

## Job-Search Persistence During Unemployment: A 10-Wave Longitudinal Study

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Dynamic predictors of job-search intensity over time are examined in a large 10-wave longitudinal study of unemployed individuals. Two sets of variables relevant to the examination of job search from a dynamic, self-regulatory perspective—core self-evaluations (T. A. Judge, A. Erez, & J. E. Bono, 1998) and the theory of planned behavior (I. Ajzen, 1991)—were used to guide our examination. Results suggest core self-evaluation is related to average levels of job-search intensity over time. Job-search intentions mediated the relationship between subjective norms and job-search self-efficacy in the prediction of job-search intensity in the following 2 weeks. Both Time 1 and cumulative job-search intensity predict reemployment. This repeated-measures study contributes to research on job search that has been primarily cross-sectional or included few time waves.

The understanding of job-search behavior among individuals looking for work has increased during the last 20 years. For example, studies have demonstrated the importance of job-search intensity (how hard individuals look for work; Barron & Mellow, 1981) and job-search methods (the strategies used in the job search; Granovetter, 1995) to job attainment. Other studies have shed light on the characteristics of individuals likely to report higher levels of job-search intensity or to use certain job-search methods (see, e.g., Saks & Ashforth, 1999; Vinokur & Caplan, 1987; Wanberg, Kanfer, & Banas, 2000).

Despite the substantial progress made in this literature in the last 20 years, very little is known about job-search persistence (the extent to which job-search intensity continues over time) or how and why individual job searches vary in intensity over time (Barber, Daly, Giannantonio, & Phillips, 1994; Kanfer, Wanberg, & Kantrowitz, 2001; Saks & Ashforth, 2000). Studies on job search have tended to include only one or two time waves of data, prohibiting a strong understanding of changes that occur during the job search and how these changes relate to reemployment.

Developing a better understanding of how and why job-search intensity changes over the course of an individual's unemployment is critical if we are to advance our academic knowledge in this area, as well as if we are to make suggestions about interventions for individuals looking for work. This study used repeated-

measures methodology to assess the job-search experiences of unemployed job seekers every 2 weeks for a total of 10 time waves (or until reemployment). In doing so, we present the most extensive longitudinal investigation of this topic to date, examining (a) predictors of individual job-search levels over time and (b) the extent to which dynamic data on job search enhance our prediction of reemployment.

### Job Search as a Dynamic Process

Building on motivation and self-regulation theories, Kanfer et al. (2001) portrayed job search as a purposive, volitional, self-managed, and dynamic pattern of activity directed toward the goal of gaining employment. This view of job search as a dynamic, self-regulatory process suggests that the job search of an individual is likely to change over the duration of his or her unemployment—an individual's level of job search may decrease, remain stable, and/or increase over the span of his or her unemployment. Kanfer et al. further suggested that the level of job-search behavior displayed by individuals at various times during their search results from a complex interplay of their personal tendencies, their current desire to obtain employment, and unique personal and social conditions. In other words, an individual might change his or her level of job-search intensity over time for any of a number of reasons including (among others) a personal tendency to get discouraged, a change in one's employment goals, uncertainty about what to do next in the job search, and even a lack of support for the job search from significant others.

Empirical evidence, although preliminary in nature, supports job search as a dynamic process. In a qualitative study, Borgen and Amundson (1987) found a pattern of decreased job-search activity as some individuals became discouraged about their job-search efforts, followed by increases as individuals recovered from their discouragement. In a three-wave study of student job seekers, Barber et al. (1994) showed that students decreased their job-search intensity between early in their search and graduation and then increased their search between graduation and 3 months later. Saks and Ashforth (2000) also examined student job-search be-

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havior as they moved from being in school (Time 1) to after graduation 4 months later (Time 2) and found that students increased their job-search intensity and decreased their job-search anxiety over this time period. Overall, it seems that job seekers vacillate in their levels of job-search intensity over the duration of their search.

### Predictors of Job Search Over Time

For the current study we identified two sets of variables, involving core self-evaluations and the theory of planned behavior, that were well-suited to the examination of job-search intensity over time. Specifically, we view core self-evaluations as particularly relevant to the examination of the cumulative levels of job search individuals engage in over time from a self-regulatory perspective, and we view the theory of planned behavior as meaningful for examining differing levels of job-search intensity at specific time points from a more general motivational perspective.

#### Core Self-Evaluation

Judge, Erez, and Bono (1998) defined “core self-evaluation,” also known as “positive self-concept,” as a broad, latent personality construct reflecting the fundamental, basic beliefs that people hold about themselves. According to Judge et al., an individual’s core self-evaluation comprises four highly correlated individual difference variables, including self-esteem (self-perception of one’s worth, value, and importance), generalized self-efficacy (general confidence in one’s ability to deal with a variety of situations), locus of control (perceived degree of control over life events and situations), and emotional stability (tendency to be confident, secure, and well-adjusted).

The higher order trait of core self-evaluation captures a conglomeration of individual difference variables that is highly relevant to the examination of job-search persistence over time. Specifically, unemployment is a stressful life event for most individuals. Meta-analytic evidence has suggested that individuals experience increased anxiety and decreased mental health while unemployed (McKee-Ryan, Song, Wanberg, & Kinicki, 2005), and other research has noted the difficulties some individuals may have in persisting in their job searches while concurrently experiencing uncertainty, discouragement, and even unresolved anger toward their last employer (Borgen & Amundson, 1987). In this type of situation, we propose that favorable individual self-evaluations such as “I like myself,” “I believe that I am competent,” and “Doing something makes a difference,” as well as the extent to which the individual tends to be well-adjusted or emotionally stable, are critical. Indeed, the individual difference variables that comprise the core self-evaluation construct have been associated with higher levels of coping and adjustment in a variety of stressful life situations, including unemployment (Judge, Thoreson, Pucik, & Welbourne, 1999; Taylor & Brown, 1988; Wanberg, 1997), and with job-search levels in nondynamic contexts (Kanfer et al., 2001). Consistent with the self-regulatory nature of job search, core self-evaluation has furthermore been conceptualized as a motivational trait, useful in predicting behavior in situations that are characterized by free choice in the direction, intensity, and persistence of behavior over time (Judge et al., 1998; Weiss &

Adler, 1984). Overall, we propose that individuals with higher levels of core self-evaluations will display higher average levels of continued job search (indicative of persistence in search) over the duration of their unemployment.

*Hypothesis 1:* Positive core self-evaluation will be associated with a higher average level of job-search intensity over time.

#### Theory of Planned Behavior

The theory of planned behavior, an extension of reasoned action theory (Ajzen, 1991; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), has been used extensively to predict volitional behavior in a variety of settings (e.g., Albarracín, Johnson, Fishbein, & Muel-lerleile, 2001). In this theory, an individual’s intention to perform a given behavior is the immediate determinant of the behavior and, thus, plays a central role. Behavioral intentions broadly capture the motivational factors that drive a behavior. The stronger the intention, the more likely the behavior will be performed and, arguably, with a greater intensity. Applied to the examination of job search, stronger job-search intentions should be associated with stronger job-search intensity.

The theory further suggests that intentions to perform a behavior are predicted by two proximal factors: subjective norms and attitude toward the behavior. *Subjective norms* are social factors and refer to an individual’s belief about whether the persons closest to them feel they should or should not perform the behavior. In predicting job search, researchers have found that an unemployed person will hold beliefs about the extent to which that person’s spouse, family members, or friends feel that he or she should be actively engaged in job-search activities (Vinokur & Caplan, 1987). *Attitude toward the behavior* refers to the extent to which a person has a favorable or unfavorable evaluation of the behavior. Consistent with attitude theory (see Eagly & Chaiken, 1998, for review), we examined both the cognitive and affective component of the attitude. Specifically, we examined both a cognitive evaluation of the job search (i.e., whether one evaluates the job search positively or negatively) and an affective evaluation (i.e., whether one feels good or bad about their job search). Recent research on job attitudes has suggested the importance of both a cognitive and affective component in predicting behavior (Weiss & Cropanzano, 1996).

In later versions of the theory of planned behavior, an additional component—perceived behavioral control—was included to enable prediction of the behavior when control over the behavior goal is incomplete (i.e., the behavior goes beyond purely volitional action). Perceived behavioral control can have a direct influence on the behavior or an indirect influence through the channel of intention (Ajzen & Madden, 1986). Although we presumed that job-search behaviors are largely volitional, we expected that an unemployed person’s beliefs about the ability and ease with which he or she can perform job-search behaviors would potentially influence behavioral expectations. This concept has been commonly used in the job-search literature in the form of *job-search efficacy*, an individual’s belief that he or she can successfully perform job-search behaviors; we include this variable in the prediction of job-search behaviors over time.

The theory of planned behavior is highly suited to our current

investigation. First, the theory has been applied successfully to the study of job search (e.g., van Hooft, Born, Taris, & Van der Flier, 2004; van Ryn & Vinokur, 1992). Second, it is a comprehensive and broad-reaching theory that is meant to capture the motivational factors driving the behavior as well as account for perceived behavioral control. Finally, the variables that compose the theory of planned behavior are not static variables (cf. Charng, Piliavin, & Callero, 1988), meaning a job-seeker's intentions, subjective norms, attitudes, and self-efficacy regarding the job search may change over time. Emerging research in other contexts suggests the theory's variables may be valuable in understanding dynamic behavior (see, e.g., Shiffman et al., 2000). As such, we expected that the theory would help us to predict variability in individual levels of job-search intensity over time. Specifically, we posited that higher levels of job-search attitudes, subjective norms, and job-search self-efficacy at one point in the individuals' job search would be associated with higher levels of job-search intensity at the next assessment point. In accordance with the theory of planned behavior, we further suggest that job-search intentions mediate the relationship between these predictors and job-search intensity:

*Hypothesis 2:* Higher job-search attitude, subjective norms, and job-search self-efficacy at Time  $t - 1$  will be associated with higher job-search intensity at Time  $t$ .

*Hypothesis 3:* Job-search intentions will mediate the relationship between job-search attitude, subjective norms, and job-search self-efficacy at Time  $t - 1$  and job-search intensity at Time  $t$ .

### Job Search and Reemployment

One important indicator of job-search success is whether and how soon the job seeker secures a new job (Brasher & Chen, 1999). Continued unemployment on the part of individuals looking for work is difficult for job seekers and their families in many ways, especially in regard to the stress of being without financial security (cf. Price, Friedland, Choi, & Caplan, 1998). Accordingly, the second purpose of this study was to examine job-search intensity over time as a predictor of reemployment probability and speed, specifically whether and how quickly individuals became reemployed. Although effect sizes are rather small, results of a meta-analysis by Kanfer et al. (2001) have suggested that job-search intensity is an important predictor of later reemployment ( $r = .19$ ,  $k = 21$ ), number of job offers ( $r = .24$ ,  $k = 11$ ), and unemployment duration ( $r = -.12$ ,  $k = 9$ ). We examined the relationship between job-search intensity and reemployment with the following hypothesis:

*Hypothesis 4:* Job-search intensity will be positively associated with reemployment probability and speed.

Previous studies have typically included only one assessment of job-search intensity, conducted early in the unemployment experience, to predict later reemployment. However, an individual's level of search intensity early in the unemployment experience may not necessarily be reflective of his or her level of search intensity later in unemployment. Given that individuals' job-search intensity may change over time, it is advantageous to examine the

relationship between job-search intensity and reemployment probability and speed within a dynamic context. The small relationships that have been found between job-search intensity and later reemployment in past studies may be an artifact of examining job-search intensity at only one point in time.

Our study compares the performance of a model that includes only Time 1 levels of job-search intensity to predict reemployment probability and speed with that of a model that incorporates information from multiple waves of data. The alternative model assumes that job search has accruing or aggregate benefits over time. Specifically, if an individual has a high average job-search level across Times  $t$  through  $t + 3$ , that individual's chances of reemployment at the following time period are higher than if he or she had a lower average job-search level over this time period or simply had high levels of job search at the start of our study. A cumulative high level of job search over time presumably means an individual has pursued more leads than a cumulative low level of job search or than simply a high level of job search at Time 1. We proposed the following:

*Hypothesis 5:* Cumulative average job-search intensity will be more predictive of reemployment probability and speed than Time 1 job-search intensity.

## Method

### *Methodology and Participant Overview*

The participants in this study were recently unemployed unemployment insurance (UI) recipients.<sup>1</sup> At Time 1, participants completed a scannable pencil-and-paper survey. Then, over the next 18 weeks, participants completed up to a maximum of nine short automated telephone surveys. To ease attrition due to nonresponse, we deemed it critical to keep the repeated measures very short. We also established the importance of the study through clear communications, closely followed recommended procedures for increasing survey research response rates (e.g., Dillman, 2000), and paid individuals a \$20 incentive provided they completed at least half of the phone surveys while unemployed. We explain the methodology in greater detail in the following sections.

### *Time 1 Survey (July & August, 2002)*

Unemployed participants were recruited at Time 1 from nine WorkForce Center sites in the state of Minnesota while attending a required reemployment assistance orientation session. Orientation session leaders introduced the study and administered the Time 1 survey to attendees agreeing to be in the study. The Time 1 survey assessed demographics, core self-evaluation, and a baseline of the repeated measures assessed in the phone surveys.

During the 2-month period that data were collected, 1,629 potential study participants attended the orientation sessions. Of these individuals,

<sup>1</sup> To qualify for UI, five requirements must be met: Individuals must (a) have earned a sufficient amount in the last 5 calendar quarters; (b) be unemployed through no fault of their own (individuals may be disqualified if they quit because they got tired of the job, were discharged for misconduct, or are on strike); (c) indicate they are physically and mentally able to work; (d) be ready and willing to accept suitable employment; and (e) intend to actively seek work. Full benefits may be issued for up to 26 weeks of the individual's benefit year (Minnesota Department of Employment & Economic Development, 2004a).

1,136 agreed to be in the study and returned completed Time 1 surveys, for a response rate of 70%. Of those that completed the survey, 9 were excluded from the study because they were missing more than two pages of the survey, 17 were excluded for reasons such as being unable to use the automated telephone system and ineligibility for UI from the State of Minnesota, and 56 were recalled to work by their last employer. An additional 6 participants later asked to be dropped from the study. These exclusions narrowed the participants that were eligible for our study to 1,048.

### Phone Surveys (June, 2002–December, 2002)

UI recipients in Minnesota use an automated telephone system known as TELECLAIM to request UI benefits every 2 weeks after their claim has been filed and approved. Individuals agreeing to be in our study were transferred to a 13-question automated research survey with questions aimed at the unemployment experience every time they called TELECLAIM for the 18-week period following their Time 1 participation (for a potential of nine phone surveys, completed every other week). Our decision to end the study after a total of 10 time waves and 20 weeks of participation (including the Time 1 survey and the nine phone surveys) stemmed from a priori concerns about asking too much of our potential participants, thus potentially harming our response rates, as well as from our ability to use the state's phone system for only a limited duration because of call-volume issues.

The TELECLAIM process was ideal for providing us access to our participants at regularly scheduled intervals, as UI claimants must call in to the system every 2 weeks to receive their UI. For example, individuals with odd social security numbers are assigned to call in to request their UI benefits every other Monday. Individuals with even social security numbers are assigned to call every other Tuesday. After consideration of alternative methodologies such as sending repeated mail surveys or asking individuals to complete diaries, we determined the alternative methodologies provided less control over the assessment time interval and might result in a lower response rate.

In designing this study, we planned carefully to avoid possible response-bias issues stemming from our phone survey following directly after the claims process. We took several precautions to (a) assure individuals that their responses would not be seen by anyone at the WorkForce Centers and (b) separate our survey very clearly from the claims process. We developed a glossy brochure (provided to participants at the orientation session) to establish an identity for the project and its university affiliation, which highlighted our identity as independent from the WorkForce Centers, and we communicated repeatedly and clearly the confidentiality and research orientation of the project. The investigators also conducted several pilots of the survey to ensure the questions flowed smoothly.

Individuals becoming reemployed during the phone survey period no longer called TELECLAIM because they were no longer eligible for UI; furthermore, the survey regarding job search was no longer applicable for most reemployed individuals ( $n_s = 13, 40, 41, 41, 38, 29, 27,$  and  $24$  individuals reemployed after the first, second, third, fourth, fifth, sixth, seventh, and eighth phone survey, respectively). For the response rate for the phone survey, it therefore makes sense to look at the completion rate among individuals who called TELECLAIM and thus were asked to complete the phone survey. Response rates each week were very good, ranging from a low of 62% to a high of 76%, with actual sample sizes for each phone survey ranging from a high of 612 (at Time 3) to a low of 376 (at Time 10). Because hierarchical linear modeling (HLM) techniques can use individuals who do not respond to all time waves, individuals were included in the study if they completed at least one phone survey in addition to their baseline survey. Of the 1,048 individuals eligible for the telephone survey on the basis of Time 1 survey completion, 903 participants (86%) completed at least one of the phone surveys and were thus included in the study. The average number of phone surveys completed by these 903 participants during the research period was 4.95.

Of the 903 participants, 409 were men and 494 were women. Individuals ranged in age from 18 to 77 years ( $M = 42.7, SD = 10.6$ ). The ethnicity of the respondents was 84.6% White, 8.2% African American, 3.2% Asian American, 1.4% Hispanic, 0.9% American Indian, and 1.7% other. The reported marital status of the participants was 61.6% married; 16.1% divorced, separated, or widowed; and 22.3% single. On average, the participants had 1.4 dependents ( $SD = 1.4$ ). The participants ranged in education level, including 2.3% with less than a high school diploma, 18.2% with a high school diploma or general equivalency diploma, 15.3% with a high school degree plus technical training, 27.8% with some college, 24.0% with a college degree, 4.1% with some graduate school, and 8.3% with a graduate or professional degree. At Time 1 of this study, the participants had been unemployed for an average of 8.3 ( $SD = 10.7$ ) weeks and a mode of 2 weeks. Participants came from a variety of occupations, including professional, technical, and managerial (37.7%); clerical and sales (34.1%); service (12%); machine trades (2%); benchwork (4.2%); structural work (1.8%); and others (including agricultural and processing, 8.2%).

These 903 individuals were compared with the 145 eligible participants who completed the Time 1 survey but did not complete at least one phone survey on variables assessed at Time 1. Respondents were more likely to be White,  $\chi^2(1, N = 1,048) = 4.08, p < .05$ . Specifically, 87% of the White participants responded to at least one phone survey compared with 81% of the minorities. However, the percentage of White participants in our final sample was almost the same as the percentage of White UI recipients in the state of Minnesota in 2002 (84.6%, Minnesota Department of Employment & Economic Development, 2004b). Respondents and nonrespondents to our phone survey were not significantly different on other variables, but our final sample included more women than are reflected in the population of UI recipients in Minnesota in 2002 (Minnesota Department of Employment & Economic Development, 2004b).

### Measures

Core self-evaluations, job-search intensity, the components of the theory of planned behavior, and participant demographics were assessed at Time 1. Job-search intensity and the components of the theory of planned behavior were then assessed at each of the remaining nine survey waves via the phone survey. The text and items for our phone survey are shown in the Appendix and described below.

**Core self-evaluation.** Core self-evaluation, a theoretical composite of the core traits of self-esteem, generalized self-efficacy, emotional stability, and locus of control, was assessed at Time 1 with the Core Self-Evaluations Scale (CSES) developed by Judge, Erez, Bono, and Thoresen (2003). Although CSES in theory reflects the core traits of self-esteem, generalized self-efficacy, emotional stability, and locus of control, the items in the scale might be considered hybrid items encompassing core self-evaluation rather than representatives of a few specific items from every construct under its realm. The scale includes 12-items such as "When I try, I generally succeed" and "I do not feel in control of my success in my career" rated on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

There has been good psychometric support for the CSES. The items reflect a one-factor structure, and the CSES correlates significantly with expected criteria including job performance (Judge et al., 2003). Given that core self-evaluations is conceptually more of a trait than a state variable and because evidence suggests it is reasonably consistent across time, we included core self-evaluation at Time 1 of our study only. For example, Judge et al.'s (2003) research produced a .81 test-retest correlation of the CSES over a 1-month period. Although the test-retest correlation over a much longer period of time (e.g., 20 years) is lower ( $r = .46$ ), this correlation involved individuals moving from childhood to adulthood and is relatively consistent with relations observed for trait measures of the Big Five over that duration of time (Judge, Bono, & Locke, 2000). The internal consistency of this scale in our study was .86.



*Theory of planned behavior.* Job-search intention, attitude toward job search, subjective norms, and job-search self-efficacy were assessed in the Time 1 survey and in the nine phone surveys with one- or two-item measures. Although the use of one- and two-item measures is suboptimal, we were concerned that we would have few individuals willing to participate in our study if they were asked to complete nine long phone surveys. Easing the concern about measuring these constructs with one or two items, other research has demonstrated that one- and two-item measures of components of the theory of planned behavior have predictive validity in the job-search context (Vinokur & Caplan, 1987). When responding to these items, individuals were asked to answer in respect to the *next 2 weeks*.

Job-search intention was assessed using a one-item measure from Vinokur and Caplan (1987). Individuals responded to the item "In the next 2 weeks, how hard do you intend to try to find a job?" on a scale ranging from 1 (*not at all hard*) to 4 (*very hard*).

Attitude toward job search was assessed with two items developed to assess the cognitive and affective components of attitudes toward job search (Weiss & Cropanzano, 1996). The cognitive component was assessed with an item based on Bagozzi and Yi (1989), "How would you best describe your attitude toward your job search," on a scale ranging from 1 (*very negative*) to 4 (*very positive*). The affective component was assessed with an item based on Feather and Davenport (1981), "When you think about your job search, how does it make you feel?" on a scale ranging from 1 (*very bad*) to 4 (*very good*). Despite their conceptual distinctions, the cognitive and affective items were combined for analysis because of their high intercorrelations (mean  $r = .68$  over time) as well as because of research suggesting that factor analyses do not necessarily distinguish these dimensions of attitudes (Eagly & Chaiken, 1993, 1998).

Subjective norms toward job-search behavior were measured by one item based on Vinokur and Caplan (1987). This item was stated as follows, "Now think about the person closest to you, such as a spouse, family member, or a good friend. How hard does this person think you should try to find a job in the next 2 weeks?," and was answered on a scale ranging from 1 (*not hard at all*) to 4 (*extremely hard*).

Job-search self-efficacy was measured with the item: "How confident are you about being able to conduct your job search well?" The item was rated on a scale ranging from 1 (*not at all confident*) to 4 (*very confident*). Our global item was based on Vinokur and Caplan's (1987) six-item measure that involves summing items such as how confident the individual is about being able to write a good resume or to talk to friends and other contacts about potential employers. Lewen and Maurer (2002) found that although single measures of self-efficacy may have lower test-retest reliability than multiple item measures, they can have high convergent validity with the multiple-item measure and higher predictive validity.

*Job-search intensity.* Job-search intensity was assessed with a six-item measure based on a measure developed by the Institute for Social Research at the University of Michigan (Caplan, Vinokur, Price, & van Ryn, 1989; Vinokur & Caplan, 1987). Individuals were asked to indicate the number of times *during the past 2 weeks* that they had engaged in six different job-search activities. This measure's format, requesting number of times that individuals had engaged in given job-search activities in the last 2 weeks, was considered easy to complete via the phone survey and, in this context, more preferable than other measures of subjective job-search effort. Minor modifications were made to the measure to change it to the current context (e.g., "How many times in the last 30 days have you contacted a public employment service" was changed to "How many times have you contacted an employment agency or WorkForce Center in the last 2 weeks?"), and in 3 cases two items were combined to best preserve the content validity of the measure while using fewer items (e.g., our item "How many times have you sent out a resume or completed a job application in the last 2 weeks?" was broken into two items in the original scale). A small number of outlier responses (e.g., 1% of the Time 1

responses) to the job-search intensity scale were replaced with values at the 99th percentile of the responses. The job-search intensity total was highly correlated (correlations ranged from .56 to .68) with individuals' responses to the question "Altogether, about how many hours would you say you spent on your job search in the last 2 weeks?" (Barron & Mellow, 1981), asked at each time point as a validity check.

*Reemployment.* Data regarding reemployment status and date of reemployment for our complete sample of 903 individuals were obtained from the Minnesota Department of Economic Security (MDES) 2 months after the last phone survey. Employers are required to report new hires to MDES, thus providing fairly up-to-date reemployment information for UI recipients. As mentioned previously, 13, 40, 41, 41, 38, 29, 27, and 24 individuals were reemployed after the first, second, third, fourth, fifth, sixth, seventh, and eighth phone survey, respectively. An additional 107 were reemployed in the 2 months following the ninth phone survey. As explained later, our analyses involving reemployment incorporate both the incidence and the speed of reemployment by examining the conditional probability that a job seeker had found a job by a given day within our study period, given that the job seeker had not found a job before that date.

*Control variables.* Several control variables were used in the study analyses. Age in years, educational level (ranging from 1 [*less than a high school diploma*] to 7 [*graduate or professional degree such as master of business administration, master of arts, doctor of medicine, doctorate, etc.*]), gender (0 = male, 1 = female), race (0 = non-White, 1 = White), number of dependents the job-seeker supported financially (not including him- or herself), and occupational category were included because of meta-analytic or other empirical support for these variables being associated with levels of job-search behavior, UI exhaustion, or reemployment speed (Kanfer et al., 2001; Wanberg, Hough, & Song, 2002). Also, although individuals were recently unemployed at Time 1 of the study, some had a longer time period to begin their job search than others. As such, we controlled for the total number of weeks the individual was unemployed at the time of completing the Time 1 survey. Finally, a three-item measure was used in the Time 1 survey to assess perceived financial hardship (Vinokur & Caplan, 1987; Vinokur & Schul, 1997), given that this variable has been shown to be associated with higher job-search behavior and faster reemployment (Kanfer et al., 2001). The items, such as "How difficult is it for you to live on your total household income right now," were answered on 5-point Likert scales ranging from 1 (e.g., *not at all difficult*) to 5 (e.g., *extremely difficult or impossible*). The alpha for this scale was .84.

## Analyses

Prior to the data analyses reported in the results section, mean substitution (Roth, 1994) was used to calculate scale scores for a small percentage of participants who did not complete one or two items on a scale in the Time 1 survey. When data were missing for the variables gender, age, race, or education, MDES database data were used to fill in the accurate values. On average, mean substitution was used for .8% of the Time 1 variables. Individuals completing the phone survey had to complete every item in the survey until the system said "goodbye" for the data to be captured. Accordingly, mean substitution was not needed for the phone survey.

Hypotheses 1–3 were examined through HLM. To examine Hypothesis 1, we used Time 1 core self-evaluation and the control variables to predict individuals' average job-search intensity while unemployed. The analyses for Hypothesis 1 were based on our sample of 903, and involved a total of 5,371 observations of job-search intensity over time. Recall that although the potential number of observations of job-search intensity was 9,030 (903 participants  $\times$  10 time waves), there was attrition due to both nonresponse and reemployment over time. HLM is able to incorporate responses from individuals missing data from some of the time waves. As an example, let us take a person who responded at Times 1, 2, 3, 4, and 6 of the study, then became reemployed by Time 7. For this individual, the HLM analysis for

Hypothesis 1 examined job-search intensity across Time Periods 1–4 and 6 only.

Hypotheses 2 and 3 involved the use of dynamic predictors (i.e., job-search intentions, subjective norms, attitudes, and job-search self-efficacy assessed at each time point) to predict job-search intensity assessed at each wave of our study. This analysis required that individuals respond to two consecutive time waves (e.g., job-search intentions at one time wave were expected to predict job-search intensity at the next time wave). As such, these analyses were based on our sample of 801 with a total of 3,851 survey observations, as there were some individuals in our sample who did not respond to two consecutive surveys. SAS procedure PROC MIXED (Littell, Milliken, Stroup, & Wolfinger, 1996) was used to fit these HLM models.

Hypotheses 4 and 5, regarding reemployment probability and speed, were examined with a proportional-hazard model (Cox, 1972). A proportional-hazard model allows us to predict whether an individual is reemployed at the end of our study as well as to incorporate information on reemployment speed or the exact date of reemployment (Singer & Willett, 2003). Technically, the outcome examined is termed the *event hazard*, because this analytical method is often used to predict the probability and timing of individuals dying from illness. In the current study, our outcome was the *reemployment hazard*, defined as the conditional probability that a job seeker had found a job by a given date, given that the job seeker had not found a job before that date.

## Results

### Descriptives and Trends

Table 1 shows the means, standard deviations, and correlations for the study variables. Correlations among the same variables over the 10 time waves appear in bold. These correlations indicate that levels of the study variables can be predicted reasonably well by responses given 2 weeks previously, but over longer spans of time there is less consistency in levels of job-search intentions, subjective norms, job-search attitudes, job-search self-efficacy, and job-search intensity (e.g., the correlation between job-search intentions at Time 1 and Time 2 was .58 and between Time 1 and Time 10 it was .35).

Table 1 also portrays longitudinal correlations between our predictor variables (job-search intentions, subjective norms, job-search attitudes, and job-search self-efficacy) and job-search intensity at the next time point. For example, the first set of underscored correlations shows the lagged correlations between Time 1 job-search intention and job-search intensity at each of the next nine time points. An examination of these lagged correlations demonstrates our predictor variables at any given Time  $t - 1$  are related to job-search intensity at Time  $t$ , with job-search attitudes being the variable least correlated with job-search intensity.

The correlations between the study variables and reemployment status at the end of our study shown in Table 1 do not take into account reemployment speed (our later analyses account for speed through survival analysis), but suggest only weak effect size relationships between our study variables and reemployment.

Given the longitudinal nature of our data, it is useful for descriptive purposes to illustrate more fully the trends of our repeated measures over time before we test our hypotheses. We examined the following unconditional HLM models without covariates to examine these trends:

Level 1:

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{linear})_{ij} + \beta_{2j}(\text{quadratic})_{ij} + \varepsilon_{ij}.$$

Level 2:

$$\beta_{0j} = \gamma_{00} + \zeta_{0j},$$

$$\beta_{1j} = \gamma_{10} + \zeta_{1j},$$

$$\beta_{2j} = \gamma_{20} + \zeta_{2j}.$$

The Level 1 model, computed for each of our repeated measures, examines within-individual change over time for each repeated measure. Specifically,  $Y_{ij}$  represents repeated measure  $Y$  (e.g., job-search intention, subjective norms, job-search attitudes, job-search self-efficacy, or job-search intensity) for each individual  $j$  in our sample at each Time  $t$  of our study (1, 2, . . . , 10).  $\beta_{0j}$  is the model's intercept, reflecting the expected value of  $Y$  at Time 1.  $\beta_{1j}$  is the model's linear slope, portraying the increase, decrease, or consistency of each  $Y$  over time for each individual.  $\beta_{2j}$ , the quadratic coefficient, examines curvilinear  $Y$  change for each individual (a positive quadratic coefficient indicates a convex-shaped curve of the variable over time). The Level 2 models, also computed for each of our repeated measures, use the Level 1 intercepts and slopes as outcomes and examine the average intercept, linear slope, and quadratic slope across individuals. The first-order autoregressive correlation structure (AR[1]) was assumed in these analyses; models with this specification were optimal in regard to conversion and fit in comparison with correlation structure specifications such as simple or compound symmetry. For the same reasons, AR(1) was used for all the other HLM models.

Table 2 provides the results of these HLM models. The intercept coefficients ( $\gamma_{00}$ ) portray the average estimated Time 1 status on each of the repeated measures for the study participants. The significant variability of the intercepts (Variance column in Table 2) suggest that our participants varied on the initial status of each of our repeated measures, with a particularly high amount of variability in the levels of job-search intensity across individuals.

The slope and quadratic coefficients ( $\gamma_{10}$  and  $\gamma_{20}$ ) portray the average slope and curvilinear change on each of the repeated measures over time for the study participants. Only one quadratic term (for job-search intensity) was significant, the effect size reflecting that the change of job-search intensity across time showed a slight convex trend. The significant variance column indicates further that there was significant variability across individuals in how job search changed over time. The slope results for job-search attitude and job-search self-efficacy reflected a significant negative linear trend over time. For example, job-search attitudes declined an average of .09 points every 2 weeks, with the scale ranging from 2 to 8. The decrease in self-efficacy was slighter, decreasing an average of .03 points every 2 weeks on a scale ranging from 1 to 4. The average slope for job-search intentions and subjective norms was not significantly different from zero, but the significant variance coefficients for these two variables suggest that job-search intentions and subjective norms increased over time for some individuals in the sample and decreased for others.

### Tests of Hypotheses

Hypothesis 1 suggested that higher core self-evaluations assessed at Time 1 would be associated with higher job-search

(text continues on page 420)

Table 1  
Means, Standard Deviations, and Correlations for Study Variables

Correlation	N	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	903	42.70	10.64														
2. Education	903	3.99	1.50	-.05													
3. Gender (0 = male, 1 = female)	903	0.55	0.50	-.09													
4. White (0 = non-White, 1 = White)	903	0.85	0.36	-.01													
5. No. of dependents	903	1.40	1.41	.01	-.02												
6. Duration of unemployment	903	8.33	10.67	.10	.04	-.19											
7. Occupation-clerical/sales <sup>a</sup>	903	0.34	0.47	-.02	-.13	-.04	-.11										
8. Occupation-service	903	0.16	0.32	-.03	-.01	-.10	-.04	-.08									
9. Occupation-other categories	903	0.16	0.37	-.02	-.08	-.11	-.07	-.11	-.04								
10. T1 economic hardship	903	8.13	3.06	-.13	-.09	-.06	-.23	.08	.04	-.27							
11. T1 core self-evaluation	903	43.69	5.70	-.06	.15	-.14	.07	.00	-.08	.02	-.16						
12. T1 job-search intention	903	3.30	0.71	-.11	.07	-.08	-.03	-.03	-.02	-.03	.00	-.30					
13. T2 job-search intention	599	3.27	0.78	-.03	.05	-.05	-.07	.03	-.01	-.02	-.02	.24	.08				
14. T3 job-search intention	600	3.25	0.79	-.02	-.03	-.10	-.10	.10	.00	-.01	-.03	.21	.06				
15. T4 job-search intention	576	3.22	0.79	.01	-.04	-.11	-.07	.03	.02	-.03	.04	.19	.07				
16. T5 job-search intention	549	3.21	0.76	.02	.04	-.11	-.03	.05	.04	-.05	.05	.17	.10				
17. T6 job-search intention	525	3.19	0.85	.03	.05	-.15	-.06	.02	.01	-.05	.00	.16	.06				
18. T7 job-search intention	487	3.20	0.78	.03	.10	-.13	-.08	.02	.07	-.07	-.02	.15	.10				
19. T8 job-search intention	460	3.12	0.83	.01	.12	-.20	-.06	.01	.03	-.07	.03	.20	.10				
20. T9 job-search intention	427	3.11	0.87	.05	.12	-.18	-.05	-.04	.12	-.06	.02	.14	.09				
21. T10 job-search intention	370	3.03	0.88	-.06	.03	-.09	-.11	.05	.03	-.05	-.05	.15	.11				
22. T1 subjective norms	903	3.17	0.79	-.11	.03	-.12	-.12	.05	.02	-.03	.01	.25	.00				
23. T2 subjective norms	599	3.16	0.83	-.09	-.03	-.14	-.08	.12	.07	.01	.02	.23	.05				
24. T3 subjective norms	600	3.15	0.86	-.04	-.04	-.17	-.07	.13	.02	-.06	-.02	.17	.06				
25. T4 subjective norms	576	3.12	0.84	-.04	-.18	-.07	-.07	.05	.02	-.08	.06	.18	.05				
26. T5 subjective norms	549	3.15	0.85	-.03	-.02	-.20	-.04	.12	.03	.02	.04	.17	.09				
27. T6 subjective norms	525	3.08	0.92	.01	-.02	-.24	-.06	.09	-.01	-.01	-.01	.18	.05				
28. T7 subjective norms	487	3.12	0.88	-.01	.09	-.19	-.12	.05	.01	-.05	-.02	.00	.18				
29. T8 subjective norms	460	3.08	0.90	.00	.04	-.10	-.10	.04	.01	-.06	.04	.17	.10				
30. T9 subjective norms	427	3.06	0.88	.03	.09	-.25	-.08	.08	.09	-.07	.01	.20	.07				
31. T10 subjective norms	370	3.02	0.92	-.05	.06	-.16	-.07	.05	.07	-.12	-.04	.15	.13				
32. T1 job-search attitude	903	5.82	1.31	-.01	.04	-.09	-.08	.05	.05	.02	-.04	.46	.25				
33. T2 job-search attitude	599	5.79	1.30	-.03	.00	-.04	-.08	.06	.05	.07	.01	.37	.25				
34. T3 job-search attitude	600	5.62	1.37	.02	.01	-.08	-.01	.02	.02	.02	-.07	.10	.37				
35. T4 job-search attitude	576	5.58	1.41	-.04	.01	-.05	-.06	.05	.04	.05	-.01	.10	.39				
36. T5 job-search attitude	549	5.49	1.44	.02	.01	-.08	-.01	.09	.00	.05	-.04	.16	.32				
37. T6 job-search attitude	525	5.39	1.55	.02	.04	-.11	-.07	.05	.00	.02	-.06	.17	.32				
38. T7 job-search attitude	487	5.30	1.47	.11	.03	-.03	-.03	.01	.01	.05	-.02	.16	.29				
39. T8 job-search attitude	460	5.32	1.50	.02	.02	-.06	-.01	.08	.02	.02	-.03	.12	.27				
40. T9 job-search attitude	427	5.30	1.51	.00	.06	-.01	-.05	.03	.03	.03	-.03	.09	.24				
41. T10 job-search attitude	370	5.18	1.51	-.03	-.05	.02	-.04	.04	.00	.02	-.03	.15	.25				
42. T1 job-search self-efficacy	903	3.09	0.76	-.10	.21	-.13	.00	.02	-.05	-.04	.00	.12	.46				
43. T2 job-search self-efficacy	599	3.05	0.69	-.09	.15	-.14	.07	.02	-.06	.00	-.03	.07	.41				
44. T3 job-search self-efficacy	600	3.04	0.74	.00	.12	-.20	.03	.08	.05	-.06	-.02	.10	.40				
45. T4 job-search self-efficacy	576	3.00	0.72	-.02	.10	-.10	.05	.03	.00	.01	-.02	.13	.38				
46. T5 job-search self-efficacy	549	3.02	0.70	-.03	.09	-.11	.00	.10	.03	-.01	-.08	.15	.33				
47. T6 job-search self-efficacy	525	2.96	0.78	.01	.08	-.17	-.01	.06	.01	-.02	-.02	.16	.36				
48. T7 job-search self-efficacy	487	2.94	0.76	.08	.12	-.09	-.05	.04	-.03	.01	-.05	.19	.31				
49. T8 job-search self-efficacy	460	2.91	0.79	.02	.12	-.16	.02	.07	.00	.02	-.06	.12	.34				
50. T9 job-search self-efficacy	427	2.92	0.77	-.02	.13	-.08	-.02	.01	.02	.03	-.06	.10	.32				
51. T10 job-search self-efficacy	370	2.88	0.74	-.04	.14	-.12	.01	.11	.01	-.03	-.04	.14	.30				
52. T1 job-search intensity	903	38.35	35.30	-.07	.08	-.12	-.02	.07	.11	-.03	-.06	.21	.07				
53. T2 job-search intensity	607	32.62	23.94	-.06	.06	-.15	-.07	.13	.04	-.02	-.01	.27	.07				
54. T3 job-search intensity	612	31.77	25.19	-.05	.01	-.08	-.06	.14	.08	-.04	.02	.21	.09				
55. T4 job-search intensity	591	30.09	22.24	-.01	.05	-.12	-.08	.17	.04	-.06	-.01	.14	.11				
56. T5 job-search intensity	565	29.91	22.44	.01	.05	-.12	-.07	.14	.10	-.07	-.01	.11	.11				
57. T6 job-search intensity	530	29.34	22.85	.00	.08	-.17	-.06	.18	.07	-.07	.02	.12	.08				
58. T7 job-search intensity	498	30.46	26.14	.00	.15	-.15	-.04	.13	.04	-.04	.03	.14	.13				
59. T8 job-search intensity	468	29.96	26.17	.06	.12	-.15	-.04	.16	.07	-.06	.02	.12	.10				
60. T9 job-search intensity	428	29.92	26.53	.04	.15	-.22	-.05	.17	.11	-.07	.02	.11	.12				
61. T10 job-search intensity	376	30.13	25.35	.02	.09	-.16	-.04	.19	.04	-.03	-.03	.10	.09				
62. Reemployment (0 = no, 1 = yes)	903	0.40	0.49	-.15	.02	-.02	.04	.02	-.01	-.04	-.05	.02	.02				

(table continues)





Table 1 (continued)

	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1. Age																	
2. Education																	
3. Gender (0 = male, 1 = female)																	
4. White (0 = non-white, 1 = white)																	
5. Number of dependents																	
6. Duration of unemployment																	
7. Occupation-clerical/sales <sup>a</sup>																	
8. Occupation-service																	
9. Occupation-other categories																	
10. T1 economic hardship																	
11. T1 core self-evaluation																	
12. T1 job-search intention																	
13. T2 job-search intention																	
14. T3 job-search intention																	
15. T4 job-search intention																	
16. T5 job-search intention																	
17. T6 job-search intention																	
18. T7 job-search intention																	
19. T8 job-search intention																	
20. T9 job-search intention																	
21. T10 job-search intention																	
22. T1 subjective norms																	
23. T2 subjective norms																	
24. T3 subjective norms																	
25. T4 subjective norms																	
26. T5 subjective norms																	
27. T6 subjective norms																	
28. T7 subjective norms																	
29. T8 subjective norms																	
30. T9 subjective norms																	
31. T10 subjective norms																	
32. T1 job-search attitude	.58																
33. T2 job-search attitude	.55	.65															
34. T3 job-search attitude	.48	.59	.69														
35. T4 job-search attitude	.53	.57	.62	.68													
36. T5 job-search attitude	.48	.53	.58	.67	.71												
37. T6 job-search attitude	.45	.53	.55	.61	.67	.68											
38. T7 job-search attitude	.43	.48	.60	.63	.64	.66	.70										
39. T8 job-search attitude	.41	.48	.59	.60	.60	.62	.62	.73									
40. T9 job-search attitude	.41	.51	.58	.63	.63	.61	.63	.71	.76								
41. T10 job-search attitude	.55	.43	.43	.37	.34	.31	.26	.27	.24	.32							
42. T1 job-search self-efficacy	.42	.49	.42	.44	.44	.42	.36	.35	.32	.33	.52						
43. T2 job-search self-efficacy	.42	.46	.60	.50	.51	.45	.40	.40	.42	.40	.52	.60					
44. T3 job-search self-efficacy	.39	.43	.52	.62	.52	.47	.47	.43	.48	.47	.43	.58	.64				
45. T4 job-search self-efficacy	.35	.46	.50	.53	.61	.49	.53	.48	.48	.51	.41	.50	.55	.60			
46. T5 job-search self-efficacy	.40	.41	.44	.48	.55	.61	.67	.56	.55	.53	.36	.47	.51	.53	.63		
47. T6 job-search self-efficacy	.37	.40	.44	.51	.55	.50	.50	.53	.52	.53	.36	.51	.51	.59	.61	.68	
48. T7 job-search self-efficacy	.39	.39	.48	.49	.49	.52	.54	.68	.62	.58	.36	.54	.51	.60	.56	.67	
49. T8 job-search self-efficacy	.33	.39	.46	.48	.48	.48	.48	.59	.67	.57	.36	.54	.51	.60	.43	.50	
50. T9 job-search self-efficacy	.11	.12	.10	.10	.10	.04	.08	.07	.05	.01	.17	.23	.23	.18	.19	.17	.11
51. T10 job-search self-efficacy	.09	.13	.11	.10	.09	.04	.01	-.01	-.01	-.07	.19	.20	.20	.16	.11	.03	.01
52. T1 job-search intensity	.15	.18	.13	.09	.09	.07	.09	.06	.05	.03	.15	.21	.19	.20	.17	.08	.05
53. T2 job-search intensity	.16	.17	.15	.20	.15	.14	.16	.12	.10	.09	.22	.22	.23	.22	.20	.16	.16
54. T3 job-search intensity	.18	.18	.14	.16	.12	.14	.14	.12	.13	.08	.20	.22	.22	.23	.22	.21	.17
55. T4 job-search intensity	.15	.11	.08	.07	.06	.07	.07	.02	.07	-.01	.16	.19	.21	.18	.18	.14	.14
56. T5 job-search intensity	.21	.13	.17	.21	.14	.12	.16	.15	.19	.08	.23	.24	.30	.24	.23	.20	.18
57. T6 job-search intensity	.15	.17	.13	.14	.12	.14	.14	.12	.12	.06	.17	.24	.21	.23	.17	.18	.15
58. T7 job-search intensity	.15	.11	.10	.10	.08	.10	.11	.06	.07	.03	.17	.25	.21	.23	.18	.17	.12
59. T8 job-search intensity	.22	.19	.12	.14	.10	.06	.13	.09	.05	.05	.20	.31	.23	.25	.19	.15	.19
60. T9 job-search intensity	.05	.03	.01	.03	.02	.10	.08	-.01	.01	.02	.09	.10	.09	.08	.03	.10	.10
61. T10 job-search intensity																	
62. Reemployment (0 = no, 1 = yes)																	

(table continues)

Table 1 (continued)

Correlation	49	50	51	52	53	54	55	56	57	58	59	60	61	62
50. T9 job-search self-efficacy	<b>.70</b>													
51. T10 job-search self-efficacy	<b>.71</b>	<b>.73</b>												
52. T1 job-search intensity	.16	.00	.11											
53. T2 job-search intensity	.04	.00	.01	<b>.60</b>										
54. T3 job-search intensity	.11	.07	.07	<b>.56</b>	<b>.80</b>									
55. T4 job-search intensity	.19	.12	.16	<b>.51</b>	<b>.75</b>	<b>.81</b>								
56. T5 job-search intensity	.23	.16	.17	<b>.55</b>	<b>.69</b>	<b>.79</b>	<b>.84</b>							
57. T6 job-search intensity	.14	.07	.09	<b>.50</b>	<b>.73</b>	<b>.71</b>	<b>.77</b>	<b>.81</b>						
58. T7 job-search intensity	.24	.20	.24	<b>.54</b>	<b>.75</b>	<b>.74</b>	<b>.77</b>	<b>.75</b>	<b>.82</b>					
59. T8 job-search intensity	.20	.17	.16	<b>.55</b>	<b>.71</b>	<b>.71</b>	<b>.73</b>	<b>.78</b>	<b>.77</b>	<b>.83</b>				
60. T9 job-search intensity	.19	.12	.19	<b>.51</b>	<b>.75</b>	<b>.71</b>	<b>.76</b>	<b>.74</b>	<b>.78</b>	<b>.80</b>	<b>.85</b>			
61. T10 job-search intensity	.19	.12	.16	<b>.54</b>	<b>.73</b>	<b>.69</b>	<b>.75</b>	<b>.75</b>	<b>.79</b>	<b>.82</b>	<b>.82</b>	<b>.84</b>		
62. Reemployment (0 = no, 1 = yes)	.05	.02	.05	.16	.17	.10	.13	.14	.13	.11	.10	.14	.16	

Note. N = 903 for all Time (T) 1 variables and reemployment. Sample sizes for phone survey data vary as shown. Correlations among the same variables over the 10 time waves appear in bold. Underscored sequences portray longitudinal correlations between predictor variables and job-search intensity at the next time point.

<sup>a</sup> Dummy comparison group for occupation is professional, managerial, and technical.

persistence (i.e., higher average job-search intensity over time). We used the following HLM model to test this hypothesis.

Level 1:

$$Y_{ij} = \beta_{0j} + \epsilon_{ij}.$$

Level 2:

$$\beta_{0j} = \gamma_{00} + \sum_{q=1}^{11} \gamma_{0q} X_{qj} + \zeta_{0j},$$

where  $X_{q1}$  to  $X_{q10}$  = control variables and  $X_{q11}$  = core self-evaluations.

In the Level 1 model,  $Y_{ij}$  represents the job-search intensity for individual  $j$  measured at each Time  $t$  (1, 2, . . . , 10). The intercept  $\beta_{0j}$  in this equation can be interpreted as individual  $j$ 's mean job-search intensity over time.<sup>2</sup> The Level 1 intercept was then included as an outcome in the Level 2 analysis, which was a between-subjects model. Essentially, the goal was to examine the extent to which the control variables and the nondynamic predictor core self-evaluations could predict individuals' mean job search over time.

As expected (see Table 3), individuals with higher core self-evaluations demonstrated a higher mean level of job-search intensity over time. The coefficient of .51 for core-self-evaluations suggests that individuals scoring 10 points higher on the core self-evaluation inventory could be expected to report an average of 5.1 more job-search behaviors at each time period. Table 3 further shows that men, individuals with more dependents, individuals in professional, technical, and managerial occupations, and individuals reporting more financial hardship at Time 1 were more likely to show a higher mean level of job-search intensity over time. For example, holding all other variables constant, women engaged in 6.47 fewer job-search behaviors in each 2-week period than did men. Individuals in "other" occupations including machine trades, benchwork, structural work, and agricultural and processing reported 11.40 fewer job-search behaviors in each 2-week period compared with individuals in professional, technical, and managerial occupations.

Hypothesis 2 concerned the relationship between subjective norms, job-search attitude, and job-search self-efficacy at Time  $t - 1$  and job-search intensity at Time  $t$ . Our HLM model to examine this hypothesis was specified as follows.

Level 1:

$$Y_{ij} =$$

$$\beta_{0j} + \beta_{1j}(\text{linear})_{ij} + \beta_{2j}SN_{t-1j} + \beta_{3j}AT_{t-1j} + \beta_{4j}SE_{t-1j} + \epsilon_{ij}.$$

<sup>2</sup> Given our descriptive results where the linear and curvilinear terms for job-search intensity over time were significant, it would be typical for the slope terms to be represented in the Level 1 equations tested for Hypothesis 1 to satisfy model-building consistency and specification purposes. Yet, to most accurately interpret the intercept  $\beta_{0j}$  as individual  $j$ 's mean job-search intensity over time, consistent with our hypothesis, the slope is left out of the equation. We note that we also ran the analyses shown with the slope terms in Equation 1. The results with the slope terms in Equation 1 were nearly identical to those reported in Table 3 and also fully supported Hypothesis 1.

Table 2  
Hierarchical Linear Modeling Descriptive Examination of Intercept and Slope of Repeated Measures

Variable	Intercept $\gamma_{00}$		Slope $\gamma_{10}$		Quadratic $\gamma_{20}$	
	Coefficient	Variance	Coefficient	Variance	Coefficient	Variance
Job-search intention	3.2956**	0.2425**	-0.0149	0.0095*	-0.0007	0.0001
Subjective norms	3.1624**	0.3474**	0.0031	0.0170**	-0.0017	0.0002**
Job-search attitude	5.8341**	0.9056**	-0.0933**	0.0527**	0.0030	0.0005**
Job-search self-efficacy	3.0878**	0.3176**	-0.0253*	0.0261**	0.0005	0.0002**
Job-search intensity	37.4962**	859.76**	-3.0662**	81.6718**	0.2882**	0.6306**

Note.  $N = 903$  with 5,371 total observations over time for job-search intensity, and  $N = 903$  with 5,283 total observations over time for other variables.  
\*  $p < .05$ . \*\*  $p < .01$ .

Level 2:

$$\beta_{0j} = \gamma_{00} + \sum_{q=1}^{11} \gamma_{0q} X_{qj} + \zeta_{0j},$$

where  $X_{q1}$  to  $X_{q10}$  = control variables and  $X_{q11}$  = core self-evaluations.

$$\beta_{1j} = \gamma_{10} + \zeta_{1j},$$

$$\beta_{2j} = \gamma_{20},$$

$$\beta_{3j} = \gamma_{30},$$

$$\beta_{4j} = \gamma_{40}.$$

To reduce the complexity of this repeated-measures model, we did not include the curvilinear term for job-search intensity at

Level 1 because of its small effect size and only slight trend in the descriptive analyses. In the Level 1 model shown,  $Y_{ij}$  represents job-search intensity for participant  $j$  measured at each Time  $t$ .  $SN_{t-1j}$ ,  $AT_{t-1j}$ , and  $SE_{t-1j}$  represent subjective norms, job-search attitudes, and job-search self-efficacy for participant  $j$  measured at each Time  $t - 1$ . We use lagged predictors or the values of subjective norms, job-search attitudes, and job-search self-efficacy at Time  $t - 1$  rather than at Time  $t$ , because the questions in the survey for these predictor variables asked individuals to think about their job search in the next 2 weeks (e.g., “Now think about the person closest to you, such as a spouse, family member, or a good friend. How hard does this person think you should try to find a job in the next 2 weeks?”). In contrast, job-search intensity was reported at each time in regard to the last 2 weeks. This design is optimal, as it allows a separation of the predictors and outcome variables so that the variables assessed at one time

Table 3  
Hierarchical Linear Modeling Model With Controls and Core Self-Evaluation Used to Predict Job-Search Intensity Over Time

Effect	Variable	Coefficient	SE
Fixed	Intercept $\gamma_{00}$	-3.10	8.96
	Age $\gamma_{01}$	-0.07	0.07
	Education $\gamma_{02}$	0.79	0.52
	Gender (0 = male, 1 = female) $\gamma_{03}$	-6.47**	1.59
	White (0 = non-White, 1 = White) $\gamma_{04}$	-0.13	2.17
	No. of dependents $\gamma_{05}$	1.59**	0.54
	T1 unemployment weeks $\gamma_{06}$	0.17*	0.07
	Occupations: clerical and sales $\gamma_{07}^a$	-4.71**	1.79
	Occupations: service $\gamma_{08}$	-6.69**	2.50
	Occupations: other categories $\gamma_{09}$	-11.40**	2.30
	T1 economic hardship $\gamma_{010}$	2.22**	0.26
	T1 core self-evaluation $\gamma_{011}$	0.51**	0.14
Random	Variance of $\epsilon_{ij}$	319.74**	13.02
	Variance of $\zeta_{0j}$	371.20**	24.41
	AR(1)	0.49**	0.02
Model fit	- 2 log likelihood	46434.6	

Note. The first-order autoregressive correlation structure (AR[1]) within-individual correlation structure was assumed.  $N = 903$  with 5,371 total observations over time. T1 = Time 1.

<sup>a</sup> The dummy comparison group for occupation is professional, technical, and managerial.

\*  $p < .05$ . \*\*  $p < .01$ .

point are used to predict job search reported at the next time point.

At Level 2 we assumed that the individuals' intercepts and linear time slope were random but that the other slopes were fixed across individuals.  $\beta_{2j}$  through  $\beta_{4j}$  are our primary interest, as they represent individual slope effects of the dynamic predictors on the job-search intensity outcome over time. Our sample size for this analysis is slightly lower than for our previous analysis because lagged analyses require that individuals respond to at least two consecutive time waves.

Model 1 in Table 4 shows support for Hypothesis 2 regarding subjective norms and self-efficacy but no support for Hypothesis 2 regarding job-search attitudes. Specifically, higher levels of subjective norms and self-efficacy at a given time point were related to higher levels of job search at the next time point. Every 1-point increase in individuals' reports of their significant others' support for their job search in the next 2 weeks was associated with their reporting 1.89 more job-search behaviors in the following time period. Every 1-point increase in job-search self-efficacy in regard to the next 2 weeks was associated with .94 more job-search behaviors reported in the following time period.

Hypothesis 3 suggested that job-search intentions at each time period would mediate the relationship between subjective norms, job-search attitudes, job-search self-efficacy, and job-search intensity at the next time period. To examine these hypotheses, we computed the same HLM model that we had computed for Hy-

pothesis 2 with the addition of job-search intentions as a predictor (specifically, we added an additional term  $\beta_{5j} SE_{t-1j}$  at Level 1 and an additional equation  $\beta_{5j} = \gamma_{50}$  at Level 2). The results, shown in Table 4 under Model 2, portray partial support for Hypothesis 3. Specifically, because subjective norms and self-efficacy are no longer significant predictors when job-search intentions are included in the equation, job-search intentions can be considered as a mediator of the relationship between subjective norms, self-efficacy, and job-search intensity (Baron & Kenny, 1986). The change of the coefficient between Models 1 and 2 is relatively large for subjective norms (66% decrease) compared with the change for self-efficacy (14% decrease), suggesting that subjective norms are more strongly related to job-search intentions than self-efficacy.

We used a proportional-hazards-rate model (Cox, 1972) to examine Hypotheses 4 and 5, which involved the relationship between job-search intensity and reemployment probability and speed (most technically, the reemployment hazard). Our control variables, with the exception of Time 1 week unemployed, were entered as stable covariates in each model tested. Time 1 week unemployed was not used as a control variable because our analysis directly adjusted for left truncation, or the fact that reemployment may have been observed for individuals before the time of entry into the study (Cleves, Gould, & Gutierrez, 2002, p. 35). Model 1 in Table 5 presents the prediction of the reemployment hazard with Time 1 job-search intensity only. Model 2 is a dy-

Table 4  
Hierarchical Linear Modeling Models With Dynamic Variables Used at Time  $t - 1$  to Predict Job-Search Intensity at Time  $t$

Effect	Variable	Model 1		Model 2		
		Coefficient	SE	Coefficient	SE	
<b>Fixed</b>						
Controls and nondynamic covariates	Intercept $\gamma_{00}$	-2.92	8.87	-5.12	8.73	
	Age $\gamma_{01}$	-0.01	0.07	-0.01	0.07	
	Education $\gamma_{02}$	0.55	0.50	0.53	0.50	
	Gender (0 = male, 1 = female) $\gamma_{03}$	-5.99**	1.56	-5.95**	1.53	
	White (0 = non-White, 1 = White) $\gamma_{04}$	-1.64	2.13	-1.53	2.09	
	No. of dependents $\gamma_{05}$	1.79**	0.53	1.84**	0.52	
	T1 unemployment weeks $\gamma_{06}$	0.10	0.07	0.10	0.07	
	Occupations: clerical and sales $\gamma_{07}^a$	-4.25*	1.74	-4.13*	1.71	
	Occupations: service $\gamma_{08}$	-4.78	2.49	-4.62	2.45	
	Occupations: other categories $\gamma_{09}$	-10.20**	2.24	-9.99**	2.21	
	T1 economic hardship $\gamma_{010}$	1.79**	0.26	1.67**	0.25	
	T1 core self-evaluation $\gamma_{011}$	0.35**	0.14	0.33*	0.14	
	Time-dependent covariates	Linear time $\gamma_{10}$	-0.10	0.11	-0.07	0.11
		Subjective norms $\gamma_{20}$	1.89**	0.36	0.64	0.41
		Job-search attitude $\gamma_{30}$	-0.18	0.23	-0.26	0.23
Job-search self-efficacy $\gamma_{40}$		0.94*	0.42	0.81	0.42	
Job-search intention $\gamma_{50}$				2.70**	0.41	
<b>Random</b>						
	Variance of $\epsilon_{ij}$	143.98**	7.95	140.43**	7.43	
	Variance of $\xi_{0j}$	325.03**	24.95	315.71**	24.16	
	Variance of $\zeta_{1j}$	1.15*	0.62	1.15*	0.59	
	AR(1)	0.32**	0.04	0.30**	0.04	
<b>Model fit</b>		- 2 log likelihood		31520.6	31478.2	

Note. The first-order autoregressive correlation structure (AR[1]) within-individual correlation structure was assumed.  $N = 801$  with 3,851 total observations over time. T1 = Time 1.

<sup>a</sup>The dummy comparison group for occupation is professional, technical, and managerial.

\*  $p < .05$ . \*\*  $p < .01$ .



dynamic analysis that involves the prediction of the reemployment hazard at Time *t* with each individual’s average job-search intensity from available responses before that time point. Job-search intensity was predictive of the reemployment hazard in both models supporting Hypothesis 4. Two fit statistics suggest the dynamic model provides a slightly better fit to the data as indicated by Model 2’s higher Wald chi-square and Cox and Snell’s correlation squared (a rough proxy for multiple regression’s correlation squared). However, the similar BIC statistic in Model 2 suggests that Model 2 is not necessarily superior. Thus, Hypothesis 5 is not supported.

The hazard ratio for job search in Model 1 can be interpreted to suggest that the hazard of reemployment is 1% higher every 2 weeks for each additional job-search behavior engaged in at Time 1, with the control variables held constant (Singer & Willett, 2003, p. 527). The hazard ratio for the cumulative average job search in Model 2 is equivalent in effect size, suggesting that the hazard of reemployment is 1% higher every 2 weeks for each additional job-search behavior engaged in on the average prior to that time point, with the control variables held constant. Although these results demonstrate the importance of job search in the reemployment process, a caveat is that the small correlation-squared proxy statistic indicates that job search accounts for only a small percentage of the variance in the reemployment hazard (consistent with the zero-order correlations for reemployment status at the end of the study shown in Table 1). Alternative dynamic models using job-search intensity lagged (instead of averaged) from 2 to 8 weeks prior to observed reemployment produced similar results and effect sizes. Only one other variable was significant in the two equations shown in Table 5. The results for age suggest that the hazard of reemployment is 2% lower for each additional year added to one’s age, with the other variables in the equation held constant.

*Supplementary Analyses*

Although the primary purpose of our study was to examine the predictors and outcomes of changes in overall job-search intensity over time, our data also allow us to examine whether and how the utilization of specific job-search behaviors changes over time. Thus, as a post hoc analysis we also provide some illustrative results about job-search strategy levels and changes over time. We examined the following unconditional HLM models to examine whether individuals differentially engaged in and/or changed over time in their use of the six specific job search methods composing our job-search intensity total including (a) looking for job opportunities in the newspaper, Internet job postings, or other publications; (b) contacting an employment agency or WorkForce Center; (c) networking; (d) sending out a resume or completing a job application; (e) contacting employers; or (f) going on a job interview (see Table 6).

Level 1:

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{linear})_{ij} + \beta_{2j}(\text{quadratic})_{ij} + \epsilon_{ij}.$$

Level 2:

$$\beta_{0j} = \gamma_{00} + \zeta_{0j},$$

$$\beta_{1j} = \gamma_{10} + \zeta_{1j},$$

$$\beta_{2j} = \gamma_{20} + \zeta_{2j}.$$

$Y_{ij}$  represents job-search method *Y* for each participant *j* at each time of our study. Results (see Figure 1) demonstrated that individuals showed a slight but significant convex trend in the following job-search methods over time: looking for job opportunities in the newspaper, Internet job postings, or other publications; networking; sending out a resume or completing a job application; contacting employers; or going on a job interview. Results showed a slight but significant concave trend over time on the job search

Table 5  
*Survival Analyses Predicting Reemployment Hazard*

Variable	Model 1 (T1 job-search only)		Model 2 (cumulative job-search)	
	Hazard ratio	SE	Hazard ratio	SE
Age	0.98**	0.01	0.98**	0.01
Education	1.00	0.04	1.00	0.04
Gender (0 = male, 1 = female)	1.10	0.13	1.10	0.12
White (0 = non-White, 1 = White)	1.30	0.21	1.32	0.21
No. of dependents	1.02	0.04	1.01	0.04
Occupations: clerical and sales <sup>a</sup>	0.85	0.11	0.87	0.11
Occupations: service	0.81	0.15	0.80	0.15
Occupations: other categories	1.02	0.17	1.09	0.18
T1 economic hardship	0.99	0.02	0.99	0.02
Job-search intensity	1.01**	0.00	1.01**	0.00
Wald chi-square test	49.33**		65.59**	
Cox and Snell R <sup>2</sup>	0.05**		0.07**	
BIC	4347.82		4346.35	

Note. *N* = 903 was used for Model 1. *N* = 903 with 7,869 total observations over time for Model 2. T1 = Time 1; BIC = Bayesian information criterion.

<sup>a</sup>The dummy comparison group for occupation is professional, technical, and managerial.

\*\* *p* < .01.

Table 6  
Hierarchical Linear Modeling Descriptive Examination of Intercept and Slope of Repeated Measures

Variable	Intercept $\gamma_{00}$		Slope $\gamma_{10}$		Quadratic $\gamma_{20}$	
	Coefficient	Variance	Coefficient	Variance	Coefficient	Variance
Reading newspaper	12.2222**	104.74**	-0.8668**	11.9596**	0.0845**	0.0937**
Contacting employment agency	2.7034**	4.3952**	0.3407**	0.2161**	-0.0294**	0
Networking	8.9386**	56.5464**	-0.9819**	5.1430**	0.0844**	0.0368**
Sending resumes	7.8458**	99.4068**	-1.1702**	8.3399**	0.1088**	0.0627**
Contacting employers	4.4056**	21.6276**	-0.2047**	1.9118**	0.0220**	0.0179**
Job interviewing	1.2447**	2.9354**	-0.0878**	0.3196**	0.0091**	0.0024**

Note.  $N = 903$  with 5,371 observations over time.  
\*\*  $p < .01$ .

method of contacting employment agency or WorkForce Center. The results portrayed in Figure 1 suggest that reading the newspaper, Internet job postings, or other publications was consistently the most popular job-search method over time, followed by networking and sending out resumes.

Discussion

Contributions to the Literature

Our study, with its 10 waves of data from a large and diverse sample of unemployed individuals, represents an important con-

tribution to a literature that has to date left the dynamic aspects of the job-search experience almost unexplored. Meaningfully, we advance current thinking about the dynamics of job search by conceptualizing the potential roles of core self-evaluations and the theory of planned behavior in the dynamic investigation of job search. Our results depict several interesting findings that can be used in future attempts to develop a dynamic model and understanding of job search.

First, our descriptive findings portray average trends for our variables across time. These results suggest that there are differences across individuals in their job-search intensity trajectories

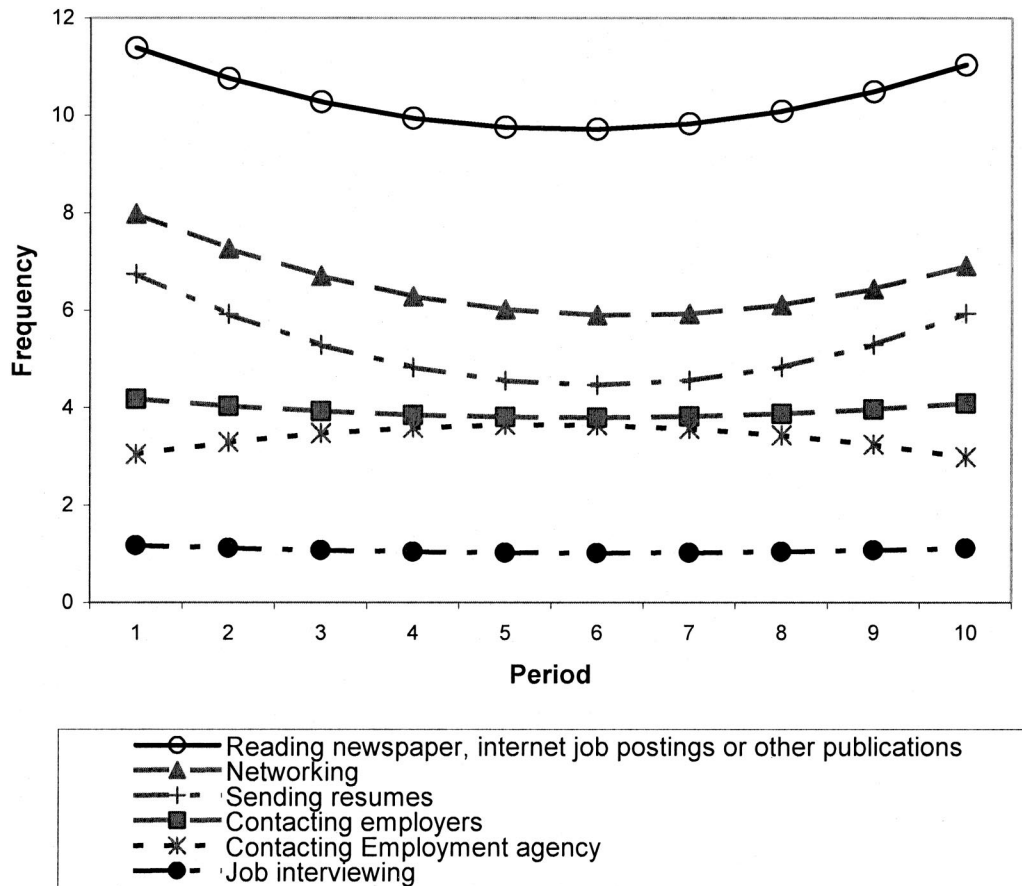


Figure 1. Job-search method levels and changes over time.

over time. On the average, there is a slight convex trend over time for total job-search intensity, suggesting individuals decreased slightly in their job search toward the middle of our study and then increased their levels once again. This supports Barber et al.'s (1994) suggestion that job seekers may begin their job search with a high intensity (e.g., extensive search), decrease their job search after some time because of a need to sort through and await information about current leads (e.g., intensive search), then if unsuccessful, renew their search with higher intensity. In regard to the other variables, we present the intriguing finding that job-search attitudes and self-efficacy evidence a small negative average trend over time, perhaps because of the continued uncertainty involved for unemployed individuals. Although the average trend was negative, results indicated that there is significant variability in the trajectory of these variables across individuals, suggesting that attitudes and self-efficacy may increase for some individuals over time and decrease for others. Future studies examining why job-search attitudes and efficacy decline more for some individuals than for others would be instrumental in helping us to better understand the job-search process.

Second, our study also found that core self-evaluation is related to persistence in job search. Positive self-concept, consisting of higher self-esteem, generalized self-efficacy, perceived control, and emotional stability, seems to help individuals continue to look for a job despite possible rejections along the way. Indeed, it is interesting to contrast the comments of 2 participants who were asked how their job search changed over time in a follow-up survey at the end of the study. One participant, whose Time 1 data indicated a low core self-evaluation, wrote: "Depending on my mood some days are harder than others. It has been a very sad time for me." Another individual with a much higher core self-evaluation score responded that throughout his period of unemployment he "tried hard to set a schedule and focus on my search, remain positive and network, network, network." Our results regarding the role of core self-evaluations in the job search contribute to the growing literature regarding the "power of being positive" (Judge et al., 1998, p.167). We must comment, however, that the effect size of core self-evaluations on job-search persistence was quite small, and control variables such as being in a professional, technical, or managerial occupation and being male were stronger predictors of job-search persistence.

Third, we present the first analysis we are aware of that used dynamic predictors with the dynamic outcome of job-search intensity. This analysis suggests that job-search intentions mediate the relationship between subjective norms and job-search self-efficacy in predicting job-search intensity in the subsequent 2 weeks. In addition to the substantive inferences from these results, our findings also contribute to the literature on the theory of planned behavior. Specifically, our findings demonstrate the utility of this theory in studying behaviors that can change over time. Tests of the theory of planned behavior have typically relied on studies with only one to three time waves, making them unable to investigate the dynamic properties of the theory's components—subjective norms, job attitudes, and perceived behavioral control (in this study, self-efficacy). In a rare exception, Shiffman et al. (2000) examined one of the theory's components, self-efficacy, in a repeated-measures study of smoking cessation. In their study, 214 smokers used palm-top computers to record day-to-day variations in self-efficacy during the 4 weeks after quitting. The

day-to-day dynamics of self-efficacy significantly predicted the progression from first lapse to relapse, even when accounting for baseline self-efficacy. Our application of the theory in a dynamic context included all of the theory's components and illustrated that the theory can help us to understand why individuals may vary in their job-search levels over time.

Our results regarding the relationship between job search and reemployment are also intriguing. Our expectation was that cumulated average job intensity would provide better prediction of the reemployment hazard than Time 1 levels of job search. However, our results suggest that the dynamic model did not substantially improve the model fit or the correlation-squared proxy statistic in comparison to the Time 1 static model. It is possible that this is due to the complexity of studying job search dynamically. For example, individuals may have reduced their job search if they had a reasonable expectation of a forthcoming job offer. Reduced job search due to the expectation of receiving a job offer might be expected to be associated with higher reemployment, whereas reduced search for other reasons would likely be related to lower reemployment. This complexity is not accounted for in our analyses (accounting for actual job offers did not change the finding, and we did not have data on expectation of receiving an offer) and may have been one reason the dynamic model did not outperform the Time 1 model. Future studies should examine the role of reemployment expectations in repeated-measures investigations of the relationship between job search and reemployment. This, too, is complicated because reemployment expectations can signal self-efficacy rather than a real expectation of a forthcoming job offer; thus, measurement of this concept would need to be approached carefully.

Finally, our study provides basic but highly useful information about average levels and changes in job-search methods over time. Results showed that, on the average, reading the newspaper and Internet job postings was the most popular job-search method over time. The trends of specific methods did not support the idea that job seekers decrease their use of formal job-search methods (e.g., looking at job postings, sending out resumes) over time and increase their use of informal sources (e.g., networking, contacting employers; Barber et al., 1994). For example, we observed a convex trend over time for both reading newspapers and the Internet for want ads and networking.

### *Implications*

Given that this is the first study of its kind in this area, strong intervention suggestions based on a solid understanding of the dynamics of job search will have to await further research. This study, however, provides initial information to practitioners about factors related to job-search persistence, helping them to understand what types of individuals are most likely to engage in higher average levels of job-search behavior over time. First, even though the effect sizes involving this variable were small, findings suggest the value of encouraging job seekers to have higher levels of core self-evaluation. Counselors should encourage individuals to believe in themselves (self-esteem); recognize that they are in charge of their job search and that their search activity will eventually pay off (locus of control); reduce anxiety through methods such as exercise, eating right, and the maintenance of support structures (emotional stability); and

retain confidence about dealing with difficult situations (generalized self-efficacy). Caplan et al. (1989) provided some guidance about how to implement job-search intervention efforts that reaffirm the worth of the individual while teaching job-search skills. Although research is needed to confirm this, we expect that individuals with low core self-evaluations would especially benefit from job clubs or support groups that boost individual confidence and help reduce anxiety.

Our findings suggest it would be useful to ask individuals about their job-search intentions, support for job search from important others in their lives, and job-search efficacy at multiple points during the unemployment experience. Individuals with lower intentions may be encouraged to set goals for a higher level of job search, and questions may be asked to examine the reasons behind the low intentions. Individuals with lower subjective norms could be advised to ask friends and family to support and encourage them in their job search. A brochure might also be made available to give to the significant others of job seekers to help them to understand the job-search experience. For example, family members might not realize that looking for a job needs to be a full-time endeavor and that the unemployed individual does not have time to remodel the basement, clean the house, mow the lawn, pay the bills, do the laundry, walk the dog, run errands, and care for the children while engaging in a high-quality job search. Although individuals who are unemployed are not exempt from household chores and responsibilities, it is possible that significant others may underestimate the amount of effort that a job search takes and believe that the unemployed person has a lot of free time available. Furthermore, the importance of encouragement and involvement of significant others in a successful job search could be communicated. We envision that as we learn more about the dynamics of job search, we may learn to ask individuals certain "trigger" questions about their intentions, subjective norms, or job-search confidence on a regular basis when they are completing their routine UI requests. Individuals who are having problems may be encouraged to seek the assistance of an employment counselor or to visit special Web sites.

Finally, our examination of the average trend in job-search methods across individuals suggests that midway through our research period, many behaviors dropped off slightly in frequency of use. Future research is needed to both replicate this finding and to learn more about *why* job-search frequency drops off slightly at this time point. Currently, the finding suggests that it would be valuable to contact individuals still unemployed after approximately 3 months to remind them about job search tools and techniques available to them. Job-search manuals given to individuals at the start of their unemployment experience could also note that there is a tendency for job-search behavior to drop off after some time and tell individuals to try to keep up a high level of intensity in their search when this begins to happen.

### *Limitations and Future Studies*

We acknowledge several important limitations to the current study. First, although we conceptualize job-search intentions, subjective norms, job-search attitudes, and job-search self-efficacy as time-varying predictors of job search, there is a need for future studies to explore the extent to which these predictor variables may

be reciprocally influenced by job-search levels. For example, looking for a job especially hard may lead to increases in job-search self-efficacy, attitudes, and subjective norms in addition to the reverse relationship that we conceptualize (i.e., our outcome variable may also be conceptualized as a predictor variable). Further, the outcomes of job-search behaviors (such as a successful interview) may influence variables (e.g., attitudes and efficacy) in the next time period.

Second, although a strong point of this study is our large sample of recently unemployed individuals from multiple WorkForce Centers, we were not able to track these individuals from the very start of their unemployment. An optimal study design would commence the examination of job search at the first day of unemployment. Although we controlled for individuals' length of unemployment at Time 1 of the study, it is possible that some individuals were not included in the study because they were reemployed before our study began. This issue is one of left censoring, often faced in the turnover literature when investigators attempt to predict turnover of employees after they have already been at risk for turnover (Peters & Sheridan, 1988). The left-censoring problem is a difficult one to resolve in the unemployment literature, as it is not easy to access large, representative samples of unemployed individuals from the very start of their job search. Even within student samples (e.g., Barber et al., 1994; Saks & Ashforth, 2000) this is an issue that is difficult to avoid because some students find jobs early in their senior year, before others have yet begun looking. We also acknowledge that although our sample is diverse with respect to many background characteristics such as age, occupation, gender, and education, Minnesota is not an ethnically diverse state, and we were unable to closely examine the role of ethnicity in the job search in this study (e.g., race was coded simply, as non-White vs. White).

Another limitation of our study is that the scales that were used to measure job-search attitudes, subjective norms, self-efficacy, and intentions were limited to one or two items, with four response options per item. A greater number of items and a larger set of response options may have increased the potential variability of these variables and influenced results. The options and number of items were shortened to adapt to the automated telephone survey methodology used in this study. We believed that introducing more items and options would have made the phone survey more cumbersome and confusing, which in turn would have decreased our response rate. In any repeated-measures study, the number of items the researcher can ask the participant to complete without risking increased attrition is a difficult trade-off. One way future studies may be able to incorporate longer measures in a repeated-measures context is by increasing the incentives provided to participants (e.g., greater than our \$20 incentive per participant). Future studies may also want to consider incorporating measures of job-search intensity from sources other than the participant.

Repeated-measures assessment is expensive, challenging, and time consuming (Ancona, Goodman, Lawrence, & Tushman, 2001). Among the many challenges is avoiding excessive participant attrition. Despite strong response rates to our phone survey (e.g., ranging from 62% to 76%) and despite having reemployment data for all participants (100%), the small percentage of nonresponses from individuals still eligible to be in the study (i.e., those still unemployed) was undesirable. Although HLM allows data to be missing from specific time waves, the missing data led to fewer



observations in our lagged analyses, which required that individuals respond to two consecutive surveys. We believe that future dynamic research should make valiant attempts to get individuals to respond to every survey wave. A special issue relevant to our study is the additional attrition of individuals who became reemployed during our study. Because our study focuses on job search during unemployment, however, we do not expect that this issue hampers our conclusions. Even if we had used another methodology to capture reemployed individuals' responses, the nature of the questions about job search and job-search attitudes would be largely inapplicable to most individuals, excepting those still searching for different jobs. However, it is important for future studies to consider this issue carefully in designing the study. If the variable being assessed over time is wholly applicable to both the unemployed and reemployed (e.g., mental health), the study should use a methodology that allows the tracking of individuals after reemployment.

Last, it might be noted that we did not directly include dynamic measures of environmental factors (such as the unemployment rate over time) in our models. Behavioral theories (e.g., ecological psychology proposed by Lewin, 1936) have long suggested that an individual's behavioral change is the outcome of both individual and environment factors and of their interactions. It is possible that an individual's job-search behavior will be influenced by the economic climate and some major economic events in the community, such as mass layoffs. In the current study, we only included attitudinal and perceptual variables on the basis of the premise of the theory of planned behavior that those variables are sufficient in predicting behavior and that external variables will influence behavior through those variables. Monthly unemployment and mass layoff data (Minnesota Department of Employment & Economic Development, 2004b, 2004c, 2004d) suggest that the state economy was stable during the research period (the last two quarters of 2002). In addition, we included occupation dummy variables with the intention of capturing labor market differences in different occupations. Thus, omitting indices of the macroeconomic environment is unlikely to be a significant threat to our model of job search in the current study. Nevertheless, it is still promising for future studies to incorporate repeated measures of external factors in a model of job-search behavioral change and to consider other possible omitted variables that may be important.

In summary, we view this study as a preliminary but important step in the dynamic understanding of the job-search experience. There are unlimited future research directions. We have much left to learn about how job search changes over time, what other variables predict persistence in job search, and why individuals take time off during their job search. For example, it is possible that we can differentiate the costs of taking time off during the search to carefully reflect on one's reemployment goals versus taking time off to have fun. Conventional job-search measures do not measure cognitive aspects of job search—this is an avenue that should be explored in future research. The examination of the role of job search over time in understanding reemployment speed can similarly become more complex by incorporating moderators and additional measures (including reemployment expectation) and by examining not only reemployment speed but also other measures of search success (cf. Brasher & Chen, 1999).

The dynamics of job search can also be studied from other theoretical perspectives. Although job-search intensity has most

often been studied from a motivational framework or with variables relevant to the job seeker's motives, job search has also been described and examined from a decision-making perspective (Soelberg, 1967) and from a broader coping perspective (Kinicki & Latack, 1990). For example, unlike our focus on the dynamics of job-search intensity, work by Soelberg (1967) might be used to guide examinations of the dynamics of job choice and phases in the job search, such as identifying job preferences, planning one's job search, screening alternatives, and confirming one's decision. Work by Kinicki and Latack (1990) might be used to examine changes and interrelations among various coping strategies used by unemployed job seekers over time, including not only job-search intensity but also job devaluation and distancing from the job loss. Qualitative research (cf. Stevens, Tirnauer, & Turban, 1997) may be an alternative methodology to supplement the current research strategy aimed at examining the dynamics of job search.

Finally, there is also a need for a comprehensive review that outlines different theoretical perspectives of job search, one that culminates in a model of the dynamics of job search. There are many articles that will be highly informative in such endeavors (see, e.g., Barber et al., 1994; McFadyen & Thomas, 1997; Power & Aldag, 1985; Schwab, Rynes, & Aldag, 1987; Soelberg, 1967; Stevens, 1998). It is expected that both empirical and theoretical advances in the dynamic understanding of job search and unemployment will enhance the literature's ability to be applied to interventions for unemployed individuals.

### Conclusion

This study provides a wealth of initial information about dynamic aspects of job search. Yet, we have much left to learn about how job search changes over time and about the broader dynamic experience of unemployment. While acknowledging the strong challenges, expense, and amount of work involved in conducting research involving more than two or three time waves, we hope that future studies will extend our current effort and help to build a strong, dynamic understanding of the experience of unemployment.

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(Appendix follows)

## Appendix

## Text for Repeated Measures (Automated Telephone Survey)

You have completed the TELECLAIM process. Please stay on the line for the Back to Work survey. *(Pause)*

Your responses to the following survey are for the University of Minnesota only and will NOT be provided to the Minnesota Department of Economic Security. Your responses will *not* affect your eligibility for benefits.

You may find it helpful to follow along with the phone survey questions using the card in your Back to Work folder. *(Pause)*

First, we would like to ask you about your job search in the last two weeks.

1. How many times have you contacted an employment agency or WorkForce Center in the last two weeks? *Please enter the number of times, followed by the pound sign.*
2. About how many times have you read the newspaper, internet job postings, or other publications for job opportunities in the last two weeks? *Please enter the number of times followed by the pound sign.*
3. About how many times have you talked to friends, family, or people you know to get information about jobs in the last two weeks? *Please enter the number of times followed by the pound sign.*
4. How many times have you sent out a resume or completed a job application in the last two weeks? *Please enter the number of times followed by the pound sign.*
5. How many times have you telephoned or contacted potential employers in the last two weeks? *Please enter the number of times followed by the pound sign.*
6. How many times have you gone for a job interview in the last two weeks? *Please enter the number of times followed by the pound sign.*
7. Altogether, how many hours would you say you spent on your job search in the last two weeks? *Please enter the number of hours followed by the pound sign.*
8. Did you receive a job offer in the last two weeks? Press 1 if yes, press 2 if no.  
 [If yes, branch to:]  
 Did you accept this job offer? Press 1 if yes, press 2 if no.  
 [If yes, branch to:]  
 Do you plan to continue your job search? [If no, go to goodbye statement. If yes, continue with item 9.]  
 We are done asking you about your job search in the *last* two weeks and would now like to know about your job search in the *next* two weeks. Please answer the following questions with respect to the next two weeks.
9. In some weeks, people plan to work harder on their job search than in others. In the next two weeks, how hard do you intend to try to find a job?  

1	2	3	4
Not hard at all	Not too hard	Fairly hard	Very hard
10. Now think about the person closest to you, such as a spouse, family member, or a good friend. How hard does this person think you should try to find a job in the next two weeks?  

1	2	3	4
Not hard at all	Not too hard	Fairly hard	Very hard
11. Your attitude about your job search may vary from week to week. How would you best describe your attitude toward your job search?  

1	2	3	4
Very negative	Somewhat negative	Somewhat positive	Very positive
12. When you think about your job search, how does it make you feel?  

1	2	3	4
Very bad	Somewhat bad	Somewhat good	Very good
13. How confident are you about being able to conduct your job search well?  

1	2	3	4
Not at all confident	Slightly confident	Fairly confident	Very confident

***Thank you for your participation. If you have questions about the Back to Work Project, please contact [Connie R. Wanberg and phone number]. If you have questions about your unemployment insurance or would like assistance in your job search, please contact your Workforce Center.***

*Note.* Individuals were told if they did not understand a question or would like it repeated, it would be repeated after 7 seconds of nonresponse. Individuals who received a job offer, accepted that job offer, and reported they did not intend to complete their job search completed items 1–8 but did not continue with items 9–13.

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