the dependent variables after performing arcsine data transformations to normalize the distribution, we conducted a MANOVA to test the association between distribution of goal content engagement and group membership. One content area (household goals) was removed from the analysis to avoid interdependence between the dependent variables. Next, seven separate one-way
ANOVAs were performed to test whether the three study groups differed in their engagement in different goal content areas.

**Hypotheses 3-4** (retirement stage and goal engagement predicting psychological outcomes) were tested using hierarchical linear regression analysis. For each content domain, a three-step model was used. The initial step controlled for social support and physical health status. The second step tested the main effects for the number of goals in each content domain and retirement stage in predicting depression. The third step included the interaction effect for number of goals in each content domain by retirement group. Seven hierarchical linear regression models (one for each goal content domain) were employed to predict depression. An additional seven linear hierarchical regression models (structured in the same way) were employed to predict well-being.

**Hypothesis 5** (differences in regulatory focus according to retirement stage) was tested in two different sets of analyses modeled after the analyses conducted for Hypotheses 1 and 2. For the first set, in which regulatory focus was measured by counting the number of goals in each regulatory focus domain (maintenance, prevention, and promotion), negative binomial general linear models were used to test for an association between retirement group membership and regulatory focus. Three separate models were used, to test for associations with each regulatory focus domain independently. For the second set, we used the ratio of goals in each regulatory domain as the dependent variable to measure engagement in each regulatory focus domain. After applying an arcsine transformation to normalize this ratio data, a MANOVA was used to assess whether retirement group membership predicted engagement in regulatory focus domains. The regulatory focus domain of maintenance was dropped from the initial MANOVA to avoid interdependence among dependent variables. Additional one-way ANOVAs were conducted to test whether group membership predicted engagement in each regulatory focus domain independently.
3. Results

3.1 Hypotheses 1-2: Differences in Goal Content by Retirement Stage

The first set of hypotheses addressed the expectation that individuals will disengage from those goals that are less relevant to their current developmental stage and reengage in other goals that are more available and relevant. Hypothesis 1 dealt directly with developmentally determined goal disengagement; the expectation was that individuals would report fewer financial and occupational goals following retirement with this trend increasing from early to late retirement. Hypothesis 2, in contrast, was formulated around the expectation that individuals would reengage in goals that were more developmentally appropriate following retirement. That is, retirees would have more self, family, social, leisure, and household goals than non-retirees, with those differences likewise increasing in later retirement.

Goal Content

Table 3 lists the number and percentages of goal content by category for the entire study sample. Also included is the percent of study participants who named at least one goal in each goal content domain. Study participants were encouraged to name all the goals that were currently “most important” to them. The average number of goals for each participant was 5.51 (SD = 1.90), but participants ranged from a total quantity of 2 to 10 goals. Goals were coded into either one or two content domains. Most individual goals could be coded in one content domain and, in these cases, the goal was counted once in its specified content domain. However, some goals clearly contained dual content domains. For example, “I want to get into better shape” is a good example
of goal, which could be single-coded as a self-goal. On the other hand, one study participant described this goal, “I want to get in better shape, so that I can keep up better with my grandchildren.” The second example contains two content domains: both self and family. Similarly, “I am planning a trip to Montenegro” would be coded as a leisure goal, but “I am planning to take a trip with my family to Montenegro because we’re Montenegrin” was double-coded as a leisure and family goal. On average, about 26% of a study participant’s goals were double-coded for content.

If a goal was coded into a single content domain, it was counted as 1 goal in that domain. Thus, the first example goal listed above would be counted once as a self-goal. However, if goals were coded into two content domains, then each goal was counted as half a goal in each of the two content domains. For example, the second example goal described above would count as .5 in self and as .5 in family. The goal content totals listed below follow this coding system, so that they represent accurately the actual number of goals described by each participant (Franzosi 2004).

In reporting the relative frequencies of goal content areas, we also present both the raw goal totals and the percentage of total goals stated in each content area for each study participant. Again, percentages are also based on the single and double-coding system as described above. Participants tended to have more goals related to self (M = 1.42, SD = 1.48) and leisure (1.12, SD = 1.10) than other content domains. Least reported domains included financial (M = .41, SD = .58) and home (M = .37, SD = .62).
Almost all participants (85%) reported at least one self-goal. This content domain contained a number of different concepts generally related to personal growth, such as self-improvement, spirituality, physical health, emotional health, and education or learning (not for job or career goals). For example, one study participant stated, “My biggest goal is to have serenity and peacefulness.” Another person stated, “I think of myself as a lifelong student. I want to continue to learn as much as I can about the world.” A very common statement was something like, “I want to enjoy life.” Goals, such as these, were frequently ongoing without clear beginning or ends related to developmental transitions. On the other hand, many self-related goals were more concrete, such as “reading the Bible more often,” “practicing meditation every day,” and “getting rid of 1/3 of my possessions to practice more simplicity in my life.” Self-goals related to physical health were very common. These goals also varied from general statements of wanting to improve physical health or maintain a “healthy lifestyle” to

<table>
<thead>
<tr>
<th>Goal Content</th>
<th>Raw Count</th>
<th>Percentage</th>
<th>Percent of Participants with at least One Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self</td>
<td>1.42 (1.48)</td>
<td>26.59 (19.77)</td>
<td>85</td>
</tr>
<tr>
<td>Family</td>
<td>.86 (.73)</td>
<td>16.50 (15.03)</td>
<td>72</td>
</tr>
<tr>
<td>Social</td>
<td>.76 (.86)</td>
<td>12.91 (13.93)</td>
<td>59</td>
</tr>
<tr>
<td>Leisure</td>
<td>1.12 (1.10)</td>
<td>19.44 (17.36)</td>
<td>72</td>
</tr>
<tr>
<td>Home</td>
<td>.37 (.62)</td>
<td>6.60 (11.68)</td>
<td>31</td>
</tr>
<tr>
<td>Occupational</td>
<td>.59 (.64)</td>
<td>11.17 (13.56)</td>
<td>55</td>
</tr>
<tr>
<td>Financial</td>
<td>.41 (.58)</td>
<td>7.38 (10.78)</td>
<td>40</td>
</tr>
</tbody>
</table>
very specific ideals, such as “I want to lose 8 pounds” and “I need to control my diabetes by exercising every day.”

Family-coded goals made up a smaller overall percentage of the average participant’s total goals (M = 16.50%, SD = 15.03%), but almost three-quarters of all participants (72%) described at least one family goal. This content domain generally encompassed all goals related to a number of different relatives, including spouses/partners, children, grandchildren, parents, and extended family members (e.g., cousins, aunts, and uncles). As most study participants’ children were adults, many of study participants’ goals centered on their grandchildren instead. Many people described general goals to spend more time with their grandchildren. One participant described a more elaborate goal for his grandchildren, “I have 12 grandchildren, and I plan to take each on a trip with me when they graduate from high school. I have taken 2 already, and this summer I am taking my granddaughter on a volunteer trip to South America.” Study participants who did describe goals related to their children often had to do with their children’s development. For example, one man stated “I am helping my son launch his career by helping him with his web design.” Another woman stated, “my daughter has a disorder, and my husband and I are just working to get her independent and well enough.”

Participants also reported a number of goals related to their spouses/partners. Interestingly, many male participants talked about their wives’ happiness as becoming a more primary goal as the couples aged. Goals regarding parents were less frequent family goals in this sample, but goals related to caring for parents were still relatively common. However, participants did have goals involving their parents that were more pleasure-oriented as well. For example, one woman told us, “I plan to take one trip a year with my mother. I don’t know where, maybe just a weekend beach trip, maybe a big cruise, but I think it would be fun to spend that time with my mother.” There were
goals that went across different relatives’ positions in study participants. For example, many people talked about wanting to maintain or improve relationships with all different members of their close and extended families.

Social goals encompassed goals related to any kind of social relationship or community. More than half of the participants had at least one social goal (59%). Many of these goals had to do with friendships. For example, one woman stated, “My friends have become more important to me now. I want to really be there for them as they need me.” Another participant talked about arranging more lunches with long-time girlfriends. For some participants, there were also goals related to developing new friendships and social networks, especially after a transition, like retirement or moving. Social goals, however, also included community-oriented goals, such as volunteer work. Participants described a great many different volunteer goals and activities. Many individuals also talked about using their occupational skills and talents in a volunteer capacity. For example, one retiring professor talked about teaching statistics classes for high school dropouts. Another participant talked about using his skill at web design to put together websites for a number of local non-profit agencies. Other participants described volunteer activities that allowed them to explore other interests not related to their careers, such as working with children, political organizations, and community support groups.

Goals that had to do with hobbies, entertainment, and recreational pursuits were coded as leisure goals. As shown above, individual counts of leisure goals tended to be higher per individual; 72% of the sample reported any leisure goals, which is the same distribution as seen with family goals. These leisure goals ranged from relatively small-scale goals, such as learning to knit or just watching TV, too much bigger endeavors, such as traveling to Africa. These goals also varied in terms of renewing old interests, continuing long-time hobbies, or exploring new ideas. For example one woman told us
several different leisure goals: “to travel in the U.S. and overseas,” “to start piano lessons again,” and “to learn to quilt.” Also, leisure goals could be related to other goal content domains. For example, one participant described his swimming and running both as a means to stay physically fit and as a long-time hobby. Thus, we considered this to be both a self and a leisure goal. Similarly, another participant told us, “I am very involved in couponing. I have fun keeping up with sales and the websites, and I save money. Everything to save money, I know.” This is an example of plans that have a clear financial goal, but are also done for the enjoyment of the activity. Interestingly, another man talked about playing in backgammon tournaments for fun, but also with the hopes of winning a substantial cash prize that would supplement his income, so a seemingly clear leisure goal also had a financial facet. Leisure goals also were not confined to side pursuits, but became quite central to some participant’s goals.

Home goals were the least frequently described. However, we added this as a content domain to the original content coding system because a noticeable number of participants (31%) did describe plans, hopes, and wishes related to their homes, such as redecorating, maintenance, improvement projects, and organization. One woman stated that she had been intending to organize her belongings and “clear the clutter” for years. Another had detailed plans of the renovations and redecorating she hoped to undertake within the year. Also common among home goals were ideas about relocating. Participants described goals to move over small and large geographic distances often with a different focus on their new abode. For example, one man talked about his long-time desire to “build a small A-frame glass house on my property.” Another woman talked about her plans with her husband to move to a lake house nearby where their children and grandchildren would want to visit them. We interviewed another woman who was in the midst of a move from NC to Texas because she felt more connected with the activist community there. Still another participant told us, that she and her husband
are trying to sell their current home, so that they could move full-time into a recreational vehicle to travel the U.S. in their retirement.

Occupational goals were those that were in any way related to work or careers. A total of 55% of participants regardless of retirement stage reported at least one occupational goal. For some, these goals seemed closely linked to desires for career advancement and/or financial concerns. For example, one participant stated that she was “working on National Board Certification. There’s a 12% salary increase for getting the certification.” Several other participants talked about working part-time in order to gain some additional income. On the other hand, others had occupational goals based more on personal desires, such as one retiring professor who told us, “I would like to continue to teach philosophy. I’d like to keep teaching as long as I can because I really like the students.” Another participant talked about his long-time interest in aviation and his plan to start a second career as a flight instructor.

Financial goals encompassed all aspects of monetary concerns, plans, or hopes. These were the least frequently described goals next to the home goals. Nonetheless, 40% of participants described at least one financial goal. Many participants expressed apprehension and planning toward maintain or achieving some level of financially stability throughout their retirement. Goals related to saving for retirement were very common among pre-retirement participants. Among post-retirement participants, there were examples of goals related to maintaining their finances, downsizing to save money, or working part-time to increase their current income. Not surprisingly, financial goals also seemed to vary widely based on the individual’s financial resources. For example, one high-income participant reported, “My goal is to buy another house this year. It’s a real estate investment.” Another participant stated, “I have a pension and have been working on my investments to maximize my returns.” Other participants talked more about minimizing his expenses to manage more limited incomes. Also, a low-income
participant told us, “I’m putting money away, so I can have my burial expenses paid for. I don’t want my family to have to get money together for that.”

**Goal Content Data by Retirement Stage**

Table 4 summarizes the mean number and percentage for each goal content category by subject group. Also included is the percentage of participants in each group that named at least one goal in each content domain. The distribution of goal content was surprisingly similar among the three study groups. Self-goals made up the highest percentage of participants’ goals on average in all three groups. The relative percentages were similar for most of the content domains, including family, social, home, and financial. There were some slight differences from group to group among these content domains, but none that were statistically significant (see below).
Table 4: Number and Percentage Means (and Standard Deviations) and Percent of Sample with Occurrence of At Least One Goal for Each Goal Content Domain by Retirement Status

<table>
<thead>
<tr>
<th>Goal Content</th>
<th>Pre-Retirement</th>
<th>Early Post-Retirement</th>
<th>Late Post-Retirement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count (%)</td>
<td>Count (%)</td>
<td>Count (%)</td>
</tr>
<tr>
<td>Self</td>
<td>1.38 (.94) (26.65 (18.03)</td>
<td>1.36 (.92) (28.00 (18.73)</td>
<td>1.56 (1.89) (24.76 (24.48)</td>
</tr>
<tr>
<td>Family</td>
<td>.89 (.74) (17.17 (15.34)</td>
<td>.84 (.77) (16.40 (13.42)</td>
<td>.79 (.69) (15.32 (16.72)</td>
</tr>
<tr>
<td>Social</td>
<td>.68 (.67) (11.99 (11.80)</td>
<td>.72 (.93) (12.48 (14.44)</td>
<td>.96 (1.07) (15.22 (17.18)</td>
</tr>
<tr>
<td>Leisure</td>
<td>1.13 (1.10) (19.17 (16.22)</td>
<td>.81 (.82) (15.70 (16.19)</td>
<td>1.48 (1.31) (24.51 (20.69)</td>
</tr>
<tr>
<td>Home</td>
<td>.33 (.55) (6.10 (10.33)</td>
<td>.31 (.66) (6.96 (13.17)</td>
<td>.50 (.71) (8.34 (12.57)</td>
</tr>
<tr>
<td>Occupational</td>
<td>.60 (.63) (11.55 (14.26)</td>
<td>.67 (.72) (13.91 (14.87)</td>
<td>.46 (.53) (7.12 (9.40)</td>
</tr>
<tr>
<td>Financial</td>
<td>.38 (.58) (7.11 (10.76)</td>
<td>.35 (.52) (6.86 (10.75)</td>
<td>.52 (.63) (8.55 (11.25)</td>
</tr>
</tbody>
</table>

|            | Occurs (%) | Occurs (%) | Occurs (%) |
|            | 89.36      | 82.76      | 79.17      |
|            | 74.47      | 72.41      | 66.67      |
|            | 59.57      | 55.17      | 62.50      |
|            | 74.47      | 74.47      | 55.17      |
|            | 62.07      | 62.07      | 55.17      |
|            | 1.13       | 1.13       | 1.13       |
|            | 29.79      | 24.14      | 24.14      |
|            | 3.31       | 2.44       | 2.44       |
|            | 3.53       | 3.53       | 3.53       |
|            | 38.30      | 37.93      | 37.93      |

8
Statistical Tests of Group Differences in Goal Content. In Hypotheses 1-2, we posited that disengagement from occupational and financial goals would increase with retirement stage and that reengagement in other goal content areas (i.e., self, family, social, leisure, and household) would increase with retirement stage. The initial analytic plan was to test whether group membership predicted goal distribution using MANOVA where the dependent variables are the sums of individuals’ number of goals in each content category. However, examination of the descriptive statistics regarding goal content category counts revealed a non-normal distribution, as is frequently the case with count data. The means for each goal content category among the whole participant sample ranged from .37 to 1.42. Thus, the data were clustered close to zero. Furthermore, an upper bound is imposed on content category counts by the limit of the range of goals from 2 to 10. In fact, the greatest range occurred in self-goals, with a minimum of 0 and a maximum of 7.50, but most of the content categories met their maximums between 2 and 3. Given non-normal and constricted distribution and dependent variables, a negative binomial regression general linear model (GLM) was more appropriate for testing the first two hypotheses (Barron 1992).

Negative binomial regressions were modeled independently for each of the seven content categories, with retirement group as the independent variable and individual content category counts as the dependent variable. Those regressions produce a $\chi^2$ goodness-of-fit statistic and an associated p value, which is interpreted using the standard inferential statistics logic for whether or not to reject the null hypothesis (i.e., of no group differences). Unfortunately, none of the seven content categories was associated with a significant subject group effect: for self goals, $\chi^2 (98) = 94.73, p = .57$; for family goals, $\chi^2 (98) = 84.57, p = .83$; for social goals, $\chi^2 (98) = 96.76, p = .54$; for leisure goals, $\chi^2 (98) = 100.27, p = .42$; for home goals, $\chi^2 (98) = 98.41, p = .47$; for
occupational goals, $\chi^2(98) = 89.90, p = .71$; and for financial goals, $\chi^2 (98) = 82.03$, $p = .87$. Based on these results, Hypotheses 1 and 2 were not supported.

While the above analyses corresponded most closely with initially planned hypotheses, they do not account for another difficulty in modeling the hypothesized disengagement and reengagement in different goal areas with developmental stage. That is, variability in the actual number of goals among participants suggests that a straightforward count of goals may not be the best measure of how much time and energy is invested in different goal pursuits. For example, there may be two participants with 4 family goals each. If the first participant named a total of 10 goals and the second participant named a total of 5 goals, a simple count of goals in each category misses a potentially important difference in the overall choices in goal pursuit between individuals. Thus, we also examined the overall investment in different goal categories using the ratio of goals in each category. In the preceding example, that the first participant would have .4 family goals and the second participant would have .8 family goals.

Modeling proportional dependent variables with values between 1 and 0 required an arcsine data transformation (Osborne 2002). Once applied, it was possible to conduct a MANOVA, including all but one of the content categories as dependent variables with retirement group as the independent variable. (One content category had to be removed to prevent a linear dependence caused by including all proportions of a whole). Therefore, MANOVA was used to estimate significance of between group differences on proportions of 6 content categories: self, family, social, leisure, occupational, and financial. The seventh category, home, was removed based on its low frequency and its relative importance in terms of original hypotheses. Results of the
MANOVA were statistically insignificant: F(2, 184) = 0.70, p = .75, Wilks’ Lambda = .92, partial eta squared = .04.

Exploratory one-way ANOVAs were used to assess group differences in individual goal categories, again using the proportion of an individuals’ goals in each category with the arcsine data transformation. Unfortunately, none of the one-way ANOVAs produced statistically significant findings: for self goals, F(2, 97) = .72, p = .49; for family goals, F(2, 97) = 1.75, p = .18; for social goals, F(2, 97) = .40, p = .67; for leisure goals, F(2, 97) = .44, p = .65; for occupational goals, F(2, 97) = 1.26, p = .29; and for financial goals, F(2, 97) = .84, p = .43. As the overall MANOVA of between group differences was not significant without home content category, a final one-way ANOVA was conducted to test for between group differences in individuals’ proportions of home goals. Results of this test were also not significant: F(2, 97) = 1.25, p = .29. Therefore, the second set of analyses, using proportions of each goal content category as the measure of individual engagement in each goal area, did not provide support for either Hypotheses 1 or 2.

**Incidental Recall Results by Retirement Stage**

A second set of analyses were planned to test Hypotheses 1 and 2 by examining the accessibility of statements in different content areas during an incidental learning task. The rationale for the incidental learning measure was that study participants might maintain unspoken attachments to occupational goals that they would not overtly describe since there would be no logical expectation of goal attainment without the opportunity provided by a continuing occupation.

Following the incidental learning task, 96 participants completed the recall section as well. These participants recalled about four statements accurately on average (M = 3.85, SD = 2.53). The number of statements accurately recalled ranged from 0 to
10. There were only slight differences overall in the number of statements recalled in each of the four study-related categories: positive retirement, negative retirement, positive work, and negative work statements, but participants on average did recall more positive statements about retirement (M = .77, SD = .81) and negative statements about work (M = .70, SD = .82) than negative statements about retirement (M = .56, SD = .66) and positive statements about work (M = .59, SD = .77). More unrelated statements were recalled (M = 1.23, SD = 1.26), but this was expected since there were twice as many unrelated statements as there were in any one category area.

The average number of statements recalled and percentage of overall recalled statements as well as standard deviations by retirement stage are summarized in Table 5. In examining group differences in recall from the incidental learning task, we observed that the late post-retirement participants tended to recall more statements on average (M = 4.74, SD = 2.81) than either pre-retirement participants (M = 3.70, SD = 2.17) or early post-retirement participants (M = 3.36, SD = 2.71). These differences were not statistically significant (see below), but it is useful to consider both the raw averages and the percentage of correctly recalled statements in each study category given range in total recall.
Table 5: Means (and Standard Deviations) Recalled within Statement Categories by Retirement Status.

<table>
<thead>
<tr>
<th>Statement Recall</th>
<th>Pre-Retirement</th>
<th>Early Post-Retirement</th>
<th>Late Post-Retirement</th>
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<tr>
<td></td>
<td>Count</td>
<td>Percentage</td>
<td>Count</td>
</tr>
<tr>
<td>Retirement – Positive</td>
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<td>19.57 (22.02)</td>
<td>.79 (.79)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>.79 (.88)</td>
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<tr>
<td>Retirement – Negative</td>
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<td>13.19 (15.71)</td>
<td>.39 (.57)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>.75 (.79)</td>
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<td>.50 (.75)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.75 (.85)</td>
</tr>
<tr>
<td>Work - Negative</td>
<td>.63 (.83)</td>
<td>20.20 (27.24)</td>
<td>.64 (.78)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.92 (.83)</td>
</tr>
<tr>
<td>Unrelated</td>
<td>1.20 (1.09)</td>
<td>32.47 (27.52)</td>
<td>1.04 (1.43)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>.92 (.83)</td>
</tr>
<tr>
<td>Total # Recalled</td>
<td>3.70 (2.17)</td>
<td>3.36 (2.71)</td>
<td>4.75 (2.81)</td>
</tr>
</tbody>
</table>
Incidental Recall Content by Group. Given the expectation that study participants who are no longer involved in a given area of goal pursuit may not openly discuss difficulties in such goal disengagement, this association was also assessed in the incidental learning task. Individual recall was summed in each of the five implicit attitude categories: positive retirement statements, negative retirement statements, positive work statements, negative work statements, and statements unrelated to either work or retirement. According to Hypothesis 1, it was expected that pre-retirement participants would remember more negative retirement and positive work statements than early pre-retirement participants who would in turn remember more negative retirement and positive work statements than late post-retirement participants. A reverse progression through developmental stage was expected in terms of negative statements about work and positive statements about retirement. As for the goal content category data, counts in each of these 5 categories were non-normally distributed and clustered around zero with limited variance. Therefore, group differences in each incidental recall content area were evaluated using a negative binomial regression model.

Unfortunately, none of the binomial regression GLMs conducted to test between-group differences on the recall task data produced statistically significant results: for positive statements about retirement, \( \chi^2(96) = 99.61, p = .57 \); for negative statements about retirement, \( \chi^2(96) = 84.41, p = .80 \); for positive statements about work, \( \chi^2(96) = 98.24, p = .42 \); or for negative statements about, \( \chi^2(96) = 104.46, p = .26 \). Statements unrelated to work or retirement attributions also were analyzed, ostensibly to provide evidence that group differences were meaningful based on content should any of the above four analyses have proved significant. However, those results also were
not statistically significant: $\chi^2 (96) = 92.45$, $p = .58$. Thus, Hypotheses 1 and 2 were again unsupported.

### 3.2 Hypotheses 3-4: Retirement Stage and Goal Outcomes Predicting Psychological Outcomes

#### Symptoms of Depression

The mean BDI-II score for the entire participant sample was well below conventional levels of clinical significance (mean = 4.04, SD = 4.60). Only 4% of participants reported clinically significant levels of depression (i.e., a BDI-II score of 14 or greater). One participant scored in the mild depression range (14 – 19), while three other participants scored in the moderate depression range (20 – 28). An ANOVA with BDI-II score as the dependent variable and subject group as the independent variable did not reveal a statistically significant effect, $F(2, 97) = .12$, $p = .89$. Gender and income level differences were also examined. Results of an independent-samples t-test revealed no significant gender differences: $t(98) = 1.50$, $p = .14$. However, individuals with lower incomes did report significantly higher depression scores according to the results of a one-way ANOVA: $F(7, 92) = 2.96$, $p = .008$.

#### Psychological Well-Being

The Ryff Scales of Psychological Well-Being contain six scales representing related domains of well-being, including environmental mastery, personal growth, positive relations with others, purpose in life, autonomy, and self-acceptance. Each scale has a minimum score of 14 and a maximum score of 84. Participants as a whole manifested high scores on all six scales. Personal growth ($M = 71.85$, $SD = 9.18$) and purpose in life ($M = 70.24$, $SD = 9.92$) tended to be the highest, but differences between scales were minimal. Average scores on scales of environmental mastery ($M=68.98$, $SD$
= 9.36), positive relations (M = 68.28, SD = 11.84), and self-acceptance (M = 68.98, SD = 10.12) were all very similar. Participants’ ratings were lowest on the scale of autonomy (M = 65.80, SD = 9.35), but again the differences were slight.

As the sample scores on the six Ryff scales were similar in magnitude and substantially intercorrelated (average pairwise r = .55), a composite score was computed by taking the average of the six scales for each participant. The composite scale showed strong internal consistency with individual questionnaire items: Cronbach alpha coefficient was .95. The average score on the composite well-being scale for all study participants was 69.02 (SD = 8.11). Female participants did score significantly higher than male participants on the composite scale: t(98) = 4.38, p < .001. Also, higher income scored significantly higher in their composite well-being scores: F(7, 92) = 2.35, p = .03.

An ANOVA with the composite score as the dependent variable and subject group as the independent variable did not reveal a statistically significant difference among the groups: F(2, 97) = .84, p = .44. Additional one-way ANOVAs were conducted to evaluate possible group differences on the individual scales. There were no significant between group differences on these measures: for autonomy F(2, 97) = .22, p = .80; for environmental mastery F(2, 97) = 1.48, p = .23; personal growth F(2, 97) = 1.50, p = .23, positive relations with others F(2, 97) = .39, p = .68; purpose in life F(2, 97) = 1.34, p = .27; and self-acceptance F(2, 97) = .86, p = .43.

Also, notable female participants scored higher on average than male participants in five of the six subscales, including, for environmental mastery, t(98) = 3.69, p < .001; for personal growth, t(98) = 6.20, p < .001; for positive relations with others, t(98) = 11.27, p < .001; for purpose in life, t(98) = 6.97, p < .001; and for self-acceptance, t(98) = 5.44, p = .007. The one subscale where gender differences were not significant was autonomy: t(98) = 1.55, p = .13. In terms of income, only two of the six
subscale scores were notable for significantly higher scores among higher income participants: for purpose in life, a one-way ANOVA showed $F(7, 92) = 2.34$ and, for autonomy, $F(7, 92) = 2.13$, $p = .05$. There were no other significant differences in well-being according to income: for environmental mastery, $F(7, 92) = 1.37$, $p = .23$; for personal growth, $F(7, 92) = 2.02$, $p = .06$; and for self-acceptance, $F(7, 92) = 1.46$, $p = .19$.

**Physical Health**

The Medical Outcomes Survey Short Form–36 (SF-36) was used to measure study participants’ perceptions of their physical health. While the SF-36 has eight total subscales, we used only those five that are related to physical health: general health, vitality, pain, role-physical, and overall physical functioning. Scores for each subscale are standardized on a 0 to 100 scale, such that higher scores denote better health outcomes. Participants reported relatively good health on all measures. The general health score had a mean of 76.40 (SD = 14.73). Physical functioning was very high on average (M = 84.30, SD = 20.31). The role-physical scale measures the extent to which individuals feel limited in performing their roles by their physical status. Participants scored an average of 79.75 (SD = 34.03) on this scale (indicating that on average participants were not experiencing significant role limitations as a result of health problems). The vitality and pain indices were also relatively high, with an average score of 73.40 (SD = 13.18) on the vitality scale and an average of 74.68 (SD = 20.69) on the pain scale. The SF-36 also produces a composite measure of physical health items, the physical component scale (PCS). The PCS combines the above five scales and is standardized around the mean scores for this study sample on a 0 to 100 scale. Therefore, the PCS mean score is 50. The standard deviation was 8.18.
A one-way ANOVA with the PCS score as the dependent measure and subject group as the independent measure revealed no significant between group differences, $F(2, 97) = 1.00, p = .37$. Additional exploratory one-way ANOVAs were used to test for between-group differences on each of the five subscales. None of the one-way ANOVAs indicated a statistically significant difference among the groups: for general health, $F(2, 97) = 1.29, p = .28$; for physical functioning, $F(2, 97) = 1.35, p = .26$; for vitality, $F(2, 97) = .88, p = .42$; for bodily pain, $F(2, 97) = .65, p = .52$; and, for role-physical, $F(2, 97) = .42, p = .66$.

Potential gender and income level differences were also examined on the SF-36 subscales using independent-sample t-tests and one-way ANOVAs respectively. There were no significant gender differences on the five physical health perception SF-36 subscales: for general health, $t(98) = .55, p = .58$; for physical functioning, $t(98) = .86, p = .39$; for role-physical, $t(98) = .19, p = .85$; for vitality, $t(98) = 1.28, p = .21$; and for bodily pain, $t(98) = 1.11, p = .27$. Also, PCS scores did not differ significantly by gender: $t(98) = .05, p = .96$. There were significantly higher scores by increasing income level on only one subscale: role-physical, $F(7,92) = 2.16, p = .05$. Income differences were otherwise not significant: for general health, $F(7, 92) = .78, p = .61$; for physical functioning, $F(7, 92) = 1.55, p = .16$; for vitality, $F(7, 92) = .84, p = .56$; for bodily pain, $F(7, 92) = .79, p = .60$; and for PCS scores, $F(7, 92) = 1.58, p = .15$.

**Social Support**

Four subscales of the Duke Social Support Index (DSSI) were calculated for each study participant. The subjective social support scale has a minimum score of 9 and a maximum score of 28. According to community norms based on the Duke Epidemiological Catchment Area Community Surveys (Duke ECA) with 2,852 community dwelling adults (Landerman et al. 1989), normal mean score is 26.1. In this...
sample, the average subjective support score was 25.59 (SD = 3.74), so this study sample’s reported subjective social support is in line with community samples. The social interaction scale is based on 4 items with a possible range in scores from 0 to 13. The mean score from the Duke ECA data was 6.3 (SD = 2.69) while this sample had a mean score of 7.17 (SD = 2.66). The social network scale is a 5-item scale with a possible range from 0 to 20. Community mean from the Duke ECA data was 5.03 (SD = 3.1). Participants in this study had a mean score of 2.52 (SD = 2.22). The final subscale instrumental support measures the degree to which participants feel they receive aid from friends and family members in instrumental activities of daily living. The subscale contains 13 items with a possible range in scores from 0 to 13. Based on Duke ECA sample, community norms indicate a mean score of 10.3 (SD = 2.5). In this study sample, the mean score for instrumental social support was 7.29 (SD = 3.29).

Group differences on each of these four DSSI subscales were evaluated using four one-way ANOVAs. There were no significant between group differences on two of the four subscales: for social network, F(2, 97), p = .11, and for subjective social support, F(2, 97) = .05, p = .95. Interestingly, group differences were significant at the p < .05 level on the remaining two social support scales: for instrumental social support, F(2, 97) = 4.26, p = .02, and, for social interaction, F(2, 97) = 4.43, p = .01. For those ANOVAs with significant findings in terms of group differences (i.e., instrumental social support and social interaction), additional post-hoc t-tests were conducted comparing each pair of groups. Results of the t-tests revealed significant differences between the pre-retirement group and each of the post-retirement groups. Pre-retirement participants’ scores were significantly higher than early post-retirement participants’ scores on social interaction, t(98) = 2.69, p = .008 and significantly lower than early post-retirement participants on instrumental social support t(98) = -2.08, p = .04. Similarly, the differences between the pre-retirement group and late post-retirement
group on both social interaction, \( t(98) = 2.15, p = .03 \), and on instrumental support \( t(98) = -2.66, p = .01 \) were also significant. However, the early post-retirement did not differ significantly from the late post-retirement group on either subscale: for social interaction, \( t(98) = .94, p = .35 \), and for instrumental support, \( t(98) = -1.79, p = .08 \).

In terms of gender differences, female participants tended to report significantly higher levels of subjective social support, \( t(98)(98) = 3.04, p = .003 \), and significantly higher levels of social interactions, \( t(98) = 2.62, p = .01 \). Gender differences were not significant in social network size, \( t(98) = 1.19, p = .24 \), or in instrumental social support, \( t(98) = .75, p = .46 \). Participants at higher income levels scored significantly higher than lower income participants in terms of subjective social support: \( F(7, 92) = 3.66, p = .002 \). Further, participants of different income levels differed significantly in terms of their reported social network size: \( F(7, 92), p = .04 \). There were no significant differences by income level in social interactions, \( F(7, 92) = 1.25, p = .28 \), or in instrumental social support, \( F(7, 92) = .67 \).

**Regulatory Focus**

The Regulatory Focus Questionnaire (RFQ) examines socialization history and current success according to regulatory focus (i.e., promotion and prevention). Each subscale is calculated using the average score per item on a 1 to 5 Likert scale. There are no age-appropriate norms available for this measure. Average scores were similar across scales; however, participants as a whole tended to score slightly higher on the prevention socialization history subscale (\( M = 3.97, SD = .87 \)) than the promotion socialization history (\( M = 3.69, SD = .94 \)). In contrast, participants’ average scores on the scale of current promotion success (\( M = 3.86, SD = .59 \)) were slightly higher than their average scores on a scale of current prevention success (\( M = 3.50, SD = .66 \)). As demonstrated with one-way ANOVAs, groups did not differ significantly on any of the
four RFQ subscales: for promotion socialization history, F(2, 97) = .59, p = .56; for prevention socialization history F(2, 97) = .26, p = .78; for promotion success, F(2, 97) = .34, p = .72; and for prevention success, F(2, 97) = 1.68, p = .19.

In terms of gender differences, females tended to score significantly higher on the RFQ subscale for current prevention success: t(98) = 2.26, p = .03. However, male and female participants did not differ significantly from one another on the other three RFQ subscales: for promotion socialization history, t(98) = 1.15, p = .25; for prevention socialization history, t(98) = .004, p = .97; and for promotion success, t(98) = 1.36, p = .18. There were no significant differences by income level on any of the four RFQ subscales: for promotion socialization history, F(7, 92) = .91, p = .50; for prevention socialization history, F(7, 92) = .57, p = .78; for promotion success, F(7, 92) = 1.76, p = .11; and for prevention success, F(7, 92) = .64, p = .72.

**Bivariate Associations.** Bivariate correlations among the continuous variables used in main analyses testing Hypotheses 3-4 are summarized in Table 6. BDI-II total score, composite well-being score from the Ryff Scales, the four subscales of the DSSI, the SF-36 Physical Component Scale, and the four RFQ subscales were included in the table, along with participant age (which is included because it may be a confounding factor for developmental stage). Interestingly, age was correlated significantly only with instrumental social support (r = -.31, p = .002) and social network support (r = -.22, p = .03).

As would be expected, depression scores were significantly and negatively correlated with the composite score of the Ryff well-being scales (r = -.51, p < .001). Both depression and well-being were correlated with subjective social support, r = -.54 (p < .001) and r = .73 (p < .001) respectively. The strength of the association between subjective social support and depression and between subjective social support and well-being are common findings in the empirical literature on mental health in older
adults (Blazer, Hughes, and George 1992; George et al. 1989; Landerman et al. 1989). The social interaction DSSI subscale was also correlated significantly with well-being \((r = .24, p = .02)\).

Physical health status as measured by the SF-36 Physical Component Scale (PCS), which represents a normalized composite of the five physical health subscales of the SF-36, was negatively correlated with social network support \((r = -.20, p = .04)\). The PCS was also modestly correlated with prevention socialization history \((.24, p = .02)\).

In terms of regulatory focus, promotion success was more frequently correlated with other variables than any of the other subscales of the RFQ. Promotion success was correlated significantly with depression \((r = -.32, p = .001)\), social interaction \((p = .24, p = .02)\), subjective social support \((r = .45, p < .001)\), and well-being \((r = .62, p < .001)\). Depression was not correlated with any other RFQ subscales. However, well-being was also correlated with promotion socialization history \((r = .37, p < .001)\) and prevention socialization history \((r = .23, p = .02)\). Promotion socialization history was also modestly correlated with subjective social support \((r = .23, p = .02)\). As in previous studies, the RFQ subscales were modestly intercorrelated (Higgins et al., 2001). Promotion socialization history was correlated both with prevention socialization history \((r = .29, p = .003)\) and with promotion success \((r = .39, p < .001)\). Interestingly, prevention socialization history was also correlated significantly with promotion success \((r = .38, p < .001)\), but not with prevention success \((- .18, p = .07)\). Prevention success was not significantly correlated with any other variables.
Table 6: Bivariate Associations Among Variables Used in Testing Hypotheses 3 and 4.

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<th>1.</th>
<th>2.</th>
<th>3.</th>
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<td>2. Well-Being</td>
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<tr>
<td>11. Promotion Success</td>
<td>.05</td>
<td>-.32***</td>
<td>.62**</td>
<td>-.13</td>
<td>.24*</td>
<td>-.12</td>
<td>.45***</td>
<td>.18</td>
<td>.39***</td>
<td>.38***</td>
<td>.72</td>
</tr>
<tr>
<td>12. Prevention Success</td>
<td>-.001</td>
<td>-.18</td>
<td>.14</td>
<td>-.06</td>
<td>-.03</td>
<td>-.05</td>
<td>.10</td>
<td>.01</td>
<td>.19</td>
<td>-.18</td>
<td>.23</td>
</tr>
<tr>
<td>M</td>
<td>62.24</td>
<td>4.04</td>
<td>69.02</td>
<td>7.29</td>
<td>7.17</td>
<td>2.52</td>
<td>25.59</td>
<td>50.00</td>
<td>3.70</td>
<td>3.97</td>
<td>3.86</td>
</tr>
<tr>
<td>SD</td>
<td>4.60</td>
<td>8.11</td>
<td>3.29</td>
<td>2.66</td>
<td>2.22</td>
<td>3.74</td>
<td>8.18</td>
<td>.94</td>
<td>.87</td>
<td>.59</td>
<td>.66</td>
</tr>
</tbody>
</table>

Note: *p < .05, **p < .01, ***p < .001. Sample size = 100. Internal consistency coefficients are listed on the main diagonal.
Depression as Predicted by Differential Goal Content among Retirement Groups.

In Hypotheses 3 and 4, we considered the cases of individuals who are unsuccessful in disengaging from prior developmental stage goals and in reengaging in more developmentally relevant goals. It was hypothesized that failure to disengage from occupational and financial goals would be associated with lower well-being and greater depression among post-retirement participants when contrasted against pre-retirement participants. Second, engagement in self, family, social, leisure, and household goals was hypothesized to be associated with greater well-being and lower depression. We expected both effects to increase from the early post-retirement group to the late post-retirement group. Seven separate three-step hierarchical linear regression analyses were used to test these hypotheses for each goal content area separately. Social support (George et al. 1989; Landerman et al. 1989) and physical health status (Leibson et al. 1999; Street, O'Connor, and Robinson 2007), as well-established predictors of well-being and depression, were included in the first step of each analysis. The second step consisted of the main effect for number of goals in the goal content domain being evaluated and the main effect for retirement stage. The third step of each analysis was comprised of the interaction effect for the number of goals in the relevant goal content domain by retirement stage.

In the first model, a hierarchical linear regression analysis was conducted to test whether the interaction between number of self-goals and retirement stage significantly predicted depression after controlling for social support and physical health status. This was modeled hierarchically with social support (as measured by DSSI subjective social support) and physical health status (as measured by PCS) in the first step, the main effects for number of self-goals and retirement stage in the second step, and the interaction effect for self-goals by retirement stage as the third step. This model did
significantly predict depression: F(2, 94) = 8.06, p < .001. The first step of the model, including social support and physical health status, explained 28.6% of the variance. Only social support was a significant predictor: \( \beta = -.53, p < .001 \). Physical health was not a significant predictor of depression: \( \beta = -.01, p = .89 \). The second step of the model explained only an additional 1.3% of the variance, and neither main effect for retirement stage (\( \beta = .002, p = .99 \)) nor the main effect for number of self-goals (\( \beta = -.19, p = .41 \)) were significant. The final third stage of the model explained an additional .1% of the variance, and the interaction effect for number of self-goals by retirement stage was not significant: \( \beta = .10, p = .71 \).

Subsequent hierarchical linear regression analyses were conducted for each goal content area. The first step of each model was identical to the initial model described above, including social support and physical health status. The model conducted for family goals did significantly predict depression: F(5, 94) = 7.89, p < .001. The second step accounted for .2% of the variance with neither a significant main effect for retirement stage (\( \beta = .14, p = .31 \)) nor a significant main effect for number of family goals (\( \beta = .17, p = .43 \)). The third step accounted for \( R^2 \) change of .008. The interaction effect of number of family goals by retirement stage was not significant: \( \beta = -.23, p = .32 \).

The third model, which evaluated the effect of social goals, also significantly predicted depression: F(5, 94) = 7.75, p < .001. The second step, including the main effects for retirement stage (\( \beta = -.03, p = .82 \)) and for number of social goals (\( \beta = -.58, p = .56 \)) explained an additional .2% of the variance. The third step accounted for an additional \( R^2 \) change of .004, and the interaction effect for number of social goals by retirement stage was not significant: \( \beta = .19, p = .47 \).
The hierarchical linear regression model for including leisure goals did significantly predict depression: $F(5, 94) = 8.50, p < .001$. In this model, the second step comprised of the main effects for number of leisure goals ($\beta = .15, p = .47$) and for retirement stage ($\beta = -.55, p = .18$), accounted for $R^2$ change of .01. The third step accounted for an additional $R^2$ change of .01. In the third step, the interaction effect for number of leisure goals by retirement stage was not significant: $\beta = -.32, p = .18$.

For the hierarchical linear regression model including home goals, depression was significantly predicted: $F(5, 94) = 8.02, p < .001$. The second step accounted for an additional .5% of the variance. Neither the main effect for number of home goals ($\beta = -.14, p = .54$) nor the main effect for retirement stage ($\beta = -.03, p = .79$) were significant. The third and final stage accounted for an additional .7% of the variance. The interaction term for number of home goals by retirement stage did not significantly predict depression: $\beta = .23, p = .32$.

The sixth model evaluated occupational goals within an identically structured hierarchical linear regression model. The model overall did significantly predict depression: $F(5, 94) = 7.65, p < .001$. The second step of the model, which included the main effect for number of occupational goals ($\beta = .08, p = .70$) and the main effect for retirement stage ($\beta = .06, p = .64$) accounted for an additional .3% of the variance. The third step was comprised of the interaction effect of number of occupational goals by retirement stage and produced $R^2$ change less than .001. The interaction effect was not significant: $\beta = -.05, p = .82$.

The last hierarchical linear regression analysis was conducted to evaluate predictive value of number of financial goals within an identically structured model. The second step accounted for an additional .2% of the variance, and neither of the main effects for number of financial goals ($\beta = .02, p = .91$) and for retirement stage ($\beta = .06$, .
p = .61) significantly predicted depression. The third step accounted for an addition .1% of the variance. The interaction effect for number of financial goals by retirement stage was not significant: $\beta = -.06, p = .78$.

Overall, neither Hypotheses 3 or 4 were supported in these analyses. Engagement in more developmentally relevant goals (i.e., self, family, social, leisure, and home) was not differentially associated with lower depression scores among different retirement stage groups. Further, engagement in goals that were considered less accessible to retirees (i.e., occupation, financial) did not predict increased depression differentially among retirement stages. Subjective social support was the only significant predictor of depression.

**Well-Being as Predicted by Differential Goal Content among Retirement Group.**

Hypotheses 3-4 also specified that increased engagement in developmentally appropriate goal content domains (i.e., self, family, social, leisure, and home) would lead to increased well-being through each subsequent retirement phase. Similarly, well-being was expected to decrease with increased engagement in non-developmentally appropriate goal content domains (i.e., occupational and financial) with each retirement stage.

In order to test these hypotheses, hierarchical linear regression analyses were conducted for each goal content domain with the dependent variable of well-being (as measured by the composite scale of the Ryff Scales of Psychological Well-Being). For each domain, a three-step hierarchical linear regression was conducted. The first step controlled for the well-known effects of social support and physical health status on well-being by including the DSSI subjective social support subscale and the SF-36 Physical Component Scale (PCS). The second step of each model included the main effects for number of goals in the relevant goal content domain and for retirement stage.
The third step of each model included the interaction effect for number of goals in the relevant goal content domain by retirement stage. Seven hierarchical linear regression models were conducted overall: one model for each goal content domain.

The first model, including number of self-goals, did significantly predict well-being: $F(5, 94) = 25.56, p < .001$. The first step accounted for 53.8% of the variance. Perceived physical health status was not a significant predictor: $\beta = .003, p = .96$. However, social support was highly significant in predicting well-being: $\beta = .73, p < .001$. The second step accounted for an additional 3.7% of the variance. Neither the main effect for number of self-goals ($\beta = .28, p = .12$) nor the main effect for retirement stage ($\beta = -.05, p = .65$) were significant predictors of well-being. The third and final step of the model accounted for an additional .2% of the variance, and revealed a non-significant interaction effect for number of self-goals by retirement stage ($\beta = -.13, p = .51$). Therefore, social support was the only significant predictor of well-being in the model.

The following models are structured as the above model is with an identical first step, which models social support and physical health predicting well-being. The second model included family goals and was significant in predicting well-being: $F(5, 94) = 22.65, p < .001$. The second step of this model, which consisted of the main effect for number of family goals ($\beta = .05, p = .78$) and the main effect for retirement stage ($\beta = -.08, p = .48$), accounted for an additional .9% of the variance. The third step accounted for less than additional .1% variance. The interaction effect for number of family goals by retirement stage was not significant: $\beta = -.03, p = .89$.

In the third model, social goals were included as the test goal content domain. The overall model did significantly predict well-being $F(5, 94) = 22.66, p < .001$. The second step accounted for an additional .8% of the variance, but revealed no significant
main effects for number of social goals ($\beta = -.08$, $p = .70$) or for retirement stage ($\beta = -.11$, $p = .27$). The third and final step accounted for less than .1% additional variance. The interaction effect for number of social goals by retirement group did not significantly predict well-being: $\beta = .06$, $p = .77$.

The fourth model included leisure goals. The model did significantly predict well-being: $F(5, 94) = 23.19$, $p < .001$. Again, the bulk of the variance (53.8%) was explained by the first step. The second step, including the main effect for number of leisure goals ($\beta = .10$, $p = .56$) and for retirement stage ($\beta = -.01$, $p = .91$), accounted for an addition 1.0% of the variance. The third step accounted for an additional .4% of the variance. The interaction effect for number of leisure goals by retirement stage did not significantly predict well-being: $\beta = -.18$, $p = .34$.

In the model including home goals, the three-step model was significant: $F(5, 94) = 23.04$, $p < .001$). The second step accounted for an additional 1.2% of the variance, but neither the main effect for number of home goals ($\beta = .02$, $p = .90$) nor the main effect for retirement stage ($\beta = -.06$, $p = .47$) were significant. The third step in the model accounted for an additional .1% of the variance, and the interaction effect for number of home goals by retirement stage did not significantly predict well-being: $\beta = -.10$, $p = .61$.

The sixth model, including occupational goals, did significantly predict well-being: $F(5, 94) = 23.95$, $p < .001$. However, the second step, which included the main effect for number of occupational goals ($\beta = -.26$, $p = .14$) and the main effect for retirement stage ($\beta = -.16$, $p = .09$), accounted for an additional 1.8% of the total variance. The third step accounted for an additional .5% of the variance and produced no significant effect for the interaction of number of occupational goals by retirement stage: $\beta = .18$, $p = .33$. 

89
The final hierarchical linear regression model examined the effects of number of financial goals within the larger three-step model. This model did significantly predict well-being: F(5, 94) = 23.40, p < .001. The second step accounted for only an additional 1.5%. The main effects for number of financial goals (β = -18, p = .27) and for retirement stage (β = -12, p = .18) were no significant predictors of well-being. The third stage accounted for an additional .2% of the variance. The interaction effect for number of financial goals by retirement stage did not significantly predict well-being: β = .11, p = .52.

In summary, neither Hypotheses 3 or 4 were supported in these analyses. Engagement in more developmentally relevant goals (i.e., self, family, social, leisure, and home) was not differentially associated with higher well-being scores among different retirement stage groups. Further, engagement in goals that were considered less accessible to retirees (i.e., occupation, financial) did not predict decreased well-being differentially among retirement stages. As with depression, subjective social support was the only significant predictor of well-being.

3.3 **Hypothesis 5: Retirement Stage Differences in Regulatory Focus**

The final hypothesis considered the developmental strategy of increasing promotion and maintenance regulatory foci and reducing promotion focus in response to incremental losses in later life. Retirement was considered to be an instance of loss; therefore, groups were expected to differ in the extent of regulatory focus in these three domains: maintenance, prevention, and promotion.

**Goal Regulatory Focus Domain Summaries**

In addition to being coded for content, individual goals were also coded according to three regulatory focus domains: maintenance, promotion, and prevention.
Based on RFT (Higgins, 1997), a promotion focus emphasizes growth and achievement; promotion focus means attaining a positive end-state by “making good things happen”. In contrast, a prevention focus emphasizes safety, security, and responsibility; prevention focus means attaining a positive end-state by “keeping bad things from happening”. Maintenance goals are thought to be more apparent in later life when individuals focus neither on gains nor losses, but on maintaining their current status (Freund et al., 2005).

A summary of the goal regulatory focus coding data for the entire study sample is presented in Table 7. Within our sample, participants tended to report considerably more promotion goals (M = 3.86, SD = 1.84) than prevention goals (M = 1.42, SD = 1.25). Also, nearly every participant described at least one goal with a promotion focus (98%) in comparison to about three-quarters who described at least one prevention-focused goal (78%). Maintenance goals were quite infrequent, with an average of .19 per study participant (SD = .44), and only 17% of the participants reporting any maintenance goals. The predominance of promotion goals was even more apparent when looking at the percentage of different regulatory focus goals that participants reported on average. Participants had an average of 69.51% promotion goals (SD = 23.43%) and an average of 26.54% prevention goals (SD = 22.27%). Again, maintenance goals were much less frequent, at an average of 3.82% of total goals (SD = 9.30%).
Table 7: Count and Percentage Means (and Standard Deviations) of Goals as well as Percent of Participants with at least One Goal According to Regulatory Focus.

<table>
<thead>
<tr>
<th>Regulatory Focus</th>
<th>Count</th>
<th>Percentage</th>
<th>% Occurrence of at least One Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>.19 (.44)</td>
<td>3.82 (9.30)</td>
<td>17.00</td>
</tr>
<tr>
<td>Promotion</td>
<td>3.86 (1.84)</td>
<td>69.51 (23.43)</td>
<td>78.00</td>
</tr>
<tr>
<td>Prevention</td>
<td>1.42 (1.25)</td>
<td>26.54 (22.27)</td>
<td>98.00</td>
</tr>
</tbody>
</table>

Coding for regulatory focus as well as content did seem to provide meaningful information, as we observed goals of very similar content with different foci. For example, physical health was a common goal, but was expressed differently by different participants. In two of stark examples, one participant stated, “I want to live to be 100, so I have a better diet.” Another participant stated, “I don’t want to die, so I have to take care of myself, eat right, all those things.” The first example has a clear promotion focus, whereas the second example has an equally clear prevention focus. Though there were much fewer maintenance goals overall, physical health maintenance goals were not uncommon. For example, one man talked about “maintaining his physical health” and another stated that he would like “to keep at my college weight.” Similarly, there were frequent and obvious differences among individuals in terms of regulatory focus on many financial goals. Some individuals were focused on financial gains while others wanted to minimize losses. Still others sought to maintain a sense of financial security. Even those who focused on saving and amassing money often took a prevention focus. For example, one woman stated, “A savings of $1.3 million is a bare necessity for retirement. I’m working toward that in the next 3 years, so that I won’t have to worry about money when I retire.”
Goal Regulatory Focus Domain by Retirement Stage Summaries

The mean counts and percentage of overall goals by subject group is summarized in Table 8. For each regulatory focus domain, we also included the percentage of participants in each group that named at least one goal in that domain. The study groups did not differ significantly on goal numbers or percentages in any of the regulatory focus domains (see below).
Table 8: Number and Percentage Means (and Standard Deviations) and Percent of Sample with Occurrence of At Least One Goal for Each Regulatory Focus Domain by Retirement Stage

<table>
<thead>
<tr>
<th>Regulatory Focus</th>
<th>Pre-Retirement</th>
<th>Early Post-Retirement</th>
<th>Late Post-Retirement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>%</td>
<td>Occurs</td>
</tr>
<tr>
<td>Maintenance</td>
<td>.23</td>
<td>4.81</td>
<td>21.28</td>
</tr>
<tr>
<td></td>
<td>(.48)</td>
<td>(10.57)</td>
<td>(.38)</td>
</tr>
<tr>
<td>Promotion</td>
<td>3.89</td>
<td>69.40</td>
<td>95.74</td>
</tr>
<tr>
<td></td>
<td>(1.93)</td>
<td>(24.48)</td>
<td>(1.70)</td>
</tr>
<tr>
<td>Prevention</td>
<td>1.28</td>
<td>25.70</td>
<td>78.72</td>
</tr>
<tr>
<td></td>
<td>(1.04)</td>
<td>(21.28)</td>
<td>(1.10)</td>
</tr>
</tbody>
</table>
General Linear Models: Retirement Stage Differences in Regulatory Focus

As found in counts of goals in different content categories, counts of regulatory focus goals in different categories had similar distribution properties. Therefore, separate negative binomial GLMs were conducted in each regulatory focus domain to test for between group differences (Barron 1992). Those regressions produce a $\chi^2$ goodness-of-fit statistic and an associated p value, which is interpreted using the standard inferential statistics logic for whether or not to reject the null hypothesis (i.e., of no group differences). Unfortunately, none of the three regulatory focus domains were associated with a significant subject group effect: for maintenance goals, $\chi^2 (98) = 104.36, p = .31$; for prevention goals, $\chi^2 (98) = 97.61, p = .49$; and for promotion goals, $\chi^2 (98) = 100.64, p = .41$. Therefore, based on these results, Hypotheses 5 was not supported.

Lastly, Hypothesis 5 was evaluated using the proportion of goals (again with the arcsine data transformation) within each regulatory focus domain as the dependent variables (Osborne 2002). MANOVA was used to evaluate significance of between group differences on proportions of two regulatory focus domains: prevention and promotion. Maintenance, the third regulatory focus domain, was removed from this analysis to avoid interdependence between dependent variables. Results of the MANOVA were not statistically significant: $F(2, 96) = .48, p = .75$; Wilks’ Lambda = .98, partial eta squared = .01.

Exploratory one-way ANOVAs were used to assess group differences in individual regulatory focus domains. Unfortunately, none of the one-way ANOVAs produced statistically significant findings: for prevention goals, $F(2, 97) = .96, p = .39$ and, for promotion goals, $F(2, 96) = .37, p = .69$. As the overall MANOVA of between group differences was not significant without maintenance regulatory focus domain, a
final one-way ANOVA was conducted to test for between group differences in individuals’ proportions of maintenance goals: F(2, 97) = .87, p = .42. Based on both attempted methods of analyses, Hypothesis 5 was not supported.

Secondary analyses were also conducted to evaluate significance of prevention socialization history, promotion socialization history, prevention success, and promotion success on depression and well-being among study participants. In the first model, a two-step hierarchical regression analysis did significantly predict depression: F(4, 95) = 4.41, p = .003. Prevention socialization history and promotion socialization history were entered in the first step, explaining 1.4% of the variance in depression scores. Neither prevention socialization history (β = -.02, p = .87) nor promotion socialization history (β = .10, p = .37) were significant predictors of depression. The addition of prevention success and promotion success into the second step of the model accounted for an additional 14.2% of the variance. Both prevention success (β = -.25, p = .02) and promotion success (β = -.38, p = .001) significantly predicted depression among study participants.

A second hierarchical two-step linear regression model also significantly predicted participants’ scores on the Ryff composite scale: F(4, 95) = 18.75, p < .001. The first step of the model included prevention socialization history and promotion socialization history, which accounted for 15.5% of the variance. However, neither prevention socialization history (β = .02, p = .86) nor promotion socialization history (β = .10, p = .29) independently predicted well-being significantly. Both prevention success and promotion success were entered in the second step, which accounted for an additional 28.6% of the variance in predicting well-being. Both prevention success (β = .20, p = .02) and promotion success (β = .60, p < .001) significantly predicted well-being. Thus, prevention and promotion success as reported on the RFQ significantly
predicted both depression and well-being among study participants even after controlling for socialization history.

3.4 Post Hoc Analyses

Recategorization of Groups by Part-time Work Status

An unexpected finding from the initial analyses conducted in this study was the nearly equal distribution of occupational goals across the three developmental retirement stages: pre-retirement (M = .60, SD = .63), early post-retirement (M = .67, SD = .72), and late post-retirement (M = .46, SD = .53). The early post-retirement group actually reported slightly more occupational goals than the pre-retirement group, and the late post-retirement group mean was only slightly lower. As more participants were interviewed in the study, it became clear that (at least within this sample) retirement was not easily defined as an either-or state. A number of “post-retirement” participants described ongoing occupational goals, as many of them still worked part-time.

In fact, 24 out of 53 post-retirement participants answered “yes” to the question, “Do you continue to do some work for pay?” A total of 14 early post-retirement participants (48.3%) and 10 late post-retirement participants (41.7%) continued some level of part-time work. For part-time retirees, the average hours of work per week was 10.29 (SD = 7.68) with a minimum of 0.5 and a maximum of 30. Part-time workers in the early pre-retirement group did appear to work more hours on average per week (M = 11.54, SD = 8.99) than the part-time workers in the late post-retirement group (M = 8.55, SD = 5.31), but the difference was not statistically significant according to an independent-sample t-test: t (51) = .77, p = .74.
There were several interesting examples of occupational goals among part-time retirees. One professor emeritus whom we interviewed told us, “It’s wonderful. Now that I’m retired, I have more time for the parts of my job I like best. I have several papers and a book planned. Retiring got me away from more administrative departmental duties.” Another part-time retired participant stated, “I really enjoy editing scientific papers. It doesn’t pay all that well, so I couldn’t justify taking time away much time away from my job to do it, but I know I’ve made a big difference to the authors, a lot of foreign authors who don’t speak English well, and I can help them.” In both these examples, professional retirees focused their occupational goals where they received the most pleasure and satisfaction while abandoning less satisfying aspects of their jobs. If these participants are truly representative of the part-time retiree population, it may even be the case, contrary to our study hypotheses, that occupational goals in retirement would be associated with less depression and greater well-being.

However, it was also notable that the best exemplars of part-time retirees within the sample all appeared to be professionals. Indeed, a chi-square analysis was conducted to ascertain any association between income and part-time work status among retirees. As expected, this analysis indicated a significant association between income level and part-time work status among retirees: $\chi^2(1, N=52) = 8.06, p = .02$.

Given this different possible subject grouping, post hoc analyses were conducted to assess differences between pre-retirement participants, part-time retirees, and full-time retirees in both goal content categories and in regulatory focus categories. First, means in each goal content category and in each regulatory focus domain by retirement work status were examined. These data are summarized in Table 9.
Table 9: Summary Count Means (and Standard Deviations) of Goal Content and Goal Regulatory Focus by Work Status Groups.

<table>
<thead>
<tr>
<th>Goal Content</th>
<th>Pre-Retirement</th>
<th>Part-Time Retired</th>
<th>Full-Time Retired</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Count</td>
<td>Count</td>
</tr>
<tr>
<td>Self</td>
<td>1.38 (.94)</td>
<td>1.58 (1.61)</td>
<td>1.34 (1.02)</td>
</tr>
<tr>
<td>Family</td>
<td>.89 (.74)</td>
<td>.96 (.79)</td>
<td>.71 (.66)</td>
</tr>
<tr>
<td>Social</td>
<td>.68 (.67)</td>
<td>.69 (.95)</td>
<td>.95 (1.03)</td>
</tr>
<tr>
<td>Leisure</td>
<td>1.13 (1.10)</td>
<td>1.06 (.98)</td>
<td>1.16 (1.23)</td>
</tr>
<tr>
<td>Home</td>
<td>.33 (.55)</td>
<td>.40 (.72)</td>
<td>.40 (.66)</td>
</tr>
<tr>
<td>Occupational</td>
<td>.60 (.63)</td>
<td>.56 (.68)</td>
<td>.59 (.63)</td>
</tr>
<tr>
<td>Financial</td>
<td>.38 (.58)</td>
<td>.38 (58)</td>
<td>.47 (.58)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regulatory Focus</th>
<th>Pre-Retirement</th>
<th>Part-Time Retired</th>
<th>Full-Time Retired</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Count</td>
<td>Count</td>
</tr>
<tr>
<td>Maintenance</td>
<td>.24 (.48)</td>
<td>.13 (.34)</td>
<td>.17 (.47)</td>
</tr>
<tr>
<td>Prevention</td>
<td>1.28 (1.05)</td>
<td>1.46 (1.56)</td>
<td>1.62 (1.29)</td>
</tr>
<tr>
<td>Promotion</td>
<td>3.89 (1.95)</td>
<td>4.00 (1.69)</td>
<td>3.69 (1.87)</td>
</tr>
</tbody>
</table>

Surprisingly, this categorization of participants did not result in notable differences in average number of goals in content categories. Most surprising was the nearly even distribution of occupational goals among the groups: pre-retirement (M = .60, SD = .63), part-time retired (M = .56, SD = .68), and full-time retired (M = .59, SD = .63). However, review of individual participant’s interview data revealed at least three possible explanations for the occurrence of occupational goals among self-identified fully-retired study participants. First, the structuring of the question regarding part-time work may have led participants to miscategorize their status. For example, one participant who identified as not working part-time reported this occupational goal, “I own my own store, so I like to go in for a few hours every week and just work the counter. I’ve hired a store manager now, but I still like to go in.” In a second example, a
“full-time” retiree (another professor emeritus) described this occupational goal, “I still like to teach one class a semester. I love to work with the students.”

Second, participants may have described goals that were actually volunteer activities in such a way that they were coded as occupational goals. For example, one full-time retiree described this goal during his interview, “I have been working with this local nonprofit for a long-time on their website. I think I should have it ready soon.” Additional information in his interview supported his self-designation as full-time, such that his work in website design was clearly done pro bono and not for pay. However, he had a second goal coded as occupational that was also done in a volunteer capacity, “I’m going to finish writing the policy and procedures manual for another non-profit I’m working with.”

A third possibility has more to do with the nature of retirement. That is, retirement did not always follow a strict one-way flow. Individuals who were fully retired at the current time may still have the option to return to work. For example, one full-time retiree reported, “I’m thinking about finding a part-time job.” Another full-time retiree stated during the interview, “I have some skills in web-publishing. It’s possible I might do that for some money in the future if need be.” Another example of the fluid nature of retirement (at least among professional study participants) came from a part-time retiree who described this goal, “I think in a couple of years, I am going to retire for good this time. I tried it initially and then I started working part-time again, but I think I might be ready to retire full-time again.”

In examining the average summary counts for each goal content category based on work-status groups, it was also expected that there would be an increase in the more accessible goal content categories for retirees, including self, family, social, leisure, and home. However, between-group differences were minimal in these categories. There was one nonsignificant trend where social goal counts was slightly higher on average among
full-time retirees ($M = .95, SD = 1.03$) than among part-time retirees ($M = .69, SD = .95$) and pre-retirement participants ($M = .68, SD = .67$). In contrast, part-time retirees actually had slightly higher numbers of self-goals on average ($M = 1.58, SD = 1.61$) than either pre-retirement participants ($M = 1.38, SD = .94$) or full-time retirees ($M = 1.34, SD = 1.02$).

In terms of regulatory focus, the alternative group distributions looked similar to original study groupings, with a decided tendency toward promotion-focused goals in all groups. Furthermore, differences were very small in terms of average number of maintenance goals. There was a slight trend toward greater numbers of prevention goals from pre-retirement participants ($M = 1.28, SD = 1.05$) to part-time retired participants ($M = 1.46, SD = 1.56$) to full-time retired participants ($M = 1.62, SD = 1.29$).

Given problems in designating “part-time” work status among post-retirement participants as illustrated in the examples above, we were hesitant to use this grouping too liberally in further analyses. However, between-group differences in content categories with more notable variation of means between groups (i.e., self and social goals) were evaluated using negative binomial GLMs. Those regressions produce a $\chi^2$ goodness-of-fit statistic and an associated $p$ value, which is interpreted using the standard inferential statistics logic for whether or not to reject the null hypothesis (i.e., of no group differences). Unfortunately, none of the seven content categories was associated with a significant subject group effect: for self goals, $\chi^2 (98) = 96.80, p = .51$; for family goals, $\chi^2 (98) = 84.06, p = .84$; for social goals, $\chi^2 (98) = 95.97, p = .54$; for leisure goals, $\chi^2 (98) = 100.54, p = .41$; for home goals, $\chi^2 (98) = 98.14, p = .48$; for occupational goals, $\chi^2 (98) = 90.20, p = .70$; and for financial goals, $\chi^2 (98) = 84.13, p = .84$. Therefore, the post-hoc hypothesis that participants who differed according to work status (i.e., pre-retirement, part-time retirement, and full-time retirement) would
differ in their engagement in different goal content areas was not supported in these analyses.

One final post-hoc analysis was conducted to test whether differences between groups on mean number of prevention-focused goals were significant. Again using negative binomial GLMs, no significant between-group differences were observed: for maintenance goals, \( \chi^2 (98) = 101.91, p = .37 \); for prevention goals, \( \chi^2(98) = 99.65, p = .43 \); and for promotion goals, \( \chi^2 (98) = 100.62, p = .41 \).
4. Discussion

The aim of this study was to examine goal investment before and after retirement, to better understand the variability in the literature regarding the effect of retirement on psychological symptoms and psychological well-being. Viewing retirement as major developmental transition, it was expected that individuals would report goals in different areas of life before, immediately after, and then later after they retired. However, these hypotheses were not supported in any of the seven observed goal content categories: self, family, social, leisure, household, occupational, and financial. Secondary hypotheses were based on the expectation that differences in goal content category distributions would differ significantly between the three developmental groups, such that those individuals who were outside of the norm by maintaining non-developmentally appropriate goals, would experience greater depression and lower well-being than those who did adaptively transition their goals. However, since the results did not support the former hypotheses, the secondary hypotheses were also not supported within the sample data.

As retirement was viewed as a decline in overall personal resources as becomes more common with increased age (Freund and Ebner 2005), the final hypothesis was that a transition from more promotion-focused to more maintenance-focused and prevention-focused goals would be normal and adaptive following retirement. Furthermore, change in regulatory focus was expected to increase with length of retirement, but that hypothesis was also not supported.

However, study findings did provide interesting information regarding the study of retirement itself. In fact, given considerable disagreement in empirical findings regarding the effect of retirement on mental health outcomes and measures of well-being,
it is reasonable to conclude that retirement is indeed a very heterogeneous process. It is particularly important to note that defining retirement (or different levels of retirement) was itself difficult within this study, given variation in how individuals themselves identified as retired or not (as illustrated in the examples of the professors emeritus who identified as retired while maintaining pursuit of long-held career goals). Furthermore, closer inspection of occupational goals revealed that opportunity to pick and choose preferred occupational goals in retirement might actually make those goals more salient to overall well-being. This unexpected observation made it difficult to maintain our original expectations regarding associations between different goal content categories.

Similarly, viewing retirement broadly as an overall loss in resources may be out-of-date with contemporary retirement experiences, especially in a primarily high SES study sample. Thus, the expectation of a transition in regulatory focus with retirement may not fit with seemingly voluntary nature of retirement for many of the study’s participants. In fact, closer to developmental transitions in earlier life, retirement in these scenarios may tend to be composed of some losses with some gains in different areas rather than overall losses.

Altogether, this study may provide qualified good news for retirees. Because the sample was largely skewed toward high SES, it is difficult to generalize any findings. However, at least among professionals and higher income Americans, there is clear opportunity for continued well-being and personal growth in retirement. Furthermore, retirement may in fact provide greater flexibility of goal pursuit, such that other factors that are associated with psychological well-being, such as social support and physical health, may be increasingly addressed in voluntary retirement.

Considering the findings of this study alongside those of the original studies of goal disengagement conducted by Wrosch and Heckhausen (1999) and Heckhausen, Wrosch, and Fleeson (2001) may illustrate some interesting implications of this line of
research. In the original studies, hypotheses regarding the expected transition from romantic to non-romantic interpersonal goals among older divorcees and the expected transition from childbearing to non-childbearing goals among post-“biological clock” women (Heckhausen, Wrosch, and Fleeson 2001) were well supported by the data those investigators obtained. However, this study differed in that the focal developmental transition under scrutiny is normative and expected for nearly every working American, regardless of gender. Therefore, it seems possible that given a normative developmental transition, individuals begin their reorganization of goal pursuits farther in advance than those who are met with unexpected developmental “deadlines.” Indeed, the nature of these transitions is quite different if one considers the popular evidence regarding the emotional difficulties of unanticipated infertility among older hopeful mothers versus the institutional evidence of long-term retirement planning (e.g., social security and retirement savings plans).

These possible implications of the study must be considered, however, in terms of the study’s limitations as well. As mentioned above, the study sample was not representative of the general population. Study participants were generally of high SES, which means that study participants may have more financial options in terms of crafting unique retirement states and in terms of investing in other goal pursuits, such as travel, hobbies, and skilled volunteer work. Similarly, high-SES Americans may also be more engaged in long-term retirement planning (e.g., 401K plans) and, therefore, may be begin making a mental shift in terms of goal pursuits earlier in the retirement process. Furthermore, it is difficult to ascertain the utility of conceptually characterizing retirement in terms of resource loss among a sample that has relatively high resources overall.

It is worth noting that, among the few low-SES participants in the study, there were apparent differences from the higher-SES subjects in goal identification. For
example, there was the example of the man who reported a current major goal to save enough money to arrange for his funeral expenses. It would have been an interesting to add a question asking participants how much satisfaction they anticipated from goal attainment as well. As is, we cannot say if arranging funeral expenses is as satisfying as traveling to Europe, for example (although regulatory focus theory would suggest that the former would result in a sense of quiescence, the emotion associated with attainment of a prevention goal, whereas the latter would result in a sense of happiness, the emotion associated with attainment of a promotion goal). However, it is clear that a different focus exists. Further, it was among another low-SES post-retirement participant who stated that he hoped to “survive for a few more years at least.” These examples seem markedly different from those given by higher-SES participants related to health (e.g., I want to live to 100). However, the small number of lower-SES participants within the sample did not allow for meaningful analyses regarding the potential moderating role of SES differences. Preliminary findings were not statistically significant, but this is not surprising given the small sample size.

The study sample also may be distinctive in that most participants had chosen to retire rather than being forced to retire. In terms of anticipatory goal transitions, those individuals who have to retire unexpectedly either due to employment issues or other pressures (such as personal illness or increased caregiver responsibilities in light of a family member’s physical illness) may exhibit a more abrupt process of disengagement and engagement. In such circumstances where retirement is less determined by personal choice, successful disengagement and reengagement according to changes in goal accessibility may also be more relevant to mental health and psychological well-being.

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1 In a post-hoc MANOVA with income level as the predictive variable and six goal content areas as the dependent variables, the association between income and selective goal engagement overall was not significant: F(6, 87) = 1.15, p = .25.
Another limitation of the study is the potential for sampling bias. Participants were recruited either by public advertisements or phone calls in which the study was at some level described as a “retirement and goals study.” Therefore, it is likely that even pre-retirement participants recruited in the study were at least thinking about retirement before entering the study. In fact, even if our advertisements and recruitment phone calls had not mentioned retirement at all, study inclusion criteria required that individuals be within a certain number of years of anticipated retirement. Thus, assessment of suitability of the study might have inadvertently excluded pre-retirement participants who had thought less about goals planned for retirement because they had thought less about retirement overall.

As noted above in the discussion of part-time retirement versus full-time retirement, there may have been some problems in terms of the phrasing of interview questions, such that individuals who maintained long-standing occupational goals may not necessarily identify as “working part-time for pay.” Similarly, participants were asked what goals were “most important to you right now.” A simple change in phrasing by asking what goals are “most important right now” might have expanded goal findings to include pursuits that were not as personally salient and voluntary and thereby associated with greater well-being. For example, someone might note an important goal in a given job responsibility for which participant does not necessarily find personal satisfaction. Likewise, participants may report family goals that require personal investment without the personal salience in terms of satisfaction in attainment.

The definitions of the goal dependent variables was also a study limitation, in that the count distribution had narrow ranges clustered around zero. Such constricted distributions make it difficult to ascertain significant between-group differences, especially in this relatively small study sample. Other ways to ascertain current goal engagement might have been employed, such as summaries based on a multi-item
questionnaire listing common goal content areas or on a rank ordering process as employed by Brougham & Walsh (2005) in which participants are given standardized content categories to order in terms of personal importance and investment. These or similar methods may have provided a greater level of detail to goal content summaries allowing more powerful analyses of more subtle group differences. However, it should be noted that the use of non-idiographic assessment methods would be potentially problematic in its own right.

There were a number of study strengths as well. Most notably, although it the final sample size provided only limited statistical power, the use of structured open-ended interviews did provide considerably more idiographic detail than standardized measures could have. Some of the most interesting results are at a qualitative level, in sampling goals exactly as participants express them. In fact, further examination of the idiographically-generated goal content data may yet provide more notable findings both in terms of goal disengagement/reengagement and in terms of regulatory focus.

Another strength of the study was the examination of goal disengagement and reengagement associated with developmental transitions among a mixed gender population within a universally normative developmental transition for American workers. The original studies conducted by Wrosch and Heckhausen (1999) and Heckhausen, Wrosch, and Fleeson (2001) included only female participants in transitions that were directly related to gender (i.e., romantic partnerships in later life given higher rates of single women and child-bearing goals in relation to “biological clock”). In fact, the unanticipated difference in investigating a normative and expected developmental transition may also provide greater understanding of adaptive goal change across the lifespan.

Given non-significant findings, implications for future research are associated more with study weaknesses and unanticipated problems. Thus, it might be fruitful to
replicate the study with different recruitment strategies over a greater range of participant ages. In addition, deliberate recruitment of so-called involuntary retirees might provide additional perspective on notions of goal adaptation in developmental transitions. Furthermore, greater involvement of low SES participants might allow for investigation of SES differences in goal adaptation and orientation, which likewise may provide a broader perspective on conditions of overt resource loss and gain with developmental transitions.

Another consideration for future directions would be recruitment of participants with greater levels of psychological distress. Given that the current study population was overwhelmingly healthy with regard to depression symptoms as well as well-being, it was difficult to say what part resiliency and baseline well-being play in adapting well to developmental transitions. Furthermore, greater emphasis on psychological distress in a repeated study sample might also be another way to consider the impact of personal resources on goal content and regulatory focus adaptations in developmental transitions. Better delineation of these issues may also lead to possible interventions using theories of self-regulation to aid in healthy developmental transitions.

Finally, the most notable positive implication of the current study findings in terms of future directions is the numerous individual models provided of detailed individual goal pursuits associated with high measure of psychological well-being. While it is impossible to delineate actual cause and effect in terms of goal choices and regulatory focus with study design and non-significant findings, the interview data do contain practical lists of individuals’ ideas for remaining active and engaged in retirement. For individuals who do find themselves unexpectedly and/or involuntarily retired, a set of suggestions from individuals are adjusting positively may provide welcome guidance in making their own transitions.
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Biography

Ann Aspnes was born December 8, 1975, in the small town of Summit, New Jersey. In May 1998, Ann completed a Bachelor of Arts with dual majors in cultural anthropology and religion at Duke University. She was awarded the honor of magna cum laude for her undergraduate thesis in anthropology: Personal Narratives of Hospice Volunteers. She returned to Duke University in 2001 for graduate study in clinical psychology where she earned her Master of Arts in Psychology in 2006 (thesis: Failure in Goal Pursuit in Late Life: A Perspective on Geriatric Suicide).

During her graduate studies, she has received the following honors and awards: Duke University Center for the Study of Aging and Human Development Leadership in an Aging Society Internship (2002); University of California, San Diego, Summer Training on Aging Research Topics – Mental Health (2006); Duke University Preparing Future Faculty Fellowship (2006 - 2007); Duke University Graduate School Stephen Baugh Fellowship (2006 - 2007); and the Summer Research Fellowship from the Duke University Graduate School (2007). She has published the following book chapters: “Individual and group psychotherapy” in D. G. Blazer, D. C. Steffens & E. W. Busse (Eds.), Essentials of Geriatric Psychiatry; “Coping strategies for the patient with osteoarthritis” in K. D. Brandt, M. Doherty & S. Lomander (Eds.), Osteoarthritis (2nd Edition); and “Group Therapy for patients with chronic pain” in D. C. Turk & R. J. Gatchel (Eds.) Psychological Approaches to Pain Management: A Practitioners Handbook (2nd Edition). She was also a contributing author to the following papers: “Personality disorder in older adults: Diagnostic and theoretical issues” in Clinical Geriatrics and “The changing face of pain: Evolution of pain research in Psychosomatic Medicine” in Psychosomatic Medicine. She has presented her research at the annual meetings of the
Gerontological Society of America and the Association for Behavioral and Cognitive Therapies.

In July 2008, Ann Aspnes completed her Predoctoral Clinical Internship at the Durham Veterans Affairs Medical Center, where she will continue as a Postdoctoral Fellow beginning in August 2008.