

Retiring or Rewiring? Test of a Social Cognitive Model of Retirement Planning

Lee T. Penn and Robert W. Lent
University of Maryland, College Park

Using the social cognitive model of career self-management (CSM; Lent & Brown, 2013), we examined theory-based predictors of retirement planning goals, decisional anxiety, and level of decidedness. Participants were 525 older workers in the United States and Canada. We first examined the psychometric properties of new or revised social cognitive measures linked to retirement planning with part of the sample ($n = 200$) and then tested the stability of the factor structure with the remainder of the sample ($n = 325$). The measurement and structural models indicated good overall model-data fit in the larger sample and across most grouping variables (nationality, income level, and gender), and support was found for most of the paths predicting retirement planning, decisional anxiety, and level of decidedness. However, some gender differences were found in aspects of self-efficacy (confidence at time vs. financial management) that were predictive of decidedness. We consider the implications of the findings for future research and practice directions applying the social cognitive model to retirement planning.

Public Significance Statement

We adapted the social cognitive model of career self-management to the study of retirement planning in a sample of older workers. Findings of the study suggested that the model was useful in predicting retirement planning goals and anxiety as well as current level of certainty about retirement plans.

Keywords: retirement planning, social cognitive career theory, career self-management

Supplemental materials: <http://dx.doi.org/10.1037/cou0000530.supp>

Reflecting worldwide demographic shifts, recent decades have seen a large increase in the number of older workers facing the developmental challenge of how to prepare for and enter into retirement (Hirschi & Pang, in press). Retirement can take many forms, though traditionally has been seen as the end stage of the career development process, a period during which most workers reduce or end their involvement in paid work and seek alternative activities to structure their time (Fasbender & Deller, 2015; Super, Savickas, & Super, 1996). For many, retirement provides an opportunity to volunteer, travel, spend more time with family and friends, engage in caregiving activities, and/or seek new forms of paid work or continuation of prior work, perhaps with reduced hours (e.g., bridge employment; Adams & Rau, 2011). However,

decisions about when, how, and where to retire are subject to a host of factors (e.g., financial status, health considerations, family supports, work identity) that can be stressful to navigate, and the initial transition to retirement can be an emotionally challenging life period for a substantial percentage of retirees (Wang & Wang, 2017).

It is reasonable to assume that retirement planning may facilitate the transition period, for example, by helping to develop realistic expectations, prepare ways to structure one's time, anticipate changes in identity and status, and attend to financial needs (Muratore & Earl, 2015). Meta-analytic findings indicate that engagement in retirement planning is associated with favorable postretirement outcomes, including fewer mental and physical health problems, higher retirement and overall life satisfaction, and more involvement in bridge employment, which is one indicator of postretirement activity involvement (Topa, Moriano, Depolo, Alcover, & Morales, 2009). Preretirement planning has also been found to relate to retirement adjustment via the transition process (Muratore & Earl, 2015), suggesting that more adequate planning may smooth retirement transition and, in turn, enhance longer term functioning. These findings regarding the utility of retirement planning lead naturally to questions about the content of the planning process; that is, what aspects of retirement might people best anticipate and prepare for, either individually or via guided workshops and services?

This article was published Online First September 3, 2020.

Lee T. Penn and Robert W. Lent, Department of Counseling, Higher Education, and Special Education, University of Maryland, College Park.

This research was based on Lee T. Penn's dissertation, performed under the supervision of Robert W. Lent. An earlier version of the study was presented at the 2019 meeting of the American Psychological Association.

Correspondence concerning this article should be addressed to Robert W. Lent, Department of Counseling, Higher Education, and Special Education, University of Maryland, College Park, 3214 Benjamin Building, 3942 Campus Drive, College Park, MD 20742. E-mail: boblent@umd.edu

Preretirement preparation programs typically emphasize financial planning, with less attention to psychological, affective, relationship, leisure, housing, or other issues (Sterns & Subich, 2005). The focus on financial considerations (e.g., savings, pension benefits, health insurance) is understandable, given that economic well-being touches on other aspects of retirement (e.g., where one can live, whether work continuation is essential or optional). Yet financial planning may be seen as just one aspect of retirement preparation. Taking a more comprehensive approach, Adams and Rau (2011) portrayed retirement planning as encompassing activity, housing, relationship, and financial dimensions. Activity planning refers, for example, to hobbies, volunteer work, or continuing paid work that structure one's time in retirement. In considering housing, some people prefer to maintain their current living arrangement, while others anticipate moving for a variety of reasons. The relationship dimension involves questions of with whom one will socialize and, possibly, how to compensate for the loss of work colleagues. These planning dimensions are often intertwined (e.g., many activities allow for time-structuring as well as socializing, and housing decisions often include social considerations).

Psychological research on retirement has accelerated in recent years (Hirschi & Pang, *in press*; Wang & Wanberg, 2017), though the well-being of older workers has long been of interest within several psychological specialties (e.g., vocational, developmental, organizational). For example, Super's life span, life space theory included the stage of "disengagement," involving "the career development tasks of deceleration, retirement planning, and retirement living" (Super et al., 1996, p. 134). Although Super et al. considered "separation from the occupation" to be the hallmark of retirement, many retirees now view work continuation (e.g., via bridge employment or encore careers) as a viable alternative to complete separation from work. In some cases, this decision is mandated by need for additional income and, in other cases, by preference. Thus, this career/life period may be relabeled as one of "disengagement/reengagement" to better capture evolving conceptions of retirement, its range of lifestyle options, and the cyclical nature of retirement-related decisions (Lent & Brown, 2013).

Despite the inclusion of retirement within a life span view of vocational/counseling psychology, it has been noted that vocational researchers have, historically, tended to focus on the career development of students and early to midcareer workers (Lytle, Foley, & Cotter, 2015). Moreover, vocational psychology theories often provide a limited conceptual foundation for studying retirement as a stage of career/life development that offers unique opportunities for growth and flourishing ("rewiring") rather than only as a period of retreat from paid work. This situation may have begun to change, however, as evidenced by recent efforts to reconsider the relevance of traditional and emerging vocational theories to later life career development (Hirschi & Pang, *in press*; Lytle, Clancy, Foley, & Cotter, 2015). For example, Foley and Lytle (2015) applied predictors from social cognitive career theory (SCCT) and the theory of work adjustment to examine work satisfaction and job change intentions in older workers.

In an extension of SCCT (Lent, Brown, & Hackett, 1994), Lent and Brown (2013) have developed a model of career self-management (CSM) intended to promote study of a wide range of adaptive process behaviors across the life span, including retirement planning, transition, and adjustment. Fasbender and Deller (2015) discussed the CSM model as a viable framework for

studying postretirement career behavior, and several studies have used the model or SCCT more generally as a base for examining retirement planning (e.g., Wöhrmann, Deller, & Wang, 2013). The present study was aimed at extending this nascent inquiry on the CSM model in the context of retirement planning.

A Social Cognitive Perspective on Retirement Planning

Over the past two decades, SCCT has been applied to issues of career interest, choice, and performance (Lent et al., 1994), well-being and work satisfaction (Lent & Brown, 2008) and, most recently, CSM (Lent & Brown, 2013). Recent reviews of progress at studying SCCT's five primary models can be found in Lent and Brown (2019) and Brown and Lent (2019). The CSM model, designed to aid understanding of career preparation, entry, adjustment, and change across the life span, has thus far mainly been applied to issues of career exploration and decision-making (Lent, Ezeofor, Morrison, Penn, & Ireland, 2016), multiple role management (Roche, Daskalova, & Brown, 2017), the job search process (Lim, Lent, & Penn, 2016), and management of sexual identity in the workplace (Tatum, Formica, & Brown, 2017).

Based on Bandura's (1986) general social cognitive theory, SCCT emphasizes three primary social cognitive predictors of domain-specific career behavior: self-efficacy, outcome expectations, and goals. Self-efficacy is defined as a person's judgments of his or her ability to organize and execute behaviors required to perform certain tasks. Outcome expectations are beliefs about the consequences of performing particular behaviors. Goals involve the intention to engage in a particular activity or to achieve a particular level of performance at it. Within the CSM model, shown in Figure 1, self-efficacy and outcome expectations are hypothesized to prompt career-related actions both directly and indirectly through goals.

SCCT also acknowledges the roles of environmental and personality influences in career development. Often operationalized as supports and barriers (Lent, Brown, & Hackett, 2000), environmental variables are theorized to predict outcomes both directly and indirectly through intervening social cognitive pathways. Personality factors also play important roles in the prediction of career outcomes within SCCT. For example, individuals high in conscientiousness are likely to be goal-directed, persistent, self-disciplined, organized, and planful across situations (Brown & Hirschi, 2013). These behavioral tendencies may aid career/life decision-making.

Lent and Brown (2013) posited that

the degree to which people engage in retirement planning may be a function of their beliefs about their ability to plan for and negotiate retirement adjustment [i.e., self-efficacy], the outcomes they see associated with, and the goals they set for, retirement planning, their characteristic levels of conscientiousness, and their available supports and barriers (e.g., retirement savings, supportive family members, access to preretirement workshops). (pp. 565–566)

Prior research has linked self-efficacy, social support, and goals to engagement in retirement planning (e.g., Fretz, Kluge, Ossana, Jones, & Merikangas, 1989; Stawski, Hershey, & Jacobs-Lawson, 2007). In a series of studies, Wöhrmann and colleagues reported that bridge employment goals were predicted by outcome expectations (Wöhrmann et al., 2013; Wöhrmann, Deller, & Wang,

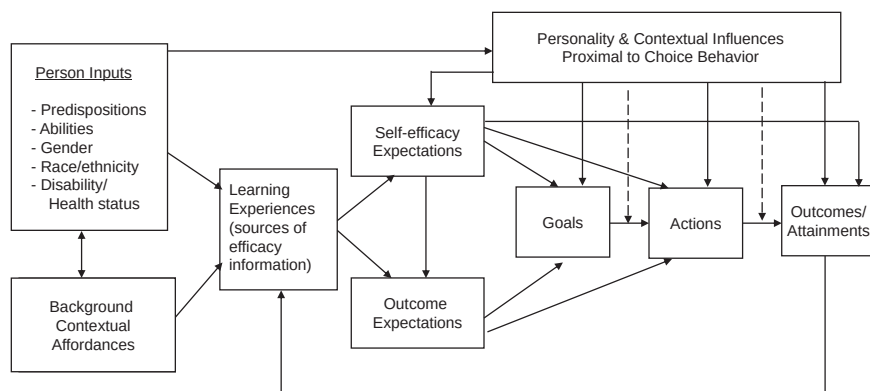


Figure 1. Model of career self-management. Adapted from "Toward a Unifying Social Cognitive Theory of Career and Academic Interest, Choice, and Performance," by R. W. Lent, S. D. Brown, & G. Hackett, 1994, *Journal of Vocational Behavior*, 45, p. 93. Copyright 1993 by R. W. Lent, S. D. Brown, & G. Hackett. Reprinted with permission.

2014a, 2014b) as well as by self-efficacy and interests (Wöhrmann et al., 2014b). They also found that social resources (support or approval) and work conditions (e.g., physical demands) contributed directly to postretirement work goals (Wöhrmann et al., 2014a) or moderated the relation of outcome expectations to work goals (e.g., Wöhrmann et al., 2013).

Existing studies applying elements of SCCT to the retirement planning process have yielded promising findings, yet many gaps remain to be addressed in future research. For example, there is need for research testing more complete versions of the CSM model in relation to a wider range of retirement lifestyle options and decisions, augmenting the current emphasis on bridge employment. Regarding activity planning, people may consider options other than whether to continue at paid work and, for those who wish (or feel compelled) to do such work, there may be questions about whether to remain in one's current occupation or to shift to a different form of work, and at what level of involvement. Beyond activity planning, retirement may also involve decisions regarding social relationships, living arrangements, and financial planning (Adams & Rau, 2011). In addition to breadth of lifestyle options, there is need for additional research on variables that promote or inhibit retirement planning and on the proximal and distal outcomes of the planning process.

The Current Study

The current study adapts the CSM model to the retirement planning process to capture social cognitive, contextual, and personality variables that have been shown to be predictive of goal-directed behavior in other contexts (Lent & Brown, 2013). In particular, it examines the roles that self-efficacy, outcome expectations, contextual supports, and trait conscientiousness play in relation to retirement planning goals, decisional anxiety, and level of decidedness. Based on the CSM model and prior research on career exploration and decision-making (e.g., Lent et al., 2016; Lent, Ireland, Penn, Morris, & Sappington 2017), we posit, as shown in Figure 2, that goals to engage in retirement planning will be predicted by self-efficacy, outcome expectations, conscientiousness, and availability of support for retirement planning.

We also posit that greater levels of decidedness regarding retirement plans and lower levels of anxiety regarding retirement planning will be predicted by the combination of self-efficacy and contextual support. In addition to these direct paths to the dependent variables, the model portrays a number of indirect links. For example, the relation of self-efficacy to retirement planning goals is assumed to operate partly through outcome expectations. Likewise, supports and conscientiousness are assumed to be linked to the dependent variables, in part, through their relations to self-efficacy and/or outcome expectations.

This study included both measure development and hypothesis testing phases. Because we could not locate previously developed social cognitive measures that captured the breadth of Adams and Rau's (2011) four-part conception of retirement planning, we began by developing and examining the psychometric properties of new or adapted measures of retirement planning self-efficacy, outcome expectations, goals, decisional anxiety, and decidedness. This phase included additional measures (e.g., general self-efficacy, social support) for validity estimation purposes. We subsequently used the domain-specific social cognitive measures, together with a previously validated measure of trait conscientiousness, to test the CSM model in the context of retirement planning. In addition to testing the model in the larger sample, we were able to examine model invariance across three grouping variables (gender, nationality [United States vs. Canada], and level of income), offering preliminary exploration of the model's range of generalizability.

Method

Participants

The sample consisted of 525 older workers who completed an online survey. The mean age was 60.73 years ($SD = 4.77$), mean hours currently working was 35.58 ($SD = 11.91$), and average years anticipated to retirement was 6.11 ($SD = 5.80$). Most (84.8%) expected that their decision to retire would be voluntary. The sample worked an average of 33.83 years full time ($SD =$

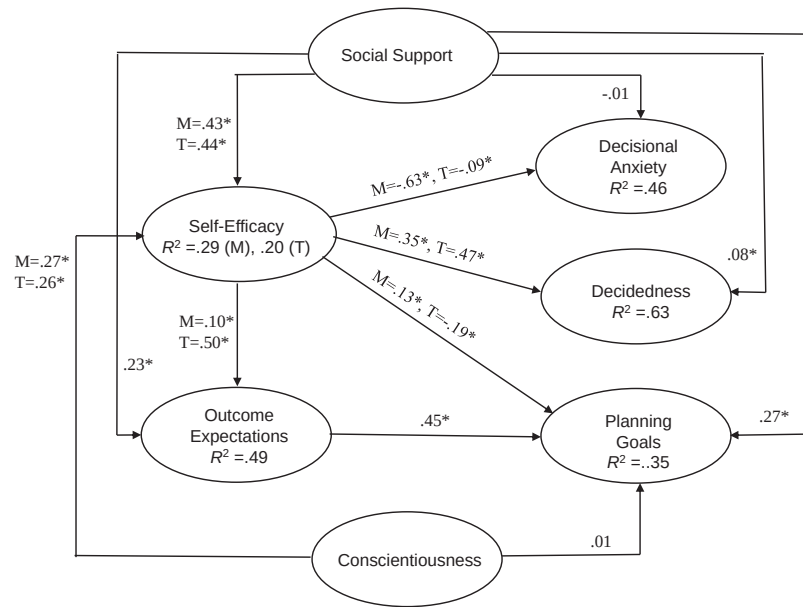


Figure 2. Model of career self-management as applied to retirement planning. M = SE-money; T = SE-time. The two SE variables were modeled separately but shown in the same circle here to avoid visual clutter. * $p < .05$, 1-tailed.

10.87) and 4.70 years part time ($SD = 7.70$) throughout their careers. The majority of participants were female (62%) and White (88%), with 4% identifying as Black, 3% as Asian, 1% as Latinx, 2% as indigenous persons, and 2% as multiracial or other race. Income and educational attainment were normally distributed and represented a wide range of socioeconomic resources, from an annual income of under \$10,000 (1.5%) to over \$200,000 (1.9%) and from less than a high school education (1.5%) to doctoral degrees (1%). Most of the sample (69%) reported earning between \$25,000 and \$100,000 per year, with 41% earning up to \$50,000 and 59% earning over \$50,000. Sixty percent of the sample had less than a 4-year college degree, while 40% had a bachelor's degree or beyond. Subjective social status was also normally distributed, with an average self-rating of 6.34 ($SD = 1.76$) on a 10-rung social ladder scale. The majority of participants described themselves as relatively healthy. The sample included participants from a range of states in the United States (50.1%) and Canadian provinces (49.9%).

Procedure and Instruments

Participants were individuals who signed up to take online surveys through a Qualtrics Online Sample Service niche recruitment campaign. They were allowed to choose a modest incentive, such as credit toward gift cards. Samples recruited through Qualtrics have been shown to be comparable to national demographics, including race, age, religion, marital status, income, and population density (Boas, Christenson, & Glick, 2018). The gender and racial skew of the current sample reflected the composition of the Qualtrics research panel available in our target age range. Prospective participants were provided informed consent approved by the researchers' university, and indicated that they were at least 55 years old and currently working at least 20 hr per week. Approx-

imately 10% of qualified participants activated the link and completed the survey, with the measures presented in random order. Qualtrics only retained fully completed responses and discarded responses containing missing data. Qualtrics utilized IP address checks, third-party verification, and deduplication technology to enhance the quality of the survey responses.

In developing each new scale, we first conducted a literature review to determine content areas for the retirement preparedness process. Based on [Adams and Rau's \(2011\)](#) review, item content was informed by four key retirement planning questions: "(a) What will I do? (b) How will I afford it? (c) Where will I live? and (d) Who will I share it with?" (p. 180). We sought to weave these elements into the new and revised measures but, given practical concerns about survey length, did not attempt to create four sub-scales per measure. The new scales were also designed to be consistent with SCCT measurement guidelines ([Lent & Brown, 2006](#)). Total scores were calculated by summing item responses and dividing by the number of items on each scale. Internal consistency estimates for the new and revised scales in the measurement development subsample ranged between $\alpha = .81$ (decidedness) and .95 (goal clarity); the more established scales also yielded adequate reliability estimates ($\geq .83$; see [Table 1](#)). The temporal frame of reference for most of the social cognitive measures was the present time, though the goal scale asked about behavioral intentions over the next 12 months. The trait measures asked about general or typical feelings or self-perceptions.

Self-efficacy. The retirement planning self-efficacy scale contained 14 items reflecting Adams and Rau's (2011) four themes (activities, finances, living arrangements, social ties), with some of the items referring to the ability to cope with postdecisional challenges (cf. Lent et al., 2016). Participants were asked to rate each item (e.g., "Find things to do in retirement that are enjoy-

Table 1

Correlations, Means, Standard Deviations, and Internal Consistency Estimates for Measure Development Phase

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	M	SD	α
1. Retire SE-money	—													2.24	.88	.87
2. Retire SE-time	.58	—												2.81	.76	.92
3. Retire OE	.53	.64	—											4.02	.62	.90
4. Retire support	.39	.34	.39	—										3.03	.83	.89
5. Retire goal	.45	.39	.55	.38	—									5.03	1.17	.95
6. Retire anxiety	-.64	-.48	-.43	-.30	-.25	—								3.29	1.20	.91
7. Retire decided	.51	.54	.54	.37	.55	-.48	—							3.69	.88	.81
8. General SE	.65	.58	.52	.26	.38	-.54	.38	—						3.17	.47	.91
9. Trait optimism	.51	.44	.43	.34	.36	-.50	.37	.61	—					3.73	.85	.86
10. General support	.40	.54	.49	.58	.42	-.39	.50	.40	.41	—				5.26	1.31	.96
11. Trait conscient	.27	.24	.28	.12	.24	-.33	.22	.37	.25	.16	—			4.19	.66	.86
12. Trait neg aff	-.29	-.32	-.24	-.11	-.09	.53	-.22	-.44	-.44	-.30	-.32	—		1.65	.67	.83
13. Trait pos aff	.43	.43	.44	.27	.33	-.43	.41	.54	.54	.41	.49	-.37	—	3.77	.78	.86
14. Income	.32	.15	.17	.20	.18	-.26	.19	.21	.18	.20	.00	-.12	.02	0.00	1.00	—

Note N = 200; correlations >.14 are significant, $p < .01$. Income scores are standardized. Retire = retirement; SE = self-efficacy; OE = outcome expectations; Decided = decidedness; Conscient = conscientiousness; Neg Aff = negative affect; Pos Aff = positive affect.

able”) on a scale of 0 (*no confidence at all*) to 4 (*complete confidence*). To estimate validity, the scale score was correlated with the General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995), which assesses self-efficacy at being able to handle daily tasks and stressful life events generally. The latter has demonstrated adequate reliability estimates (e.g., $\alpha = .92$) and has been found to correlate significantly with self-efficacy scales for retirement adjustment (e.g., Valero & Topa, 2015).

Outcome expectations. An 8-item retirement planning outcome expectations scale was used to measure the perceived benefits of retirement planning. Participants were asked to indicate the degree to which they agree with each statement (“If I were to plan actively for my retirement, I would most likely . . . feel better, or more relaxed, about the idea of retiring”) on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate more positive expected outcomes. The scale score was correlated with the 3-item optimism scale of the Life Orientation Test-Revised (Scheier, Carver, & Bridges, 1994; e.g., “I’m always optimistic about my future”). Patton, Bartrum, and Creed (2004) found that the optimism scale correlated positively with a measure of career outcome expectations and produced an internal consistency reliability estimate of .74.

Supports. The 10-item retirement planning supports scale asked participants to identify how much support they could get from a variety of sources (e.g., “a mentor or someone you could use as a sounding board”) for engaging in retirement planning. Participants indicated their degree of agreement on a scale of 1 (*no support at all*) to 5 (*a great deal of support*), with higher scores indicating greater levels of perceived support. To estimate validity, this scale was correlated with the Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988), a generalized measure of social support (e.g., “My friends really try to help me”). Zimet et al.’s scale has produced adequate reliability estimates in prior research (e.g., $\alpha = .94$) and has been linked to retirement satisfaction (López Ramos, Fernández Muñoz, Navarro-Pardo, & Murphy, 2017).

Goals. A measure of retirement goal clarity developed by Stawski et al. (2007) was adapted to the study. Participants indicated the degree to which they endorsed a variety of goal state-

ments on a scale of 1 (*strongly disagree*) to 7 (*strongly agree*). The original measure included five items (e.g., “Set specific goals for how much will need to be saved for retirement”). Stawski et al. found that the scale produced a coefficient alpha estimate of .90 and correlated significantly with retirement planning activities and savings contributions. For this study, we changed the time frame from goals pursued during the past 12 months to behaviors planned for the next 12 months. To enhance representation of Adams and Rau’s (2011) retirement planning domains, five additional items were developed (e.g., “Spend more time learning about retirement options [e.g., jobs, volunteer activities]”). To estimate the validity of the revised goal scale, we examined its correlations with the self-efficacy and support scales.

Anxiety. The nine-item retirement planning anxiety scale was developed to capture negative emotional reactions related to engaging in the retirement planning process. Participants indicate on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*) how much they agree with statements such as, “I’m nervous about being able to figure out what I’ll do in retirement.” Item content was informed by the Choice/Commitment Anxiety subscale of the Career Indecision Profile (Brown et al., 2012). Higher scores indicate more negative feelings about retirement planning. Validity was estimated by correlating anxiety scores with the Positive and Negative Affect Schedule Short Form (Thompson, 2007), which measures characteristic levels of affect. Earl, Gerrans, and Halim (2015) reported Cronbach alphas of .84 and .81 for the positive and negative affect scales, respectively. They also found that both scales related as expected with engagement in postretirement leisure activities.

Decidedness. A 4-item measure was used to assess level of decidedness regarding retirement plans. It was patterned after a measure of career decision status used in prior research on the CSM model (e.g., Lent et al., 2017; Penn & Lent, 2019). Participants indicated how much they agree with each statement on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores indicating greater overall decidedness regarding one’s plans for retirement. A sample item is, “I know how I will spend my time in retirement.” Based on career decision-making research using conceptually similar measures (e.g., Lent et al.,

2016), we assumed that decidedness would correlate positively with conscientiousness and self-efficacy and negatively with decisional anxiety.

Conscientiousness. The Big Five Mini-Markers Subscale of Conscientiousness was used to index the general tendency to be organized and planful (Saucier, 1994). Participants rate adjectives in terms of how well they describe themselves on a scale ranging from 1 (*extremely inaccurate*) to 9 (*extremely accurate*). The Conscientiousness subscale contains eight items, such as “organized” and “systematic.” Higher scores reflect stronger levels of conscientiousness. Saucier (1994) reported an internal consistency estimate of .86 and Palmer and Loveland (2004) reported a correlation of .75 between this scale and an alternative measure of conscientiousness.

Demographics. Participants provided information about their age, gender, race/ethnicity, years of employment, current job title, socioeconomic status (e.g., education, income), projected years until retirement, whether they expected retirement to be voluntary, health status, and state or province of residence. Job titles were classified according to 21 job families using O*NET (ONETonline.org/find/family). Participants reported involvement in a wide range of job families, with the most frequently cited being management (18%) and business and financial operations (13%). Social class was assessed with the MacArthur Scale of Subjective Social Status (Adler, Epel, Castellazzo, & Ickovics, 2000), which asks participants to indicate where they believe they fall on a 10-rung social ladder representing a hierarchy of society. Higher rungs of the ladder imply increasing levels of financial resources, education, and job status. This measure correlates moderately with composite scores of socioeconomic status ($r = .40$; Adler et al., 2000).

Data Analysis

To achieve the goals of measure development and model testing, the data were analyzed in two primary phases. The purpose of the measurement phase was to provide initial estimates of reliability and validity for the novel scales before using them in model testing. Data from the first 100 U.S. and 100 Canadian participants were used to assess the factor structures of the scales representing the CSM model. Subsequent to exploratory factor analysis, Cronbach’s alpha reliability coefficients, descriptive statistics, and intercorrelations were calculated based on the factor-derived scales. To aid in validity assessment, we also examined the utility of the new social cognitive measures in explaining variance in the three dependent variables (retirement planning goals, anxiety, and decidedness), while controlling for socioeconomic status and a set of non-domain-specific trait measures.

In the second phase, data from the remaining 325 participants were subjected to a confirmatory factor analysis (CFA) to assess the stability of the factor structure identified with the first part of the sample. The CFA fixed each item to load on one of the eight (correlated) factors. Measurement and structural model testing employed the MLM estimation procedures of Mplus 8.4 (Muthén & Muthén, 1998–2017). Prior to structural model testing, we created three item parcels to represent each latent variable identified in the exploratory factor analysis. Parcels were developed using the balancing method of Little,

Rhemtulla, Gibson, and Schoemann (2013). As Little et al. noted, the use of item parcels offers several advantages, such as testing models with fewer parameter estimates and reduced sources of sampling error.

Results

Initial Measurement Validation

Using data from the first subsample ($n = 200$), item responses were subjected to principal axis factoring and oblimin oblique rotation (Gorsuch, 1997). The Kaiser–Meyer–Olkin index was .89 and Bartlett’s test of sphericity was significant ($p < .001$), suggesting the factorability of the item set. Use of parallel analysis, scree, eigenvalue, and factor interpretability criteria offered support for an 8-factor solution, accounting for 63% of the total variance. We retained items that yielded pattern matrix loadings above .32 on a primary factor and that cross-loaded minimally on other factors; the separation between primary and secondary loadings was generally greater than .15 (with one exception of .14). These decision rules resulted in the deletion of four items (one self-efficacy, one outcome expectation, and two decidedness). Item-factor loadings for the exploratory and confirmatory factor analyses can be found in the online supplemental materials.

The retirement planning self-efficacy items loaded on one of two factors, one primarily reflecting confidence at insuring one’s financial security (four items; e.g., “Manage your financial resources so that you do not run out of money”) and the other, confidence at structuring one’s time and maintaining social bonds (10 items; e.g., “Cope with the loss of a routine work schedule”). We will refer to these as SE-money and SE-time, respectively. All items loaded substantially on one of the two factors. Items corresponding to the other theoretical constructs each loaded on a single factor. Table 1 contains summary statistics for the retirement-specific scales, the more global measures used for validity estimation, and income level. Scale scores on the new measures were distributed normally, with skew and kurtosis values both below 1.

The SE-money and SE-time scales were substantially interrelated and both also correlated strongly with general self-efficacy, suggesting that those with greater generalized confidence tend to approach the retirement planning process with more faith in their task and coping capabilities. The outcome expectations scale correlated moderately with the optimism subscale, with those reporting positive outcome expectations tending to hold generally optimistic future orientations. The retirement planning supports scale correlated highly with the measure of general social support, suggesting that participants partly rely on their general support systems for retirement planning assistance. The retirement anxiety scale correlated strongly with trait-based negative and moderately (and inversely) with positive affect. Thus, worry about retirement may partly reflect general tendencies to experience more negative affect and less positive affect. The modified goal scale correlated in theory-consistent ways with the retirement planning self-efficacy and support scales. The retirement decidedness scale correlated in expected directions with conscientiousness, self-efficacy, and decisional anxiety. Income level yielded small to medium-sized correlations with the social cognitive scales.

As a further examination of validity, we regressed each dependent variable on its hypothesized social cognitive predictors (self-

efficacy and supports in predicting decisional anxiety and decidedness; self-efficacy, outcome expectations, and supports in predicting goals) after controlling for income level and the set of trait variables (general self-efficacy, optimism, positive and negative affect, and conscientiousness). The sets of predictors were entered in two successive steps of hierarchical regression analyses. In keeping with general social cognitive theory (Bandura, 1986), the domain-specific variables were expected to account for unique variance beyond the more global trait predictors. Consistent with this expectation, results indicated that the social cognitive predictors accounted for significant unique variance in each equation; ΔR^2 ranged from .11 (decisional anxiety) to .16 (goals and decidedness). Collectively, these findings offer initial psychometric support for the new scales.

Testing the Measurement and Structural Models

Confirmatory factor analysis. We next performed a CFA with the second part of the sample ($N = 325$). Consistent with the exploratory factor analysis, the CFA represented the variables in the social cognitive model as eight correlated factors. Each item was set to load only on its top-loading factor from the principal axis factor analysis. For this and subsequent model tests, adequacy of model-data fit was evaluated with Hu and Bentler's (1999) two-index method. According to this method, fit may be considered adequate if (a) standardized root mean square residual (SRMR) values $\leq .08$ and (b) comparative fit index (CFI) values $\geq .95$ or root mean square error of approximation (RMSEA) values $\leq .06$, though somewhat more modest values have also been seen as acceptable (e.g., CFI $\geq .90$; Hoyle & Panter, 1995; RMSEA $\leq .08$; Browne & Cudeck, 1992).

The eight-factor CFA yielded adequate SRMR (.07) and RMSEA (.06; 90% confidence interval [CI] [.06, .07]) values, though the CFI (.82) was below .90; Satorra-Bentler (S-B) $\chi^2(1862) = 4,205.35, p > .001$. All items loaded highly on their corresponding constructs (range = .51–.91) and most of the constructs were significantly interrelated, except for conscientiousness with supports and goals and goals with anxiety. Factor loadings and intercorrelations are presented in the [online supplemental materials](#). Scales corresponding to each factor produced a pattern of reliability coefficients that was similar to those obtained with the first subsample: SE-money = .89, SE-time = .93, outcome expectations = .88, supports = .88, goals = .96, anxiety = .93, decidedness = .76.

Examination of modification indices revealed that better fit on the CFI statistic could be obtained by allowing errors to be correlated among pairs of items with similar wording or phrases within particular latent variables (e.g., references to living arrangements or structuring one's time outside of work). Though the initial model did meet the 2-index criterion, the low CFI and the number and nature of the correlated errors suggest that further measure development might add items and subscales to capture a fuller breadth of the constructs. Our current interest was in the larger constructs rather than their subspects. For this reason, and given their several benefits (Little et al., 2013), our subsequent model testing involved items parcels (rather than individual items) to represent each latent variable.

Omnibus model testing. Based on the CFA findings and the promising reliability and validity estimates obtained with the split

samples, we next used the new and revised measures in model tests in the full sample. A measurement model test using item parcels yielded strong fit indices, reconfirming the tenability of the eight-factor correlated model: SRMR = .04, CFI = .97, RMSEA = .05 (90% CI [.04, .05]), S-B $\chi^2(224, N = 525) = 486.04, p < .001$. A path analysis with latent variables was then run to test the hypothesized paths among the constructs. The findings suggest that the structural model also offered good fit to the data: SRMR = .04, CFI = .97, RMSEA = .05 (90% CI [.04, .06]), S-B $\chi^2(229) = 517.50, p < .001$.

The structural coefficients, shown in Figure 2, indicate that supports and conscientiousness each yielded significant paths to both forms of self-efficacy which, in turn, were significantly predictive of outcome expectations. Self-efficacy and supports contributed significant paths to decidedness but self-efficacy alone was a significant predictor of anxiety. Finally, goals were significantly and positively predicted by outcome expectations, supports, and SE-money. The significant negative relation of SE-time to goals appeared to be due to statistical suppression, given that these variables were positively related to one another in the measurement model test (.20). SE-time and SE-money covaried substantially (.57). The structural model accounted for relatively large amounts of variance in retirement planning goals, anxiety, and decidedness ($R^2 = .35, .46$, and $.63$, respectively).

Indirect effects in the model were tested using 5,000 bias-corrected bootstrap samples and a 95% confidence interval in Mplus. (Detailed results are tabled in the [online supplemental materials](#).) Sixteen of the 23 pathways were statically significant. The nonsignificant indirect path sequences involved linkages through SE-time to decisional anxiety and through SE-money to outcome expectations and goals. Though the direct linkage of support to anxiety had been nonsignificant, its indirect effect via SE-money was significant. Likewise, conscientiousness was not linked to goals directly, though its indirect link via the SE-time/outcome expectation pathway was significant.

Multiple-group analyses. We next examined the generalizability (or invariance) of the measurement and structural models across gender, nationality, and income groups. To facilitate the income analysis, we created two groups based on the income distribution of our sample, with the lower income group earning up to \$50,000 (41%) and the upper income group earning beyond \$50,000 (59%). To test for measurement invariance, a model in which the factor loadings were allowed to vary by group was compared with a model in which they were constrained to be equal across each grouping variable (e.g., country). If the two model versions did not yield significantly different fit, it was assumed that the variables were being measured comparably across groups. A similar method was used to test for structural invariance: the fit of a model in which both the factor loadings and structural paths were constrained to equality across groups was compared to a model in which the loadings were constrained, but the structural paths were allowed to vary by group.

As displayed in Table 2, similar to the omnibus test results, the measurement and structural models both produced adequate fit in each of the six groups (U.S., Canadian, male, female, upper and lower income). Although this suggests that the measurement and structural models were viable within each group, we performed multigroup analyses to determine whether the models produced differential fit by grouping variable (i.e., a model could

Table 2
Fit Indices for Measurement and Structural Models by Country, Gender, and Income Level

Model	N	S-B χ^2	df	RMSEA [90% CI]	CFI	SRMR
Grouping variable: Country						
Measurement model: United States	263	310.53*	224	.04 [.03, .05]	.98	.03
Measurement model: Canada	262	423.12*	224	.06 [.05, .07]	.96	.05
Structural model: United States	263	326.02*	229	.04 [.03, .05]	.98	.04
Structural model: Canada	262	456.45*	229	.06 [.05, .07]	.95	.06
Grouping variable: Gender						
Measurement model: Male	201	364.72*	224	.06 [.05, .07]	.96	.05
Measurement model: Female	324	363.30*	224	.04 [.04, .05]	.98	.04
Structural model: Male	201	378.54*	229	.06 [.05, .07]	.96	.05
Structural model: Female	324	380.80*	229	.05 [.04, .05]	.97	.05
Grouping variable: Income						
Measurement model: Low income	215	383.85*	224	.06 [.05, .07]	.96	.04
Measurement model: High income	310	375.24*	224	.05 [.04, .06]	.97	.04
Structural model: Low income	215	395.67*	229	.06 [.05, .07]	.96	.05
Structural model: High income	310	397.22*	229	.05 [.04, .06]	.97	.05

Note. CI = confidence interval; RMSEA = root mean square error of approximation; CFI = comparative fit index; SRMR = standardized root mean square residual.

* $p < .05$.

fit adequately in two groups but still fit better in one group than in the other). Results of the multigroup analyses are shown in Table 3. We found that the models fit comparably (or were invariant) across the country and income groups. The measurement model was also invariant across gender but the constrained structural model offered statistically poorer fit to the data than did the version without constraints, $\Delta S-B \chi^2 = 30.53$ (18), $p < .05$. Follow-up analyses indicated that two parameter estimates differed by gender: the path from SE-money to decidedness was larger in the female than male samples (.40 vs. .12), while the path from SE-time to decidedness was larger in the male than female samples (.74 vs. .38).

Discussion

The present study sought to examine the retirement planning process through the lens of SCCT's CSM model (Lent &

Brown, 2013). As a prelude to model testing, we developed or revised social cognitive measures of retirement planning self-efficacy, outcome expectations, supports, goals, anxiety, and decidedness. These measures, designed to reflect a range of retirement planning tasks (e.g., financial, social, and temporal planning; Adams & Rau, 2011), were administered to a sample of older workers in the US and Canada. Findings indicated that the measures yielded adequate reliability and validity estimates in a subsample of our participants and generally correlated among themselves and with paired measures of trait or global constructs (e.g., general self-efficacy, trait optimism) in theory-consistent ways. The social cognitive variables also offered incremental utility in predicting domain-specific planning criteria after controlling for socioeconomic and trait variables.

The social cognitive measures, along with a measure of trait conscientiousness, were also subjected to exploratory factor anal-

Table 3
Fit Indices for the Multiple-Group Analyses

Model	S-B χ^2	df	$\Delta S-B \chi^2$	Δdf	RMSEA [90% CI]	CFI	SRMR
Grouping variable: Country							
Measurement model without constraints	735.89*	448	—	—	.05 [.04, .06]	.97	.04
Measurement model with constraints on all loadings	753.15*	464	16.84	16	.05 [.04, .06]	.97	.05
Structural model without constraints	806.99*	475	—	—	.05 [.05, .06]	.96	.06
Structural model with constraints on all structural paths	821.63*	493	15.20	18	.05 [.04, .06]	.96	.07
Grouping variable: Gender							
Measurement model without constraints	728.01*	448	—	—	.05 [.04, .06]	.97	.04
Measurement model with constraints on all loadings	748.65*	464	20.36	16	.05 [.04, .06]	.97	.04
Structural model without constraints	780.40*	475	—	—	.05 [.04, .06]	.97	.05
Structural model with constraints on all structural paths	810.94*	493	30.53*	18	.05 [.04, .06]	.97	.06
Grouping variable: Income							
Measurement model without constraints	759.12*	448	—	—	.05 [.04, .06]	.97	.04
Measurement model with constraints on all loadings	779.49*	464	19.89	16	.05 [.04, .06]	.97	.04
Structural model without constraints	814.31*	475	—	—	.05 [.05, .06]	.96	.05
Structural model with constraints on all structural paths	823.22*	493	10.12	18	.05 [.04, .06]	.96	.06

Note. CI = confidence interval; RMSEA = root mean square error of approximation; CFI = comparative fit index; SRMR = standardized root mean square residual.

* $p < .05$.

ysis in our first subsample and a CFA in our second subsample. In both instances, the measures appeared to represent eight larger latent variables. Most of the variables reflected a single construct, though two aspects of self-efficacy were identified, self-efficacy for managing one's money and time. Interestingly, the two self-efficacy dimensions represented a compression of Adams and Rau's (2011) subdomains, with SE-money reflecting financial challenges as well as coping with unexpected events and SE-time dealing with temporal as well as spatial aspects of retirement (e.g., managing one's time as well as social activities and living arrangements). Given these promising initial psychometric findings, we tested the CSM model in our larger sample and in different demographic subgroups within our larger sample.

Prior to testing the structural model, we tested an 8-factor measurement model in which each construct was represented by three item parcels. The measurement model offered good fit to the data, with all parcels loading substantially on their respective factors, most of which were significantly interrelated. The structural model test provided overall support for the tenability of the hypothesized paths among the theoretical variables. In particular, both forms of self-efficacy predicted decisional anxiety regarding retirement and level of decidedness about retirement plans; social supports also contributed significantly to the prediction of decidedness. Goals to engage in retirement planning were predicted by outcome expectations, social support, and both forms of self-efficacy, though the negative path from SE-time to goals reflected the effects of statistical suppression. Overall, the model explained substantial portions of the variance in goals, anxiety, and decidedness. Contrary to expectations, however, the direct paths from supports to anxiety and from conscientiousness to goals were not statistically significant. Rather, the relation of supports to anxiety, and of conscientiousness to goals, was indirect, via linkages to other model variables.

To examine the generalizability of the findings, we tested the models separately by gender, country, and income level. These analyses indicated that both the measurement and structural models offered adequate fit to the data across the demographic groups. We also ran multiple-group analyses to determine if, despite the general applicability of the CSM model, it fit the data more or less well in particular groups. These findings indicated that the model was invariant across country and income level but two structural pathways differed by gender, with men showing a stronger path from SE-time to decidedness and women displaying a larger path from SE-money to decidedness. It could be that, given traditional male gender role expectations, retirement may especially place a premium on men's perceived ability to recenter their identities around life domains apart from work. Meanwhile, perceived ability at managing financial resources may be especially salient for women, who can expect to live longer in retirement on average than do men and, thus, may be more likely to face financial challenges at some point. These interpretations are, of course, speculative and it would be important to see whether these gender differences replicate in future studies.

It was noteworthy that self-efficacy formed two distinct but related dimensions in both genders, with SE-money producing larger paths than SE-time to decisional anxiety. This highlights the role of financial resources—and more specifically, one's confidence at being able to manage one's savings or generate new income—as a source of worry or calm in the retirement planning

process. Outcome expectations about the utility of retirement planning appeared to play the largest role relative to goals to engage in such planning, though social supports and at least one aspect of self-efficacy, SE-money, also contributed significantly to planning goals.

To this point, the CSM model has largely been studied in samples of students and early to midcareer workers. The current findings extend this literature by applying the model to older workers anticipating retirement. A notable connection with prior research on the CSM model is that retirement planning may be subject to social cognitive perceptions and processes that are conceptually similar to those involved in career exploration and decision-making at earlier stages of career development. In particular, tests of the CSM model with college students have suggested that career planning goals, anxiety, and levels of decidedness are each predicted by social cognitive variables (e.g., self-efficacy, outcome expectations, supports; Lent et al., 2016). In the current study, similar patterns of relationships were obtained when the measures were tailored to the developmental context of retirement decision-making and planning.

The current study also extends prior research applying SCCT to retirement planning, responding to reviewers' observations about the potential of this theoretical framework to contribute to understanding of the retirement process (Fasbender & Deller, 2015; Hirschi & Pang, in press; Lytle et al., 2015). In particular, Wöhrmann et al. (2013, 2014a, 2014b) had earlier drawn on the SCCT choice model to link particular social cognitive variables, such as outcome expectations, to planning for one type of retirement lifestyle, bridge employment. The current study conceptualized retirement planning in a different, albeit complementary, way—that is, as a process involving a diverse array of lifestyle options and planning dimensions (social, temporal, activity, and financial; Adams & Rau, 2011). Both approaches, content and process-focused, may make valuable contributions to the literature on retirement planning. The former allows for an understanding of the particular work or leisure activities people are drawn to in retirement; the latter is concerned with the breadth of the planning process, apart from the specific activities that engage people's time in retirement.

Interpretation of these findings should consider the study's limitations. First, though geographically diverse (including participants from throughout the United States and Canada), our sample was largely white, female, and healthy. Thus, caution is needed in generalizing the findings to more diverse groups and to those whose retirement planning may need to contend to a greater degree with health challenges. Socioeconomic resources are also a key consideration regarding retirement. While our sample displayed a reasonable range of educational and income levels, and we found invariance of model fit across the higher and lower income levels we studied, it will be important to extend CSM-based study of retirement planning to samples representing a wider range of characteristics and resources, for example, in terms of culture, race, geography, occupational level, and health or disability status.

A second limitation involves the use of novel measures in model testing. On the one hand, the scales were designed to comply with SCCT measurement prescriptions (Lent & Brown, 2006) and to incorporate Adams and Rau's (2011) four subdomains of retirement planning. They also exhibited promising reliability and validity estimates. On the other hand, the measures' psychometric

properties and use in model testing involved subsamples of participants drawn from the same larger sample. Thus, there is a need to confirm the adequacy and predictive utility of the measures in independent samples.

Third, and relatedly, though our CFA results generally supported expectations regarding item-factor loadings, the subpar CFI and the pattern of correlated uniqueness terms suggest the presence of emergent facets, or subdomains of retirement planning, that we may not have adequately sampled. Our primary interest had been in creating sufficient measures of the larger constructs (e.g., self-efficacy) and our use of item parcels, which averaged over individual item scores, rendered the issue of correlated errors less problematic. However, our inability to fully capture each of Adams and Rau's (2011) four subdomains represents a tradeoff between logistics (i.e., producing reasonably brief measures) and thoroughness (i.e., breadth of construct representation). Future research might, therefore, create longer, more differentiated measures of each construct, adding to understanding of the multidimensional nature of retirement planning.

Fourth, the findings are limited by the cross-sectional nature of the study's design. Thus, the findings do not imply causation or allow for inferences regarding the temporal flow among the variables. In addition, the indirect relations we observed, though largely consistent with the CSM model, cannot be established conclusively from the cross-sectional design. Longitudinal studies with at least three time points can provide more adequate tests of mediation and temporal precedence. Experimental studies are also needed to confirm causal assumptions and to provide a firmer foundation for model-based retirement planning interventions. Also related to the cross-sectional design issue, we were unable to examine the degree to which retirement planning goals are followed by actual engagement in retirement planning behavior. Though goals have been shown to predict later actions in the career decision-making of college students (e.g., Lent, Morris, Penn, & Ireland, 2019), this important linkage deserves study in the context of retirement decision-making.

Fifth, though we had performed a preliminary examination of the incremental predictive validity of the social cognitive variables beyond a range of personality variables, we had only included a single personality trait, conscientiousness, within our structural model test. We focused on conscientiousness because of its presumed relevance to planning and decision-making (e.g., organization and persistence are qualities that favor decisional efficiency; Lent & Brown, 2013). However, the CSM model also acknowledges the role that other traits may play in the process (e.g., neuroticism as a predictor of decisional discomfort; Penn & Lent, 2019). Thus, future model tests might incorporate additional trait predictors. Finally, we did not include measures of the learning experiences that, theoretically, inform self-efficacy and outcome expectations. Such elements (e.g., access to retirement planning role models) could well be relevant to the composition of interventions and, thus, deserve attention in future research.

A few additional directions for research might be cited. First, it would be useful to use the CSM model to study retirement planning in workers who face involuntary or developmentally off-time work cessation, for example, due to job loss or employment in careers, such as the military or professional sports, that are associated with early retirements. Second, the CSM model might be extended to the study of transition and adjustment to retirement,

including among those who have taken different retirement paths (e.g., bridge work vs. leisure-based lifestyles). For example, the model would predict that retirees with greater confidence in their ability to structure their time away from work activities will not only approach retirement planning with less anxiety but may also experience the actual transition to retirement as less emotionally disruptive. It may also be valuable to examine additional aspects of the CSM and other SCCT models (e.g., well-being) – such as engagement in goal-directed activity, progress at personal goals, and self-efficacy and outcome expectations related to new life/career pursuits—that may help to account for the nature of adjustment to retirement, including the ability to cope with a loss of work identity and to maintain or restore a sense of life purpose.

Finally, it would be useful to design and test CSM model-based interventions for retirement planning and adjustment. The current results suggest that efforts to promote retirement planning self-efficacy, positive outcome expectations, and contextual supports may aid the planning process in several ways (e.g., ameliorating worry and enhancing retirement decision-making). Though these assumptions need to be tested in future research, the current findings tentatively suggest that workshop designers and counselors working with preretirees focus on these social cognitive elements and also adopt the multidomain framework of planning for time-structuring, financial health, social well-being, and housing-location considerations advocated by Adams and Rau (2011). This broader focus may enable helpers to assist clients with the broader affective, psychological, and social planning issues that are often given little, if any, attention in standard services that emphasize financial planning (Sterns & Subich, 2005).

In sum, the current study tested a reasonably complete set of CSM model predictors in relation to the retirement planning process, adding to prior research that has focused on fewer social cognitive predictors and on particular forms of retirement (e.g., bridge employment; Wöhrmann et al., 2013). Our results suggest that the model offers a viable way to understand retirement planning more generally (i.e., when considering a range of retirement lifestyles and planning tasks). An SCCT perspective may help to join the study of retirement planning and adjustment to a larger body of findings on adaptive career behavior across the life span (Lent & Brown, 2013) and also serve as a point of convergence between vocational and organizational psychologists' interests in late life career development, attending to the concerns of both workers and work organizations. Finally, a social cognitive approach may encourage a focus on processes that enable healthy aging and growth in the context of life change, countering earlier views construing retirement primarily in terms of disengagement and loss.

References

- Adams, G. A., & Rau, B. L. (2011). Putting off tomorrow to do what you want today: Planning for retirement. *American Psychologist*, 66, 180–192. <http://dx.doi.org/10.1037/a0022131>
- Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy white women. *Health Psychology*, 19, 586–592. <http://dx.doi.org/10.1037/0278-6133.19.6.586>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Upper Saddle River, NJ: Prentice Hall.

- Boas, T. C., Christenson, D. P., & Glick, D. M. (2018). Recruiting large online samples in the United States and India: Facebook, Mechanical Turk, and Qualtrics. *Political Science and Methods*, 8, 232–250.
- Brown, S. D., Hacker, J., Abrams, M., Carr, A., Rector, C., Lamp, K., . . . Siena, A. (2012). Validation of a four-factor model of career indecision. *Journal of Career Assessment*, 20, 3–21. <http://dx.doi.org/10.1177/1069072711417154>
- Brown, S. D., & Hirschi, A. (2013). Personality, career development, and occupational attainment. In S. D. Brown & R. W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (2nd ed., pp. 299–328). New York, NY: Wiley.
- Brown, S. D., & Lent, R. W. (2019). Social cognitive career theory at 25: Progress in studying the domain satisfaction and self-management models. *Journal of Career Assessment*, 27, 563–578.
- Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research*, 21, 230–258.
- Earl, J. K., Gerrans, P., & Halim, V. A. (2015). Active and adjusted: Investigating the contribution of leisure, health, and psychosocial factors to retirement adjustment. *Leisure Sciences*, 37, 354–372. <http://dx.doi.org/10.1080/01490400.2015.1021881>
- Fasbender, U., & Deller, J. (2015). Post-retirement career planning. In N. A. Pachana (Ed.), *Encyclopedia of Geropsychology* (pp. 1–11). Singapore: Springer Link. http://dx.doi.org/10.1007/978-981-287-080-3_231-1
- Foley, P. F., & Lytle, M. C. (2015). Social cognitive career theory, the theory of work adjustment, and work satisfaction of retirement-age adults. *Journal of Career Development*, 42, 199–214. <http://dx.doi.org/10.1177/0894845314553270>
- Fretz, B. R., Kluge, N. A., Ossana, S. M., Jones, S. M., & Merikangas, M. W. (1989). Intervention targets for reducing preretirement anxiety and depression. *Journal of Counseling Psychology*, 36, 301–307. <http://dx.doi.org/10.1037/0022-0167.36.3.301>
- Gorsuch, R. L. (1997). Exploratory factor analysis: Its role in item analysis. *Journal of Personality Assessment*, 68, 532–560. http://dx.doi.org/10.1207/s15327752jpa6803_5
- Hirschi, A., & Pang, D. (in press). Career development of older workers and retirees. In S. D. Brown & R. W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (3rd ed.). Hoboken, NJ: Wiley.
- Hoyle, R. H., & Panter, A. T. (1995). Writing about structural equation models. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 158–176). Thousand Oaks, CA: Sage.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55. <http://dx.doi.org/10.1080/10705519909540118>
- Lent, R. W., & Brown, S. D. (2006). On conceptualizing and assessing social cognitive constructs in career research: A measurement guide. *Journal of Career Assessment*, 14, 12–35. <http://dx.doi.org/10.1177/1069072705281364>
- Lent, R. W., & Brown, S. D. (2008). Social cognitive career theory and subjective well-being in the context of work. *Journal of Career Assessment*, 16, 6–21. <http://dx.doi.org/10.1177/1069072707305769>
- Lent, R. W., & Brown, S. D. (2013). Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span. *Journal of Counseling Psychology*, 60, 557–568. <http://dx.doi.org/10.1037/a0033446>
- Lent, R. W., & Brown, S. D. (2019). Social cognitive career theory at 25: Empirical status of the interest, choice, and performance models. *Journal of Vocational Behavior*, 115, 103316.
- Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior*, 45, 79–122. <http://dx.doi.org/10.1006/jvbe.1994.1027>
- Lent, R. W., Brown, S. D., & Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology*, 47, 36–49.
- Lent, R. W., Ezeofor, I., Morrison, M. A., Penn, L. T., & Ireland, G. W. (2016). Applying the social cognitive model of career self-management to career exploration and decision-making. *Journal of Vocational Behavior*, 93, 47–57. <http://dx.doi.org/10.1016/j.jvb.2015.12.007>
- Lent, R. W., Ireland, G. W., Penn, L. T., Morris, T. R., & Sappington, R. (2017). Sources of self-efficacy and outcome expectations for career exploration and decision-making: A test of the social cognitive model of career self-management. *Journal of Vocational Behavior*, 99, 107–117. <http://dx.doi.org/10.1016/j.jvb.2017.01.002>
- Lent, R. W., Morris, T. R., Penn, L. T., & Ireland, G. W. (2019). Social-cognitive predictors of career exploration and decision-making: Longitudinal test of the career self-management model. *Journal of Counseling Psychology*, 66, 184–194. <http://dx.doi.org/10.1037/cou0000307>
- Lim, R. H., Lent, R. W., & Penn, L. T. (2016). Prediction of job search intentions and behaviors: Testing the social cognitive model of career self-management. *Journal of Counseling Psychology*, 63, 594–603. <http://dx.doi.org/10.1037/cou0000154>
- Little, T. D., Rhemtulla, M., Gibson, K., & Schoemann, A. M. (2013). Why the items versus parcels controversy needn't be one. *Psychological Methods*, 18, 285–300. <http://dx.doi.org/10.1037/a0033266>
- López Ramos, Y., Fernández Muñoz, J. J., Navarro-Pardo, E., & Murphy, M. (2017). Confirmatory factor analysis for the Multidimensional Scale of Perceived Social Support in a sample of early retirees enrolled in university programs. *Clinical Gerontologist*, 40, 241–248. <http://dx.doi.org/10.1080/07317115.2016.1199077>
- Lytle, M. C., Clancy, M. E., Foley, P. F., & Cotter, E. W. (2015). Current trends in retirement: Implications for career counseling and vocational psychology. *Journal of Career Development*, 42, 170–184. <http://dx.doi.org/10.1177/0894845314545785>
- Lytle, M. C., Foley, P. F., & Cotter, E. W. (2015). Career and retirement theories: Relevance for older workers across cultures. *Journal of Career Development*, 42, 185–198. <http://dx.doi.org/10.1177/0894845314547638>
- Muratore, A. M., & Earl, J. K. (2015). Improving retirement outcomes: The role of resources, pre-retirement planning and transition characteristics. *Ageing and Society*, 35, 2100–2140. <http://dx.doi.org/10.1017/S0144686X14000841>
- Muthén, L. K., & Muthén, B. O. (1998–2017). *Mplus user's guide*, 8th ed. Los Angeles, CA: Author.
- Palmer, J. K., & Loveland, J. M. (2004). Further investigation of the psychometric properties of Saucier's Big Five "Mini-Markers:" Evidence for criterion and construct validity. *Individual Differences Research*, 2, 231–238.
- Patton, W., Bartrum, D. A., & Creed, P. A. (2004). Gender differences for optimism, self-esteem, expectations and goals in predicting career planning and exploration in adolescents. *International Journal for Educational and Vocational Guidance*, 4, 193–209. <http://dx.doi.org/10.1007/s10775-005-1745-z>
- Penn, L. T., & Lent, R. W. (2019). The joint roles of career decision self-efficacy and personality traits in the prediction of career decidedness and decisional difficulty. *Journal of Career Assessment*, 27, 457–470. <http://dx.doi.org/10.1177/1069072718758296>
- Roche, M. K., Daskalova, P., & Brown, S. D. (2017). Anticipated multiple role management in emerging adults: A test of the social cognitive career self-management model. *Journal of Career Assessment*, 25, 121–134. <http://dx.doi.org/10.1177/1069072716658654>
- Saucier, G. (1994). Mini-markers: A brief version of Goldberg's unipolar big-five markers. *Journal of Personality Assessment*, 63, 506–516. http://dx.doi.org/10.1207/s15327752jpa6303_8
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-

- esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, 67, 1063–1078. <http://dx.doi.org/10.1037/0022-3514.67.6.1063>
- Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright, & M. Johnson (Eds.), *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35–37). Windsor, United Kingdom: NFER-NELSON.
- Stawski, R. S., Hershey, D. A., & Jacobs-Lawson, J. M. (2007). Goal clarity and financial planning activities as determinants of retirement savings contributions. *International Journal of Aging & Human Development*, 64, 13–32. <http://dx.doi.org/10.2190/13GK-5H72-H324-16P2>
- Sterns, H. L., & Subich, L. M. (2005). Counseling for retirement. In S. D. Brown & R. W. Lent (Eds.), *Career development and counseling: Putting theory and research to work*. Hoboken, NJ: Wiley.
- Super, D. E., Savickas, M. L., & Super, C. M. (1996). The life-span, life-space approach to careers. In D. Brown & L. Brooks (Eds.), *Career choice and development: Applying contemporary theories to practice* (3rd ed., pp. 121–178). San Francisco, CA: Jossey-Bass.
- Tatum, A. K., Formica, L. J., & Brown, S. D. (2017). Testing a social cognitive model of workplace sexual identity management. *Journal of Career Assessment*, 25, 107–120. <http://dx.doi.org/10.1177/1069072716659712>
- Thompson, E. R. (2007). Development and validation of an internationally reliable short-form of the positive and negative affect schedule (PANAS). *Journal of Cross-Cultural Psychology*, 38, 227–242. <http://dx.doi.org/10.1177/0022022106297301>
- Topa, G., Moriano, J. A., Depolo, M., Alcover, C.-M., & Morales, J. F. (2009). Antecedents and consequences of retirement planning and decision-making: A meta-analysis and model. *Journal of Vocational Behavior*, 75, 38–55. <http://dx.doi.org/10.1016/j.jvb.2009.03.002>
- Valero, E., & Topa, G. (2015). Brief retirement self-efficacy-11 scale (BRSE-11). *Journal of Career Assessment*, 23, 677–685. <http://dx.doi.org/10.1177/1069072714553567>
- Wang, M., & Wanberg, C. R. (2017). 100 years of applied psychology research on individual careers: From career management to retirement. *Journal of Applied Psychology*, 102, 546–563. <http://dx.doi.org/10.1037/apl0000143>
- Wöhrmann, A. M., Deller, J., & Wang, M. (2013). Outcome expectations and work design characteristics in post-retirement work planning. *Journal of Vocational Behavior*, 83, 219–228. <http://dx.doi.org/10.1016/j.jvb.2013.05.003>
- Wöhrmann, A. M., Deller, J., & Wang, M. (2014a). A mixed-method approach to post-retirement work planning. *Journal of Vocational Behavior*, 84, 307–317. <http://dx.doi.org/10.1016/j.jvb.2014.02.003>
- Wöhrmann, A. M., Deller, J., & Wang, M. (2014b). Postretirement career planning: Testing a model based on social cognitive career theory. *Journal of Career Development*, 41, 363–381. <http://dx.doi.org/10.1177/0894845313507749>
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment*, 52, 30–41. http://dx.doi.org/10.1207/s15327752jpa5201_2

Received January 21, 2020

Revision received June 27, 2020

Accepted July 22, 2020 ■