

Future Work Selves: How Salient Hoped-For Identities Motivate Proactive Career Behaviors

Karoline Strauss
University of Sheffield

Mark A. Griffin and Sharon K. Parker
University of Western Australia

The term *future work self* refers to an individual's representation of himself or herself in the future that reflects his or her hopes and aspirations in relation to work. The clearer and more accessible this representation, the more salient the future work self. An initial study with 2 samples ($N = 397$; $N = 103$) showed that future work self salience was distinct from established career concepts and positively related to individuals' proactive career behavior. A follow-up longitudinal analysis, Study 2 ($N = 53$), demonstrated that future work self salience had a lagged effect on proactive career behavior. In Study 3 ($N = 233$), we considered the role of elaboration, a further attribute of a future work self, and showed that elaboration motivated proactive career behavior only when future work self salience was also high. Together the studies suggest the power of future work selves as a motivational resource for proactive career behavior.

Keywords: future work self, possible selves, proactive behavior, careers, identity salience

The future is not a result of choices among alternative paths offered by the present, but a place that is created—created first in the mind and will, created next in activity. The future is not some place we are going to, but one we are creating. The paths are not to be found, but made, and the activity of making them changes both the maker and the destination.

—John Homer Schaar

Historically, individuals' career management and development were considered to be the employer's responsibility. However, the changing nature of employment has led to a shift in responsibility from employers to employees (Hall & Mirvis, 1995). Careers are becoming discontinuous and "boundaryless" (Arthur & Rousseau, 1996), with more frequent periods of career transition and uncertainty. For example, people more often move between firms rather than remain in stable jobs (Pfeffer & Baron, 1988). As career paths become less prescribed, individuals need to play an increasingly active role in ensuring their employability throughout the course of their career (Fugate, Kinicki, & Ashforth, 2004) and in achieving jobs and careers in line with their values and current and future needs (Ashford & Black, 1996; Dawis & Lofquist, 1984; Rousseau, Ho, & Greenberg, 2006).

The rise of nonlinear careers has led scholars to pay greater attention to how individuals actively shape their own career future (Seibert, Kraimer, & Crant, 2001; Tharenou & Terry, 1998). Acknowledging the active role individuals play in organizations breaks with the traditional conceptualization of employees as "passive, reactive respondents to their context" (Parker, Bindl, & Strauss, 2010, p. 828) and is part of a broader recognition of the importance of individuals' proactivity in the workplace (for reviews, see Bindl & Parker, 2010; Crant, 2000; Frese & Fay, 2001; Grant & Ashford, 2008; Parker et al., 2010). Examples of ways in which individuals can proactively manage their future careers include exploring options, setting goals, developing skills and abilities, and accumulating experiences that will ensure their future employability (Claes & Ruiz-Quintanilla, 1998). Such proactive career behaviors have been shown to influence important individual-level career outcomes, such as promotions and career satisfaction (Seibert, Crant, & Kraimer, 1999; Seibert et al., 2001) and, for those involved in job search, obtaining employment (Brown, Cober, Kane, Levy, & Shalhopp, 2006; Saks & Ashforth, 1999).

The greater demands on individuals to manage their own careers mean that it is increasingly important to understand how and why people choose to engage in proactive career behaviors such as building new networks or actively seeking out career advice. Understanding what motivates such behaviors is important because these behaviors often have uncertain outcomes and can involve image risks (Ashford, Blatt, & VandeWalle, 2003; Miller & Jablin, 1991) or ego risks (Ashford & Cummings, 1983). Proactive career behaviors also require individuals to prioritize future outcomes over short-term benefits (Parker & Collins, 2009) and thus can be hard to justify in the present. For example, developing skills not required in one's current job can feel costly in the short term.

We introduce the concept of the future work self to better understand the motivation of proactive career behaviors. Drawing

This article was published Online First November 28, 2011.

Karoline Strauss, Institute of Work Psychology, University of Sheffield, Sheffield, United Kingdom; Mark A. Griffin, School of Psychology, University of Western Australia, Crawley, Australia; Sharon K. Parker, University of Western Australia Business School, University of Western Australia.

This article is based on Karoline Strauss' doctoral dissertation, completed under the guidance of Mark Griffin and Sharon Parker. We are grateful to Adam Grant, Otilia Obodaru, and Heather Vough for their useful comments on an earlier draft of this paper.

Correspondence concerning this article should be addressed to Karoline Strauss, Institute of Work Psychology, University of Sheffield, Mushroom Lane, Sheffield S10 2TN, United Kingdom. E-mail: k.strauss@sheffield.ac.uk

on research concerning “possible selves” (Markus & Nurius, 1986), we define future work selves as representations of the self in the future that encapsulate individually significant hopes and aspirations in relation to work. Future work selves provide an essential link between self-concept and behavior and function as incentives for future behavior in relation to work (Markus & Nurius, 1986). Like other possible selves, future work selves are components of the dynamic self-system (Markus & Wurf, 1987); they become relevant to individuals’ motivation and behavior when they are an active part of individuals’ self-concept (Hoyle & Sherrill, 2006; Markus & Nurius, 1986). Thus, we focus on the salience of the future work self, which we propose is the quality that determines its activation in the self-concept and hence its effect on behavior. Future work self salience is the degree to which the future work self is clear and easy to imagine for a person. We also propose that the degree of elaboration of a future work self further influences its motivational power. An elaborate future work self is complex and contains multiple elements, which we suggest generates openness to relevant information and feedback, thereby prompting greater proactive career behavior.

Future Work Selves and the Importance of Salience

Future work selves are based on the concept of hoped for possible selves, which are cognitive representations of who individuals hope to become in the future (Markus & Nurius, 1986). Like other possible selves, future work selves are components of the dynamic self-system, a constantly changing combination of self-schemas or identities that influences self-regulation and guides affect, information processing, and behavior (Hoyle & Sherrill, 2006; Markus & Wurf, 1987). In contrast to the more general concept of possible selves, future work selves are explicitly future focused, positive, and specific to work. We explain each of these distinctive features next.

We propose that future work selves are future-oriented possible selves. Not all possible selves are explicitly focused on the future or on who an individual hopes to become. Possible selves can also refer to selves we believe we could or should be now (Higgins, 1998; Ibarra, 1999). As we argue below, the explicit future-orientation of future work selves enables individuals to take risks and set more ambitious goals. Future work selves potentially stretch individuals’ aspirations and broaden their creative thinking about future possibilities, which better equips them to proactively shape their career.

In their original conceptualization of possible selves Markus and Nurius (1986) distinguished between positive, “hoped for” future selves and negative, feared future selves. We define future work selves to be positive for two reasons. First, we expect positive future work selves to be more prevalent and more salient than feared future selves because individuals have the desire to create and maintain positive identities at work (Ashforth, 2001). Previous research has found feared possible selves to be considerably less prevalent than hoped for possible selves (Cross & Markus, 1991; Markus & Nurius, 1986). Second, our conceptualization of future work selves reflects the importance of positive reference values in self-regulation. Self-regulation based on negative reference values such as feared future selves has been suggested to be inherently unstable and relatively rare (Carver & Scheier, 1981, 1990). Striving to avoid becoming one’s negative future self may lead to low

perceptions of goal progress and is likely associated with feelings of threat, worry, and anxiety (Elliot, Sheldon, & Church, 1997). Negative future work selves are less likely than positive future work selves to keep the individual focused in a specific direction (Elliot et al., 1997) and may thus be less effective in regulating behavior.

The concept of a future work self is more specific than that of a hoped for possible self because it explicitly concerns the future self in the domain of work. Possible selves tend to be domain specific and affect behavior in the area of individuals’ lives to which they are linked. For example, salient academic possible selves have been shown to be associated with higher levels of academic initiative, higher test scores, and improved grades (Oyserman, Bybee, & Terry, 2006). Salient health-related possible selves in older women were linked to higher compliance with cancer screening guidelines (Black, Stein, & Loveland-Cherry, 2001). Salient smoking-related possible selves have been found to be associated with more defensive reactions to antismoking messages (Freeman, Hennessy, & Marzullo, 2001). In line with previous research the future work self is thus proposed as a possible self specific to the context of work.

Although most people are likely to hold a future work self, or are able to construct one, not all future work selves are a motivational resource. Previous research shows that individuals are able to describe a range of specific possible selves when instructed to, even if they have not given much previous thought to these possible selves (King & Rospin, 2004; King & Smith, 2004). Thus, most people are likely to hold a future work self, or are able to construct one, but these representations are unlikely to be equally motivating. We argue that salience is a key characteristic that is likely to make future work selves effective in motivating proactive career behaviors.

A future work self that is salient is one in which the image of the hoped for future self is clear and easy to imagine for a person. Salient identities are of high subjective importance in identifying or defining the self and are of high situational relevance (Ashforth, 2001). They are chronically accessible, that is, they are easily accessible in a person’s memory and thus frequently become activated in the working self-concept, the “continually active, shifting array of accessible self-knowledge” (Markus & Wurf, 1987, p. 306). Activated, salient possible selves organize and energize individuals’ behavior aimed at bringing them about (Leonardi, Syngollitou, & Kiosseoglou, 1998). Like other mental constructs, identities can become chronically accessible if they are activated and used frequently (Bargh, 1982; Higgins, King, & Mavin, 1982; Srull & Wyer, 1986). The salience of future work selves thus develops over time as individuals think about their hopes and aspirations for their future, observe role models (Ibarra, 1999), and consider who they might become.

The Motivational Role of Future Work Self Salience

Salient future work selves provide a motivational resource for individuals. Oyserman and Markus (1990) argued that possible selves constitute “motivational resources that individuals can use in the control and direction of their own actions” (p. 122). They motivate self-directed behaviors aimed at change and self-development (Hoyle & Sherrill, 2006; Markus & Nurius, 1986). By capturing an image of an individual’s hoped for future working

life, a salient future work self provides a “compass” for individuals (Fugate et al., 2004) as they navigate through the fog of multiple career trajectories and enables them to align their job and their career with their values.

Salient future work selves are a motivational resource because they support the process through which self-set goals are defined and help to generate strategies to maintain striving toward these goals. We draw on three theoretical perspectives that help show how future work selves create goals and motivate goal striving.

First, self-regulation theory suggests that by creating a discrepancy between the current self and the ideal future self, future work selves that are salient motivate anticipatory and future-oriented behavior and enable people to work toward an imagined future. As a cognitive representation of the ideal future, future work selves convert possible future events into current goals. This form of forethought is a core component of human agency. As Bandura (2001) argued, in “this form of anticipatory self-guidance, behavior is motivated and directed by projected goals and anticipated outcomes rather than being pulled by an unrealized future state” (p. 7). When individuals compare their future work self with their current self, they identify discrepancies that form the basis of self-directed behavior to bring about their desired future. Through creating discrepancies between the present and the future, future work selves thus provide a mechanism through which individuals shape their careers in accordance with their values and priorities.

A second theoretical perspective derives from theory concerning the role of possible selves in identity construction (Dunkel, 2000; Dunkel & Anthis, 2001). Future work selves allow individuals a more playful and exploratory approach to their self-definition (Ibarra, 1999, 2007). Future selves (and other possible selves) are the elements of the self-concept that are likely to be most flexible and adaptable. Individuals have considerable freedom to define and redefine their future selves (Cross & Markus, 1991). Thus, future work selves potentially stretch individuals’ aspirations and broaden their creative thinking about future possibilities. Salient future work selves thus create discrepancies that lead individuals to actively strive for their best possible future in line with their values rather than focus on what others expect them to do or what a safe option might be.

The third explanatory process for the impact of salient future work selves relates to research on future-oriented cognitive processes (e.g., Gilbert & Wilson, 2007; Suddendorf, 2006; Suddendorf & Corballis, 2007). Positive possible selves facilitate the identification of future requirements through mental simulation of the desired future (Kosslyn, 1987). This mental simulation enables individuals to envision possibilities and generate plans to realize these possibilities (Taylor, Pham, Rivkin, & Armor, 1998). This process is facilitated by episodic prospection or “episodic future thinking,” which refers to the “projection of the self into the future to pre-experience an event” (Atance & O’Neill, 2001, p. 533; see also Suddendorf & Corballis, 1997). The episodic future thinking involved in contemplating one’s future work self is likely to make predictions of the future more accurate, for example, by making individuals more aware of situational constraints (Atance & O’Neill, 2001). As a basis for mental simulation, a future work self that is salient enables, for example, the identification of incongruities between a person’s present abilities and the demands he or she anticipates in his or her hoped for future (cf. Edwards, 1996). By comparison of present skills and abilities with anticipated future

demands, gaps can be identified, which can motivate future-oriented behaviors such as proactive skill development, the acquisition of skills and knowledge required in the future, and proactive feedback seeking.

In summary, a salient future work self generates a motivating discrepancy, enables the exploration of new possibilities, and invokes mental simulation of the future. In so doing, a salient future work self can motivate behaviors that might otherwise be hard to justify in the present, such as developing skills not required in one’s current job. Importantly, the future work self must be salient to influence motivation because it has to be activated in the memory to direct attention to relevant situations. Information and behavior related to a salient future work self will be more easily learned, and the meanings attached to it will be more readily acted out (Linville, 1987; Markus, 1977; Markus & Zajonc, 1985).

Future Work Self Salience and Its Distinctiveness From Related Career Concepts

Salient future work selves are related to but distinct from existing career concepts. One of the most important concepts in the career literature is career identity, which forms part of the multi-dimensional construct of career commitment (Carson & Bedeian, 1994). In its original conceptualization, career commitment is defined as “one’s attitude toward one’s profession or vocation” (Blau, 1985, p. 278; cf. Carson & Bedeian, 1994). Career commitment is characterized by “the development of personal goals, the attachment to, identification with, and involvement in those goals” (Colarelli & Bishop, 1990, p. 159). Career commitment can prompt career-related behaviors because it directs a person’s effort toward a particular set of career goals (Bhagat & London, 1999). Career identity is a particularly relevant dimension of career commitment that more specifically refers to the degree to which “one defines oneself by work” (London & Noe, 1997, p. 62). Career identity has been shown to relate to active career behaviors (London, 1998; McArdle, Waters, Briscoe, & Hall, 2007). It is important to distinguish future work self salience from the career identity dimension of career commitment because both concepts are concerned with identity.

Future work self salience is distinct from career commitment and, more specifically, from career identity because is not confined to the current job or profession (e.g., Blau, 1985, 1988). Related concepts such as work commitment (Dubin & Champoux, 1975) are distinct from future work self salience in that they emphasize a person’s current experience of commitment, whereas salient future work selves are explicitly focused on the future. They capture individuals’ identification with imagined future working lives; they provide an image of who the individual will become that is discrepant from the present. As we have elaborated above, this discrepancy created by the explicit future focus of a salient future work self enables an orientation toward change and thus the motivation of proactive career behaviors.

Future work selves are also distinct from specific motivational career concepts, such as career aspirations. Career aspirations reflect the desire to advance within one’s career (O’Brien, 1996). Although future work selves can capture ideas of career advancement, they are not restricted to formal career progression. A salient future work self might involve images of macro role transitions, such as transitions between different organizational, professional,

or occupational roles (Louis, 1980). Yet a salient future work self goes beyond being motivated to advance one's career and further contributes to proactive career behavior by tying an individual's self to the desired future.

Previous research on career management has incorporated a number of future-oriented concepts in addition to the above career concepts. The dominant focus has been individuals' general orientation toward the future (Jepsen, 1974; Super, 1974). For example, the concept of future orientation refers to an individual's tendency to consider the future rather than the immediate outcomes and reflects how much the individual is able to delay gratification into the future (Strathman, Gleicher, Boninger, & Edwards, 1994). Research shows that general future orientations predict career-related outcomes, such as career decision making (e.g., Diemer & Blustein, 2007; Marko & Savickas, 1998; Savickas, Silling, & Schwartz, 1984), career development (Marko & Savickas, 1998), and proactive career behaviors (Parker & Collins, 2009). However, a general future orientation is distinct from a salient future work self, which is more specifically focused on one's future work representations. We expect that future work self salience not only orients individuals toward the future but also prompts "personalized" career planning (Meara, Day, Chalk, & Phelps, 1995, p. 259; see also Markus & Ruvolo, 1989) by involving the self into career-related goals.

In sum, future work selves are distinct from career commitment, career aspirations, and future orientation, although these constructs include some overlapping features. Because these concepts have already been linked to career outcomes, it is important to show that future work self salience not only is distinct but also predicts variance in proactive career behavior beyond these established antecedents. Because salient future work selves play a unique role in discrepancy creation and mental simulation, as elaborated above, we propose the following:

Hypothesis 1: Future work self salience is factorially distinct from career commitment, career aspirations, and future orientation.

Hypothesis 2: Future work self salience is related to proactive career behavior after controlling for career commitment, career aspirations, and future orientation.

Future Work Self Elaboration

Elaboration is another attribute of future work selves and refers to the degree of detail and complexity in their cognitive representation. Elaboration can be inferred from the description (or narrative) of the self (King & Raspin, 2004; King & Smith, 2004). More elaborated identities have a larger and more diverse range of features (Rosenberg, 1988, 1997; Rosenberg & Gara, 1985). Elaboration is similar to the concept of cognitive complexity, or the number of units in a cognitive structure (Stryker & Serpe, 1994). Elaboration and salience are related but distinct characteristics of future work selves: "[A] narrative can be filled with rich detail—a person may construct (or reconstruct) a quite elaborate description of her life in the future—without having thought about it very much for quite some time" (King & Raspin, 2004, p. 605).

Future work self elaboration is an additional motivational resource that can influence proactive career behavior. This argument

is based on self-complexity theory (Linville, 1982, 1985), which proposes that if a person's self-knowledge contains only a small number of elements, the person's overall self-appraisal is more vulnerable to negative feedback regarding these elements. Niedenthal, Setterlund, and Wherry (1992) demonstrated that this principle also applies to possible selves. They showed that individuals with more complex possible self systems showed less intensive affective reactions to feedback regarding their future goals. Those who had elaborate possible selves that were complex and contained a range of different elements were less affected by negative feedback. The degree of elaboration of future work selves thus determines how individuals react to feedback from their environment regarding these future selves. Stein (1994) showed that individuals whose selves lack complexity reject threatening information regarding elements of their self but those with elaborate, complex selves are able to attend to this information. People with less elaborate future work selves are thus more likely to ignore information that contradicts their future work selves and less likely to seek out advice or additional information on how to bring about their future work selves. They will be less inclined to plan for contingencies. In contrast, those with an elaborate future work self can take in and consider information that threatens their future work self.¹

We propose that elaboration will influence proactive career behaviors only if the future work self is salient. If an individual's future work self is an activated and clear aspect of the self-concept, elaboration acts to strengthen its influence on proactive behavior. Unless a future work self is an activated part of the self-concept, it is unlikely to drive present behavior (Markus & Wurf, 1987). The strategies of proactive career behavior require an individual to be alert for relevant situational cues and to actively process career-relevant information.

The hypothesis is as follows:

Hypothesis 3: Future work self salience and elaboration interact to predict proactive behaviors. Specifically, future work self elaboration is positively associated with proactive career behavior only when future work self salience is high.

Method

We conducted three studies to investigate the relationship between future work self characteristics and individuals' proactive career behaviors.

In Study 1, we investigated the distinctiveness of future work self salience relative to related career and future concepts, as well as its incremental validity in predicting proactive career behaviors (Hypothesis 1, 2). Study 1 has two parts. In an initial sample of full-time employees (Study 1a), we considered future work self salience over and above career commitment and future orientation. In Study 1b, we replicated the findings of Study 1a in a sample of doctoral students using shorter versions of our measures focusing only on the key variables. In Study 2, using a subsample from Study 3, we present a longitudinal test of the predictive power of future work self salience over time (Hypothesis 2). In Study 3, we

¹ This idea is consistent with research demonstrating that different identity statuses (see Marcia, 1966) are associated with different identity processing orientations (Berzonsky, 1988, 1989, 1992).

explored the role of elaboration and investigated whether it interacts with salience to predict proactive career behaviors (Hypothesis 3).

Studies 1b, 2, and 3 were conducted with samples of doctoral students because proactive career behavior is an important part of an impending career transition. By developing their skills and networks, gaining the experiences needed in their future employments, and planning for the next steps in their career, doctoral students lay the groundwork for their subsequent employability in highly competitive labor markets. In addition, doctoral students are a prototypical example of today's knowledge workers, typically being more committed to their field of research and their community of peers than to a specific organization (Keller, 1997). Doctoral students thus have the potential to provide an insight into the behavior of knowledge workers across a variety of careers (Page, 1998).

Study 1

Study 1a Method

Procedure and participants. We recruited participants through Qualtrics, a private research software company that provides an online recruiting system with access to panelists in different countries who have previously agreed to be contacted to participate in surveys. We recruited only panelists based in the United States for this study. A random sample of participants drawn from a pool of over fifty thousand eligible panelists was sent an e-mail invitation to participate in a survey being conducted as part of an independent research project on how people think about their career and their future entitled "Thinking about your future." Participants were offered an incentive of \$2.25 for filling in the survey, which took 10 min to complete. The final sample consisted of 397 participants in full-time employment. Participants worked in a range of occupations, such as managerial professions, administration and support, health and safety, engineering and design, and retail and wholesale. The mean age was 42.7 years ($SD = 11.1$), and the mean tenure in the current job was 8.8 years ($SD = 7.9$). On average, participants worked 41.9 hr per week ($SD = 7.6$). Of participants, 49.9% were female.

Measures. Unless stated otherwise, we used 5-point scales for the measures described below, with scale anchors ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Future work self salience ($\alpha = .92$). Participants were asked to mentally travel into the future and to imagine the future work self they hoped to become. To allow participants to identify the future work self that is most salient to them, we did not specify a particular time period. Keeping this mental image in mind, participants then rated the salience of the future work self they imagined. Items were adapted from King and colleagues' (King & Patterson, 2000; King & Raspin, 2004; King & Smith, 2004) measure of salience of possible selves, which consists of three items assessing the salience of the imagined scenario. King and colleagues reported reliabilities ranging from .65 to .83 for salience ratings of currently held possible selves in the three studies cited above. Showing the validity of their measure, which they predicted would relate positively to individuals' subjective well-being and personal development, salience of possible selves was consistently related to higher subjective well-being in samples of gay adults (King &

Smith, 2004), divorced women (King & Raspin, 2004), and parents of a child with Down syndrome (King & Patterson, 2000). We adapted the format of these items and changed one item slightly to more directly reflect individuals' future work self. The items were "I can easily imagine my Future Work Self," "The mental picture of this future is very clear," and "This future is very easy for me to imagine." To improve the internal reliability of the measure by King and colleagues we included two additional items, which were "I am very clear about who and what I want to become in my future work" and "What type of future I want in relation to my work is very clear in my mind."

Future orientation ($\alpha = .81$). Future orientation was assessed with the Consideration of Future Consequences Scale developed by Strathman et al. (1994). The Consideration of Future Consequences Scale has been shown to have two underlying dimensions: concern with immediate consequences and concern with future consequences (Joireman, Balliet, Sprott, Spangenberg, & Schultz, 2008; Petrocelli, 2003). We used the five items of the scale that assess concern with future consequences. An example item is "I consider how things might be in the future, and try to influence those things with my day-to-day behavior." We included an additional item ("The decisions I make today are based on what I think might happen in the future") to ensure complete coverage of the concept.

Career identity. Our approach to measuring career identity was twofold. First, we assessed career identity using Carson and Bedeian's (1994) four-item career identity subscale of their career commitment measure. The career identity subscale assesses the centrality of one's career to a person's self-definition. An example item is "Having a career in my field is an important part of who I am." We opted not to use the career planning and career resilience dimensions of Carson and Bedeian's (1994) measure of career commitment. The career planning dimension focused on behavior that we were concerned overlapped with our dependent variable (e.g., "I have created a plan for my development in this line of work/career field"). The career resilience dimension goes beyond the centrality of one's career to one's self. An example item from this subscale is "Given the problems I encounter in this line of work/career field, I sometimes wonder if I get enough out of it." We were concerned this dimension picks up problems and difficulties encountered in one's career, as well as questions of career commitment. Thus, this dimension goes beyond identification with one's career, which was what we primarily wanted to distinguish from future work self salience. We refer to the assessment of the four career identity items as *career identity (commitment)* ($\alpha = .84$). Second we assessed the centrality of individuals' career relative to other competing areas of their life (Lobel, 1991). We assessed this concept with the five-item Career Identity Salience Scale developed by Lobel and St. Clair (1992; see also Smith Major, Klein, & Erhart, 2002). Four items were rated on a 5-point Likert scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). An example item is "The major satisfactions in my life come from my job." The fifth item requires participants to select the response that most describes them and their day-to-day priorities. Answer categories are "I am primarily a family person," "I am a family and career person but lean a bit more towards family," "I am a career and family person," "I am a career and family person but lean a bit more towards career," and "I am primarily a

career person.” We refer to this assessment as *career identity (salience)* ($\alpha = .76$).

Career aspirations ($\alpha = .77$). Career aspirations were assessed with the scale developed by O’Brien (1996). The Career Aspirations Scale assesses a person’s drive for success and accomplishment in his or her chosen field. It has two underlying dimensions, leadership and achievement aspirations and educational aspirations. An example item is “I hope to move up through any organization or business I work in.” Following recommendations by Gray and O’Brien (2007), we used an eight-item version of the scale. The scale anchors of the 5-point scale ranged from 1 (*Not at all true for me*) to 5 (*Very true for me*).

Proactive career behavior ($\alpha = .92$). Proactive career behavior was operationalized by combining 12 items from Bachman, O’Maley, and Johnston (1978) and Penley and Gould (1981). These items have previously been combined by Claes and Ruiz-Quintanilla (1998) to form a measure of proactive career behavior. Four types of proactive career behavior were assessed. Proactive skill development was assessed with three items from Penley and Gould (1981). Networking was assessed with two items from Penley and Gould, supplemented by an additional new item so that each proactive career behavior would be assessed with a minimum of three items. Career consultation and career planning were assessed with three and four items, respectively, taken from Bachman et al. (1978). Items were reworded to reflect present rather than past behavior (e.g., “I have made my supervisor aware of my work aspirations and goals” was reworded to “I make my supervisor aware of my work aspirations and goals.”) Confirmatory factor analyses in Mplus (Muthén & Muthén, 2004) with maximum likelihood estimation showed that a five-factor structure in which factors representing the four subscales were specified to load onto a higher order proactive career behavior factor provided a reasonable fit to the data, $\chi^2(61) = 311.47$, comparative fit index (CFI) = .91, root-mean-square error of approximation (RMSEA) = .10, standardized root mean square residual (SRMR) = .07, which was superior to a one-factor model, $\chi^2(65) = 944.06$, CFI = .70, RMSEA = .18, SRMR = .09; $\Delta\chi^2(4) = 632.59$. Factor loadings are shown in the Appendix.

Demographics. Demographic variables collected included participants’ age, gender, occupation, working hours, and tenure in the current job.

Study 1a Results and Discussion

To assess the distinction between future work self salience and other career-related measures (Hypothesis 1), we tested the factor structure of the measures using the two-stage process proposed by Gerbing and Hamilton (1996; see also Hurley et al., 1997). This process involves dividing the sample randomly in half and, in the first step, conducting an exploratory factor analysis to identify the underlying factor structure of the data. In the second step, a confirmatory factor analysis is conducted on the remaining sample to cross-validate the factor structure obtained in the exploratory factor analysis. We used SPSS 18 to randomly split the sample in half and perform an exploratory factor analysis with principle axes extraction and varimax rotation on one half of the sample. The exploratory factor analysis revealed a seven-factor solution that corresponded with following proposed factors: future work self salience, future orientation, career identity (commitment), and two

factors each reflecting career identity (salience) and career aspirations. The eigenvalues for the seven factors were 6.34, 2.58, 2.17, 1.79, 1.10, 3.31 and 1.48. This factor structure supported the distinctiveness of the future work self salience scale (all five items loaded on this factor with loadings less than .40 on any other factor), but several items from the other scales did not load cleanly on their designated factor. In particular, two items of the career identity (salience) scale and three items of the career aspirations scale showed loadings smaller than .40 on their designated factor or cross-loadings larger than .40. These items were excluded from the subsequent analyses, resulting in a five-factor solution with only one factor reflecting career aspirations and career commitment (salience), respectively. Item loadings were all above .60, and no cross-loadings were above .30.

To cross-validate this factor structure we then used Mplus (Muthén & Muthén, 2004) to conduct a confirmatory factor analysis (CFA) with maximum likelihood estimation on the remaining items using the other half of the sample, as recommended by Gerbing and Hamilton (1996). This five-factor CFA model showed an adequate fit to the data, $\chi^2(220) = 469.26$, CFI = .90, RMSEA = .07, SRMS = .08. In this model all factor loadings were above .49. Item loadings are shown in Table 1.

Using the full sample, we then conducted a series of confirmatory factor analyses using Mplus (Muthén & Muthén, 2004) with maximum likelihood estimation to assess the discriminant validity of the constructs. The results are shown in Table 2. We first estimated a five-factor model treating future work self salience, career identity (commitment), career identity (salience), future orientation, and career aspiration as separate constructs. This model provided a reasonably good fit to the data, $\chi^2(220) = 530.42$, CFI = .93, RMSEA = .06, SRMR = .06, and a significantly better fit than other models. These included a one-factor model, $\Delta\chi^2(10) = 2,228.41$, $p < .05$; a two-factor model with future work self salience items loading onto the first factor and career identity (commitment), career identity (salience), future orientation, and career aspiration items loading onto the second factor, $\Delta\chi^2(9) = 1,487.95$, $p < .05$; a two-factor model with future work self salience and career identity (commitment) items loading onto the first factor and career identity (salience), future orientation, and career aspiration items loading onto the second factor, $\Delta\chi^2(9) = 1,680.43$, $p < .05$; and a two-factor model with future work self salience and future orientation items loading onto the first factor and career identity (commitment), career identity (salience), and career aspiration items loading onto the second factor, $\Delta\chi^2(9) = 1,454.36$, $p < .05$. There was also a three-factor model with future work self salience and future orientation items each loading on one factor and career aspiration, career identity (commitment), and career identity (salience) items loading onto the third factor, $\Delta\chi^2(7) = 1,055.81$, $p < .05$; and there was a four-factor model with future work self salience, future orientation, and career aspiration items each loading onto one factor and career identity (commitment) and career identity (salience) items loading onto the fourth factor, $\Delta\chi^2(4) = 471.87$, $p < .05$. We concluded that future work self salience, future orientation, career identity (commitment), career identity (salience), and career aspirations were distinct factors. This provided support for Hypothesis 1.

Means, standard deviations, and zero-order correlations of the study variables are shown in Table 3. Future work self salience was significantly correlated with future orientation ($r = .42$, $p <$

Table 1
Item Loadings for Five-Factor Model (Study 1a)

Item	FWS salience	Future orientation	Career identity (commitment)	Career identity (salience)	Career aspirations
This future is very easy for me to imagine.	.90				
The mental picture of this future is very clear.	.89				
I can easily imagine my Future Work Self.	.88				
I am very clear about who and what I want to become in my future work.	.78				
What type of future I want in relation to my work is very clear in my mind.	.75				
I consider how things might be in the future, and try to influence those things with my day-to-day behavior.		.60			
Often I engage in a particular behavior in order to achieve outcomes that may not result for many years.		.68			
I am willing to sacrifice my immediate happiness or well-being in order to achieve future outcomes.		.58			
I think it is important to take warnings about negative outcomes seriously even if the negative outcome will not occur for many years.		.50			
I think it is more important to perform a behavior with important distant consequences than a behavior with less-important immediate consequences.		.58			
The decisions I make today are based on what I think might happen in the future.		.72			
Having a career in my field is an important part of who I am.			.85		
This career field has a great deal of personal meaning to me.			.89		
I strongly identify with my chosen career line.			.84		
I do not feel "emotionally attached" to this career field. (recoded)			.59		
The major satisfactions in my life come from my family. (recoded)				.86	
The most important things that happen to me involve my family. (recoded)				.95	
Select the response which best describes you and your day-to-day priorities. ("I am primarily a career person" to "I am primarily a family person")				.56	
I hope to become a leader in my career field.					.78
When I am established in my career, I would like to manage other employees.					.83
When I am established in my career, I would like to train others.					.67
I hope to move up through any organization or business I work in.					.75
I think I would like to pursue graduate training in my occupational area of interest.					.56

Note. FWS = future work self.

.001), career identity (commitment) ($r = .32, p < .001$), and career aspirations ($r = .24, p < .001$) but not with career identity (salience) ($r = -.02, p = .77$). Consistent with Hypothesis 2, future work self salience was positively correlated with proactive career behavior ($r = .41, p < .001$), as were future orientation, career identity (commitment), and career aspirations ($r = .58, p < .001$; $r = .44, p < .001$, and $r = .57, p < .001$, respectively). Career identity (salience) unexpectedly showed a small negative correlation with proactive career behavior ($r = -.10, p < .05$) and was not significantly related to the other study variables.

To test the incremental validity of future work self salience (Hypothesis 2), we conducted hierarchical regression analyses (see Table 4). We considered age and job tenure to be potential confounds and added them as control variables in our analyses. Age is a potential confound because of age-related differences in future-oriented motivation (e.g., Nurmi, 1992). High job tenure may indicate limited job mobility (e.g., Ellemers, de Gilder, & van den Heuvel, 1998; Greenhaus, Parasuraman, & Wormley, 1990; Ng, Eby, Sorensen, & Feldman, 2005) and may thus be associated with low future work self

salience as well as low levels of proactive career behavior, constituting a further potential confound. Consistent with the hypothesis, future work self salience was significantly related to self-rated proactive career behavior ($\beta = .11, p < .01$), after controlling for age, job tenure, future orientation, career identity (commitment), career identity (salience), and career aspirations.

Due to the deletion of two items based on the exploratory factor analysis, the career identity (salience) scale primarily captured the centrality of family life to a person's self-definition. The centrality of the family role relative to the career role to a person's self-definition was not significantly related to the other study variables. This measure was not included in the studies reported below.

Having provided initial support for Hypotheses 1 and 2, we sought to replicate these findings among the sample of doctoral

² We present Study 1a first to provide a clear justification for the shortened versions of the measures used in Studies 1b, 2, and 3. However, this study occurred later in the chronology.

Table 2
Model Comparison for Confirmatory Factor Analyses (Study 1a)

Model	χ^2	df	CFI	RMSEA	SRMR
Five-factor model	530.42	220	.93	.06	.06
Two-factor model ^a	2,018.37	229	.60	.14	.12
Two-factor model ^b	2,210.85	229	.55	.15	.15
Two-factor model ^c	1,984.78	229	.60	.14	.13
Three-factor model ^d	1,586.23	227	.69	.12	.11
Four-factor model ^e	1,002.29	224	.82	.09	.08
One-factor model	2,758.83	230	.43	.17	.15

Note. *df* = degrees of freedom; CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root mean square residual.

^a Future work self salience items loading onto the first factor; career identity (commitment), career identity (salience), future orientation, and career aspiration items loading onto the second factor. ^b Future work self salience items and career identity (commitment) items loading onto the first factor; career identity (salience), future orientation, and career aspiration items loading onto the second factor. ^c Future work self salience items and future orientation items loading onto the first factor; career identity (commitment), career identity (salience), and career aspiration items loading onto the second factor. ^d Future work self salience and future orientation items each loading on one factor; career aspiration, career identity (commitment), and career identity (salience) items loading onto the third factor. ^e Future work self salience, future orientation, and career aspiration items each loading onto one factor; career identity (commitment) and career identity (salience) items loading onto the fourth factor.

students (Study 1b). This is the context of the subsequent studies in which we more rigorously tested Hypothesis 2 (Study 2) and Hypothesis 3 (Study 3).²

Study 1b Method

Procedure and participants. Data were collected from a sample of 103 doctoral students at a leading Australian university who participated in a web survey following an e-mail invitation. Of those responding, 52.9% were female and 80.4% were in the first, second, or third year of their degree.³ Participants were between 21 and 60 years old.

Measures. We used 5-point scales for all measures described below, with scale anchors ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Future work self salience ($\alpha = .89$). As in Study 1a, participants were asked to mentally travel into the future and, keeping the mental image of their future self in mind, rate the salience of the future work self they imagined. The three items with the highest factor loadings in Study 1a were retained. These items had been adapted from King and colleagues' (King & Patterson, 2000; King & Raspin, 2004; King & Smith, 2004) measure of salience of possible selves. Table 5 shows the factor loadings for these items in a CFA analysis of all independent variables in the study.

Future orientation ($\alpha = .72$). Future orientation was assessed with two items from the Consideration of Future Consequences Scale by Strathman et al. (1994) that showed the highest factor loadings in Joireman et al. (2008). We included an additional item, "I consider how things might be in the future, and try to influence those things with my day-to-day behavior."

Career identity (commitment) ($\alpha = .81$). We used the three items capturing career identity from Carson and Bedeian's Career

Commitment Scale that showed the highest factor loadings in the original study by Carson and Bedeian (1994). These items also show the highest factor loadings in Study 1a. An example item is "Having a career in my field is an important part of who I am."

Proactive career behavior ($\alpha = .89$). Proactive career behavior was measured with the same scale as described in Study 1a, with one minor adjustment. We dropped the item with the lowest factor loading assessing career planning in Study 1a (see the Appendix), so that each type of proactive career behavior was assessed with three items.

Demographics. Demographic variables collected included participants' age, gender, and year of study.

Study 1b Results and Discussion

To assess the discriminant validity of the constructs, we conducted a series of confirmatory factor analyses using Mplus (Muthén & Muthén, 2004) with maximum likelihood estimation, as in Study 1a. The results are shown in Table 6.

We first estimated a three-factor model treating future work self salience, career identity (commitment), and future orientation as separate constructs. This model provided a reasonably good fit to the data, $\chi^2(24) = 46.85$, CFI = .94, RMSEA = .10, SRMR = .07, and a significantly better fit than other models. These models included a one-factor model, $\Delta\chi^2(3) = 169.45$, $p < .05$; a two-factor model with future work self salience items loading onto the first factor and career identity (commitment) and future orientation items loading onto the second factor, $\Delta\chi^2(2) = 43.35$, $p < .05$; a two-factor model with future work self salience and career identity (commitment) items loading onto the first factor and future orientation items loading onto the second factor, $\Delta\chi^2(2) = 172.22$, $p < .05$; and a two-factor model with future work self salience and future orientation items loading onto the first factor and career identity (commitment) items loading onto the second factor, $\Delta\chi^2(2) = 73.23$, $p < .05$. Future work self salience, career identity (commitment), and future orientation appear to be distinct factors. Item loadings are shown in Table 5.

Means, standard deviations, and zero-order correlations of the study variables are shown in Table 7. For theoretical reasons, age and the year of study were included in the analyses as control variables. Age is a potential confound because more mature students may perceive future time in their career as limited (Nurmi, 1992). They are thus likely to have less salient future work selves and may take less action to shape their future career. Year of study may also potentially have confounding effects, because as doctoral students progress in their studies their future work self is likely to become more salient (for example, through increased exposure to role models). They are also likely to increasingly engage in proactive career behaviors as their job search becomes more imminent. Future work self salience was significantly correlated with future orientation ($r = .31$, $p < .01$), although it did not significantly correlate with career identity (commitment) ($r = .09$, $p = .39$). Future work self salience was significantly correlated with proactive career behavior ($r = .31$, $p < .01$), as were career

³ Doctoral programs in Australia usually require a minimum of 3 years. The mean time to completion across a cross-section of universities is just under 4 years (Bourke, Holbrook, Lovat, & Farley, 2004).

Table 3
Means, Standard Deviations, and Zero-Order Correlations (Study 1a)

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
1. Age	42.67	11.06	—								
2. Gender	1.50	0.50	.06	—							
3. Tenure in current job	8.79	7.92	.37***	-.01	—						
4. Weekly working hours	41.88	7.63	.09	-.07	.00	—					
5. Career identity (commitment)	3.61	0.87	.11*	.02	.10	.05	—				
6. Future orientation	3.63	0.61	-.01	-.01	.02	.09	.24***	—			
7. Future work self salience	3.78	0.83	.09	-.00	.03	.09	.32***	.42***	—		
8. Career identity (salience)	1.97	0.82	-.07	-.05	-.06	-.01	.06	-.09	-.02	—	
9. Career aspirations	3.18	1.00	-.31***	-.08	-.09	.06	.32***	.26***	.24***	-.01	—
10. Proactive career behavior	3.51	0.68	-.14**	.00	-.05	.08	.44***	.58***	.41***	-.10*	.57***

Note. *N* = 370–397.

* $p < .05$. ** $p < .01$. *** $p < .001$.

identity (commitment) and future orientation ($r = .48, p < .001$; $r = .69, p < .001$, respectively).

To test the incremental validity of future work self salience, we conducted hierarchical regression analyses (see Table 8). Consistent with Hypothesis 2, future work self salience was significantly related to self-rated proactive career behavior ($\beta = .15, p < .05$), after controlling for career identity (commitment) and future orientation, as well as age and year of study.

In sum, like Study 1a, Study 1b provides evidence of the distinctiveness of future work self salience from related career concepts, as well as some initial support for the link between the salience of future work selves and individuals' efforts to proactively shape their future career.

Study 2

The cross-sectional findings of Studies 1a and 1b provide initial support for the relationship between future work self salience and proactive career behavior. In Study 2 we tested this relationship more rigorously by employing a two-wave longitudinal design.

Study 2 Method

Procedure and participants. Data were collected from a sample of 53 doctoral students at a large, research-intensive university in England who participated in a web survey at Time 1 and 6 months later at Time 2. This time frame was appropriate because there was sufficient time for individuals to display change in their level of proactive behavior (see, e.g., Kossek, Roberts, Fisher, & Demarr, 1998). An e-mail invitation was sent to all doctoral students registered at the university at the time via a centrally managed e-mail distribution list. Some students might not have received the e-mail (e.g., it went to their spam box), so we cannot be precise about the final response rate. Assuming that all doctoral students registered at the university at the time of the study were successfully contacted, our sample represents 14% of all students. The present study is based on participants who responded at both time points. Of the respondents, 69.8% were female. Participants were between 21 and 61 years old. The majority of respondents (77.4%) were in the first, second, or third year of their doctoral degree.⁴

We compared participants in the longitudinal sample to participants who responded only at Time 1 on key study variables. Relative to participants in the cross-sectional sample, participants in the longitudinal sample reported higher levels of future work self salience, $F(1, 313) = 7.79, p < .01$. Differences in proactive career behaviors were not significant. The potential bias of this longitudinal sample is discussed as a limitation below.

Measures. We used 5-point scales for all measures described below, with scale anchors ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The measures for future orientation (Time 1: $\alpha = .83$; Time 2: $\alpha = .72$) and career identity (commitment) (Time 1: $\alpha = .88$; Time 2: $\alpha = .88$) were the same as those used in Study 1b. However, because the longitudinal design increased the demand on participants, we used shorter scales for future work self salience and proactive career behavior.

Future work self salience (Time 1: $\alpha = .87$; Time 2: $\alpha = .84$). As in Study 2, participants were asked to mentally travel into the future and to imagine their hoped for future self. Keeping this mental image in mind, participants then rated the mental clarity and accessibility of the future work self they imagined. We used the two items adapted from King and Smith's (2004) measure of salience of possible selves that showed the highest factor loadings in Study 1b. The two items were "The mental picture of this future is very clear" and "This future is very easy for me to imagine."

Proactive career behavior (Time 1: $\alpha = .85$; Time 2: $\alpha = .80$). Proactive career behavior was measured with the three items with the highest factor loadings assessing career planning adopted from Penley and Gould (1981), which we used in the previous studies.

Demographics. Demographic variables collected included participants' age, gender, and year of study.

⁴ Doctorates in the United Kingdom usually take a minimum of 3 years. Average time-to-completion rates vary by funding body. Eighty percent of research council-funded students, who make up around 30% of doctoral students, finish within 4 years of study. (Higher Education Funding Council for England, 2005). For the remaining 70% of students, completion times are likely to be longer (Powell & Green, 2007).

Table 4
Hierarchical Regression Analysis Predicting Proactive Career Behavior (Study 1a)

Variable	Step 1		Step 2		Step 3	
	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>
Age	-.14	-2.82**	-.04	-1.08	-.06	-1.40
Job tenure	.00	0.02	-.04	-0.99	-.04	-0.94
Future orientation			.43	11.72***	.39	9.97***
Career identity (commitment)			.24	6.35***	.23	5.86***
Career identity (salience)			-.07	-2.06*	-.08	-2.24*
Career aspirations			.34	8.51***	.33	8.27***
Future work self salience					.11	2.74**
R^2		.02		.56		.57
ΔR^2 step				.54***		.01**
<i>F</i>		3.61*		77.63***		68.82***

Note. *N* = 370.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Study 2 Results and Discussion

Means, standard deviations, and zero-order correlations of the study variables are shown in Table 9. The zero-order correlations between future work self salience and proactive career behavior were significant at Time 1 ($r = .38, p < .01$), and at Time 2 ($r = .40, p < .01$). Although there was a significant zero-order correlation between Time 1 future work self salience and proactive career behavior at Time 2 ($r = .39, p < .01$), Time 1 proactive career behavior was not significantly correlated with future work self salience assessed at Time 2.

To test Hypothesis 2, we conducted a hierarchical regression analysis with proactive career behavior at Time 2 as the dependent variable. As in Study 1b, we controlled for age and the year of study for theoretical reasons. Age and year of study were entered in Step 1, proactive career behavior assessed at Time 1 was entered in Step 2, and career identity (commitment) at Time 1 and future orientation at Time 1 were entered in Step 3, before future work self salience at Time 1 was entered in the final step. The results are shown in Table 10. As predicted, future work self salience at Time 1 significantly predicted proactive career behavior at Time 2 ($\beta = .31, p < .05$), after controlling for proactive career behavior at Time 1 and after controlling for Time 1 career identity (commitment) and future orientation.

Hypothesis 2 was thus supported with a more rigorous study design that included change over time in proactive career behavior. A test for a lagged effect of proactive career behavior on future work self salience was not significant ($\beta = -.06, p = .71$).

This longitudinal finding provides support for the idea that salient future work selves form the basis of proactive career behavior. Moreover, it suggests the power of future work self salience in promoting later proactive career behavior over and above career identity (commitment) and future orientation. Neither career identity (commitment) nor future orientation had lagged effects on proactive career behavior.

Study 3

Thus far, we have provided support for our hypotheses regarding the motivating power of future work self salience, but we have not considered the role of elaboration. In this study, we investigated whether and how future work self salience and elaboration interact to predict proactive career behaviors, while controlling for career identity (commitment) and future orientation.

Table 5
Item Loadings for Three-Factor Model (Study 1b)

Item	Future work self salience	Career identity (commitment)	Future orientation
I can easily imagine my Future Work Self.	.78		
The mental picture of this future is very clear.	.90		
This future is very easy for me to imagine.	.87		
Having a career in my field is an important part of who I am.		.73	
This career field has a great deal of personal meaning to me.		.78	
I strongly identify with my chosen career line.		.79	
I consider how things might be in the future, and try to influence those things with my day-to-day behavior.			.68
Often I engage in a particular behavior in order to achieve outcomes that may not result for many years.			.67
The decisions I make today are based on what I think might happen in the future.			.70

This document is copyrighted by the American Psychological Association or one of its allied publishers. This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

Table 6
Model Comparison for Confirmatory Factor Analyses (Study 1b)

Model	χ^2	df	CFI	RMSEA	SRMR
Three-factor model	46.85	24	.94	.10	.07
Two-factor model ^a	90.20	26	.83	.16	.11
Two-factor model ^b	219.07	26	.48	.27	.19
Two-factor model ^c	120.08	26	.75	.19	.17
One-factor model	216.30	27	.37	.29	.21

Note. *df* = degrees of freedom; CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root mean square residual.

^a Future work self salience items loading onto the first factor; career identity (commitment) and future orientation items loading onto the second factor. ^b Future work self salience items and career identity (commitment) items loading onto the first factor; future orientation items loading onto the second factor. ^c Future work self salience items and future orientation items loading onto the first factor; career identity (commitment) items loading onto the second factor.

Study 3 Method

Procedure and participants. Study 3 was based on data collected at Time 1 of Study 2. This sample was the larger cross-sectional sample, consisting of 233 doctoral students. Of the respondents, 59.4% were female. Participants were between 21 and 61 years old. The majority of respondents (75.2%) were in the first, second, or third year of their degree.

Measures. The measures for future orientation ($\alpha = .78$), career identity (commitment) ($\alpha = .89$), and proactive career behavior ($\alpha = .86$) were the same as in Study 1b. We again used 5-point scales, with scale anchors ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Demographics. Demographic variables collected included participants' age, gender, and year of study.

Future work self salience ($r = .77$). As in Study 2, participants also rated the mental clarity and accessibility of their future work self with the two items that showed the highest factor loadings in Study 1b. As above we used 5-point scales, with scale anchors ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Future work self elaboration. Participants wrote a short description of their future work self. They wrote this narrative after being asked to mentally travel into the future and to imagine their future work self and rating the salience of this image. Examples of future work self narratives high and low in elaboration are shown below. A similar procedure has been used to collect narratives of

individuals' life goals (King & Smith, 2004). The narratives in our study were on average 60 words long ($SD = 40.44$), ranging from 1 to 364 words.

The narratives were then independently rated with regard to their degree of elaboration by two industrial and organizational psychology graduates who were trained as raters using data from a pilot study. As described above, elaboration refers to the complexity of the future work self narrative. Elaboration was assessed as a single dimension and rated on a 5-point scale ranging from 1 (*not at all elaborate*) to 5 (*very elaborate*). Narratives were coded as high in elaboration if they covered a variety of different elements of the future work self. Elements could focus exclusively on a person's working life or also take more general aspects into account. This dimension goes beyond how detailed the narrative is, with future work self narratives containing information on more different elements of the future self—such as the type of job the future self will have or the type of person the future self will be—being rated as more elaborate. This is consistent with Rosenberg's conceptualization of elaborate identities as being those with a larger and more diverse range of features (Rosenberg, 1988, 1997; Rosenberg & Gara, 1985). Raters were blind to levels of participants' future work self salience and proactive career behavior.

As proposed by Hayes and Krippendorff (2007), we used Krippendorff's alpha as a measure of interrater reliability (Krippendorff, 1970, 2004). As opposed to many other measures of interrater reliability, Krippendorff's alpha reliability accounts for chance agreement and calculates disagreements instead of correcting percentage agreements (for a discussion of different indices of interrater reliability, see, e.g., Hayes & Krippendorff, 2007; Lombard, Snyder-Duch, and Campanella Bracken, 2002). Krippendorff's alpha was .82, which was above the cutoff of .70 recommended by Krippendorff (2004). The elaboration ratings were thus averaged over the two raters. Elaboration ratings were, not surprisingly, significantly related to the length of the narrative ($r = .61, p < .001$; see Table 11). This is consistent with previous content analyses of possible self narratives. King and colleagues (King & Raspin, 2004; King & Smith, 2004) similarly reported correlations of .51 to .70 between the length of possible self narratives and their content-analytic measure of elaboration. We therefore controlled for length of narratives in order to ensure we did not confound length with elaboration.

An example of a future work self narrative high in elaboration is shown below.

Table 7
Means, Standard Deviations, and Zero-Order Correlations (Study 1b)

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Gender	1.54	0.50	—					
2. Age	35.68	10.60	-.02	—				
3. Year of study	2.29	1.22	-.12	.31**	—			
4. Career identity (commitment)	4.00	0.71	.08	.16	-.17	—		
5. Future orientation	3.79	0.74	.01	.04	-.15	.36***	—	
6. Future work self salience	3.98	0.91	-.09	.18	-.01	.09	.31**	—
7. Proactive career behavior	3.72	0.69	.08	-.10	-.27**	.48***	.69***	.31**

Note. $N = 92$.

** $p < .01$. *** $p < .001$.

Table 8
Hierarchical Regression Analysis Predicting Proactive Career Behavior (Study 1b)

Variable	Step 1		Step 2		Step 3	
	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>
Age	-.02	-9.19	-.14	-1.81	-.17	-2.17*
Year of study	-.26	-2.47*	-.10	-1.24	-.09	-1.21
Career identity (commitment)			.28**	3.52	.28	3.69***
Future orientation			.58***	7.58	.53	6.72***
Future work self salience					.15	1.99*
R^2		.05		.55		.56
ΔR^2 step				.49***		.02*
<i>F</i>		3.53*		28.34***		24.23***

Note. *N* = 92.
* *p* < .05. ** *p* < .01. *** *p* < .001.

I can see myself working in a research center doing investigation related to materials science. I am supervising several postgraduate students [. . .], but I am actually a really cool person to work with. My students get time, attention, advice and freedom to think and do. My research is going quite well, I have been publishing interesting results on a regular basis and presenting my work in international conferences that make me travel a lot [. . .]. I keep contact with research groups in different countries and develop good projects together. I am trying to build a prestigious career to keep a good image of scientists of my country. I have a fulfilling and well balanced life. I am happy! [. . .]

This future work self is highly elaborate because it covers multiple dimensions of the future self, such as the type of person the future self will be (“cool person to work with”), different elements of the role (supervision, dissemination, collaboration), as well as more relational aspects of the role as teacher. In contrast, the example below shows a future work self narrative low in elaboration that has only two dimensions: becoming a hydrogeologist and achieving a high level position.

I am looking forward to carry [ing] out my job when I have graduated from the University of [. . .] as an Environmental Hydrogeologist. And also I want to be at the top position of my Department (Director General).

Study 3 Results and Discussion

Table 11 shows the means, standard deviations, and zero-order correlations of the study variables. As in Study 1b and 2, age and the year of study were included in the analyses as control variables for theoretical reasons. Future work self elaboration was significantly correlated with proactive career behavior (*r* = .13, *p* < .05), as was future work self salience (*r* = .28, *p* < .001). The length of the narrative was not significantly correlated with proactive career behaviors (*r* = -.01, *p* = .86). As discussed above, salience and elaboration are two distinct, yet related, qualities of a future work self. In line with this argument, the relationship between future work self elaboration and future work self salience was small, albeit positive and significant (*r* = .17, *p* < .01).

The proposed moderation effect was tested in a regression analysis, controlling for age, year of study, career identity (commitment), and future orientation. Consistent with Hypothesis 3 there was a near-significant interaction between future work self elaboration and future work self salience (β = .11, *p* < .06; see Table 12). The interaction is depicted in Figure 1. Variables have been mean-centered, and lines display values one standard deviation above and below the mean. Figure 1 shows that future work self elaboration has a positive effect on proactive career behavior

Table 9
Means, Standard Deviations, and Zero-Order Correlations (Study 2)

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
1. Gender	1.70	0.46	—									
2. Age	29.91	8.51	-.09	—								
3. Year of study	2.49	1.22	-.14	.21	—							
4. Career identity (commitment) Time 1	3.98	0.89	-.03	-.18	.10	—						
5. Career identity (commitment) Time 2	3.93	0.77	.13	-.12	.11	.57	—					
6. Future orientation Time 1	3.44	0.89	-.08	-.06	-.11	.10	.26	—				
7. Future orientation Time 2	3.62	0.68	.09	-.07	-.16	.18	.29*	.53***	—			
8. Future work self salience Time 1	3.64	0.92	.17	-.04	-.19	.26	.16	.34*	.36**	—		
9. Future work self salience Time 2	3.71	1.04	.02	-.02	-.02	.17	.21	.38**	.41**	.45**	—	
10. Proactive career behavior Time 1	3.09	0.93	.02	-.13	.15	.15	.11	.52***	.34**	.38**	.26	—
11. Proactive career behavior Time 2	3.67	0.84	.18	-.15	.00	-.03	.17	.23	.56**	.39**	.40**	.50***

Note. *N* = 53.
* *p* < .05. ** *p* < .01. *** *p* < .001.

Table 10
Hierarchical Regression Analysis Predicting Proactive Career Behavior at Time 2 (Study 2)

Variable	Step 1		Step 2		Step 3		Step 4	
	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>
Age	-.15	-1.15	-.10	-0.78	-.13	-1.00	-.16	-1.34
Year of study	.00	0.03	-.02	-0.18	-.01	-0.06	.07	0.52
Proactive career behavior Time 1			.42	3.49**	.46	3.16**	.37	2.63*
Career identity (commitment) Time 1					-.15	-1.16	-.21	-1.70
Future orientation Time 1					-.01	-0.05	-.03	-0.23
Future work self salience Time 1							.31	2.36*
R^2		-.01		.16		.15		.21
ΔR^2 step				.17**		.02, <i>p</i> = .51		.07*
<i>F</i>		0.68, <i>p</i> = .51		4.60**		3.00*		3.64**

Note. *N* = 53.
* *p* < .05. ** *p* < .01.

only when future work self salience is high. The simple slope for elaboration was statistically significant and positive when salience was one standard deviation above the mean (slope = .15, *t* = 2.36, *p* < .05) but was not significantly different than zero when salience was one standard deviation below the mean (slope = -.01, *t* = -0.14, *p* > .05). These results support the hypothesis that future work selves must be salient for elaboration to have a positive association with proactive career behavior.

Discussion

We introduced the future work self as an important element of individuals' attempts to actively shape their future work lives. We suggested future work self salience is an especially important construct in the context of today's careers, which are increasingly discontinuous and boundaryless, thereby requiring individuals to take a proactive role in shaping and managing their career. In the short term, proactive career behaviors can be associated with costs and risks, thus presenting motivational challenges for these behaviors.

Drawing on self-regulation theory and research on episodic prospection, we proposed that the more an individual holds a clear and accessible view of the future self at work, the more this will create a discrepancy that motivates proactive behavior. Our studies provided good initial evidence for this proposition. In Studies 1a and 1b, future work self salience explained variance in proactive

career behaviors over and above career identity (commitment) and career aspirations (Study 1a), and over and above a general tendency to focus on long-term rather than short-term consequences of one's behavior (future orientation). In Study 2, individuals' future work self salience predicted an increase in proactive career behavior over a period of 6 months.

Our study also showed the potential motivating power of future work self elaboration. In Study 3, we showed that elaboration was significantly related to proactive career behavior when future work self salience was high. The elaboration of the future work self narrative served as a measure of the complexity of a future work self, which we suggested would enable individuals to accommodate feedback and new information which is critical in the proactive behavior process (Frese & Fay, 2001). As predicted, more elaborate future work selves appeared to be important for motivating future-oriented behaviors, albeit only if a person already has a salient view of his or her future work self. This is consistent with the idea that future work self salience directs individuals toward situations and information relevant to their future work self, while future work self elaboration enables them to consider information about potential obstacles.

Theoretical Implications

Our research shows the potential motivational impact of a salient future work self over and above concepts typically consid-

Table 11
Means, Standard Deviations, and Zero-Order Correlations (Study 3)

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Gender	1.59	0.49	—							
2. Age	30.31	7.89	.04	—						
3. Year of study	2.61	1.26	-.05	.21**	—					
4. Career identity (commitment)	3.38	0.81	.04	-.04	-.10	—				
5. Future orientation	3.69	0.87	-.07	-.18**	-.18**	.23***	—			
6. Length of future work self narrative	60.05	40.44	-.01	-.10	-.13*	.10	.07	—		
7. Future work self elaboration	3.09	0.96	.09	-.14*	-.18**	.20**	.26***	.61***	—	
8. Future work self salience	3.44	1.00	.08	.09	-.11	.21**	.12	.05	.17**	—
9. Proactive career behavior	3.37	0.60	.09	-.19**	-.15*	.31***	.46***	-.01	.13*	.28***

Note. *N* = 233.
* *p* < .05. ** *p* < .01. *** *p* < .001.

This document is copyrighted by the American Psychological Association or one of its allied publishers. This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

Table 12
Hierarchical Regression Analysis Predicting Proactive Career Behavior (Study 3)

Variable	Step 1		Step 2		Step 3		Step 4		Step 5	
	β	<i>t</i>								
Age	-.17	-2.50*	-.10	-1.74	-.11	-1.81	-.13	-2.11*	-.12	-1.92†
Year of study	-.12	-1.79	-.05	-0.76	-.05	-0.87	.04	-0.59	-.04	-0.69
Career identity (commitment)			.38	6.37***	.38	6.39***	.35	5.71***	.35	5.76***
Future orientation			.22	3.78***	.23	3.84***	.20	3.32**	.19	3.27**
Length of future work self narrative					-.06	-1.09	-.11	-1.50	-.14	-1.90†
Future work self elaboration							.07	0.92	.07	0.98
Future work self salience							.14	2.32*	.15	2.05*
Future Work Self Salience × Elaboration									.11	1.94†
R^2		.05		.27		.28		.30		.31
ΔR^2 step				.22***		.00		.02*		.01†
<i>F</i>		5.94**		20.98***		17.04***		13.45***		12.39***

Note. *N* = 233.

† *p* < .06. * *p* < .05. ** *p* < .01. *** *p* < .001.

ered in the career literature. Importantly, for individuals' career management to be guided by future work selves it is not enough to have an image of one's ideal future. This image needs to reflect a core identity that is easily accessible in the working memory. Having an accessible representation of an ideal future self appears to give meaning to future-focused behaviors that would otherwise be challenging in the short term. This may be because the discrepancy between one's ideal and current self motivates these behaviors, because these representations stimulate more playful and hence creative thinking about the future, and/or because the mental stimulation of the desired future prompts envisioning and planning to achieve this future.

Although research is now needed on exactly which of these mechanisms, or indeed other possible mechanisms, explain the motivational power of future work selves, our studies at least suggest the theoretical value of considering possible selves as a motivational resource in proactive career management. We offer a novel perspective in the career management domain by explicitly integrating self-

regulation theory and research on future-oriented cognition in considering how proactive career behaviors are motivated. We also offer a novel perspective to possible selves research, which primarily focuses on how identities at work are constructed or negotiated and how they provide or shape meaning (e.g., Ibarra, 1999), rather than how these identities motivate behavior.

Our findings have implications for motivating proactive behaviors beyond those in the career domain. Research on proactive behavior has focused extensively on self-efficacy as a driver of proactive behavior (e.g., Frese, Garst, & Fay, 2007; Kanfer, Wanberg, & Kantrowitz, 2001; Morrison & Phelps, 1999; Parker, Williams, & Turner, 2006), on what Parker et al. (2010) referred to as "can do" pathways in their model of proactive motivation. However, considerably less research has considered why people are proactive, the "reason to" pathway (Parker et al., 2010). The present paper suggests future work selves as a reason to behave proactively. This is in line with theoretical arguments for the role of identity in the motivation in proactive behavior (Parker et al., 2010). Drawing on self-determination theory (Deci & Ryan, 2000), Parker et al. proposed that, over and above finding a proactive behavior enjoyable or identifying with its value individuals engage in proactive action because the proactive behavior is fundamental to their identity. Yet very little research has considered how these identity-related processes operate. The current study provides support for the role that future-oriented identity plays in the motivation of proactive behavior; it suggests that one reason for people behaving proactively is their salient future work self.

Our findings are also in line with recent theory and evidence suggesting the importance of an image of the desired future as providing a reason to be proactive. Griffin, Parker, and Mason (2010) found that leaders' vision prompted efficacious individuals to increase their level of proactive work behaviors, such as introducing new work methods, over time. Griffin et al. suggested that a clear leader vision provides a discrepancy between the status quo and the future, which helps to motivate change-oriented behaviors. Future work selves similarly might create a discrepancy between the present and individuals' own personal future. This personal vision is likely to be more central than a leader's vision, as the proactive outcomes we consider are more self-oriented, involving

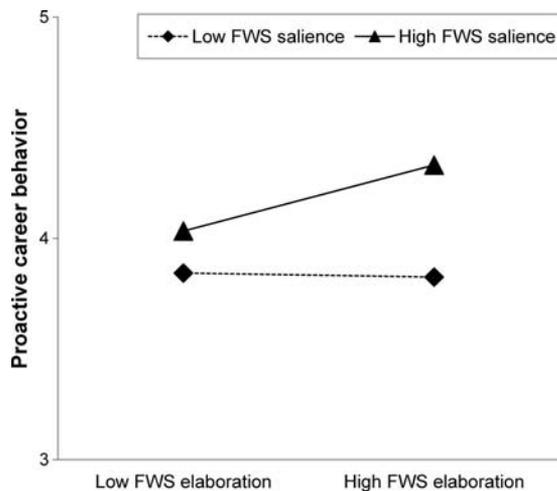


Figure 1. Interaction between future work self (FWS) salience and elaboration (Study 3).

individuals' proactive efforts to develop themselves (e.g., their skills, knowledge, and capabilities) rather than change the work environment per se. The motivational role of an individual's personal vision—or the future work self—is a “reason to” pathway that has not yet been explored.

Of practical significance, our research has suggested features of future work selves that are effective in the motivation of proactive career management. Future work selves are more closely linked to agentic efforts to shape one's future if they can be easily accessed in the working memory and if they are complex, highly elaborate images. These findings suggest the importance of cultivating salient and elaborate future work selves through career development initiatives, such as career counseling. Early in their career, individuals often use role models to construct their ideal and possible future selves (Gibson, 2003; Ibarra, 1999; Markus & Nurius, 1986). But our findings suggest that for these representations to significantly impinge on proactive career behavior, they must be salient and elaborate. One could imagine various interventions to boost these attributes. For example, asking people to generate future work selves might enhance salience, whereas elaboration might be enhanced by getting individuals to brainstorm other elements of their future work selves that they might consider.

In addition, it is possible that leaders can also play an important role in cultivating their staff's salient future work selves. Leaders have a strong influence on employees' self-views (e.g., Eden, 1992) and can potentially nourish and inspire future work selves by expressing high expectations and confidence in the employee's ability and potential (Lord, Brown, & Freiberg, 1999).

Study Limitations and Future Research

Data in three of our four studies were collected from samples of doctoral students, which constitute an appropriate sample for our studies, as we have argued above. However, the characteristics of these samples might also limit the generalizability of our findings. First, proactive career behaviors are likely to be particularly frequent in this population. Building networks and developing career management skills are competencies that doctoral students are expected to develop during the course of their PhD degree program. In addition, doctoral students are facing a career transition and often take part in career development activities (e.g., doctoral consortia), which may lead to a higher level of proactive career behaviors and to more salient and elaborate future work selves. Nonetheless, despite these limitations of the samples used, it is important to observe that the ratings of proactive career behaviors in our sample were similar in range to the ones reported by Claes and Ruiz-Quintanilla (1998), who used the same scales in organizational settings. It may be that future work self salience plays a particularly important role when individuals are at critical career transition points. Future research with different samples is needed to establish the generalizability of our findings.

A further limitation is the range restriction in the longitudinal sample in Study 2. Participants who responded at both time points initially reported higher levels of future work self salience. Although it is not surprising that those with salient future work selves were more inclined to respond to the survey at both time points, the longitudinal sample may thus not be representative for the general population of doctoral students. However, any range restriction is unlikely to have inflated the findings reported in our study. Indeed,

including respondents with low future work self salience and low proactive career behavior would provide greater variance and hence potentially a stronger effect. Nevertheless, further research in samples with a greater range of future work self salience is needed to investigate generalizability.

Our studies also relied on self-report data, with the exception of the measure of elaboration of future work selves, which was reliably rated by two independent raters. Because one of our studies was longitudinal and therefore examined within-person differences in self-reported proactivity at two time points, this controlled for some of the problems of self-reported behaviors (e.g., any self-report biases would likely apply at both times). Nevertheless, we recommend that future research go further to consider externally rated proactive career behaviors.

The use of a two-item measure to operationalize future work self salience in Studies 2 and 3 constitutes a further limitation of this paper. We chose the two items with the highest factor loadings in Study 1b to reduce the survey demand on study participants. Future research may employ the more comprehensive five-item measure used in Study 1b to assess future work self salience. However, in Study 1b the correlations of the two-item version with the three- and five-item versions of the measure were $r = .98$, $p < .001$ and $r = .94$, $p < .001$, respectively. The high convergence of the shorter and longer versions of the scales suggests that similar results would likely have been obtained with either version. We also used a shortened measure to assess proactive career behavior in Study 2. Convergence between the shorter and longer versions of the scale was high in Studies 1a, 1b, and 3. Nevertheless, future research should employ comprehensive measures of proactive career behavior.

Drawing on self-regulation theory and research on episodic prospection, we suggest theoretical mechanisms that may link future work selves to proactive behavior. We recommend further research to explicitly test these mechanisms. We also recognize that future work selves vary in their attributes beyond salience and elaboration. We focused on the latter because theory identifies these attributes as critical (Markus & Wurf, 1987), but other attributes, such as level of positivity or attributions of control, might also influence the extent to which future work selves function as a motivational resource.

A further avenue of research concerns the effect of future work selves on affective outcomes. Goals representing core values and enduring interests of the self are associated with higher satisfaction when achieved (Sheldon & Elliot, 1998, 1999). Because future work selves reflect individuals' authentic values and interests, striving to attain a future work self may in itself be associated with a sense of authenticity and satisfaction. On the other hand, potential negative effects also should be considered. King and Rospin's (2004) research on “lost” future selves showed that a salient image of the self one “might have been” can result in lowered life satisfaction and meaning in life. Similarly, realizing that a salient future work self will not become reality could threaten a person's subjective well-being and potentially their career commitment. Our study suggested that future work self elaboration might potentially protect individuals from this process, as it enables them to consider information that is inconsistent with their desired future and maintain elements of their future work self even if other elements are threatened. Nevertheless, potential downsides to salient future work selves should be considered.

Finally, we focused here on future work selves at an individual level, or in terms of characteristics that differentiate a person as an individual from other individuals. Future work selves can also potentially be considered at other levels of the self-concept (Brewer & Gardner, 1996; Lord et al., 1999). One could consider future work selves at the collective level, that is, individuals' representations of their group or organization in the future that reflects their hopes and aspirations (cf. Gioia & Thomas, 1996). Shaping collective future work selves might be an especially important mechanism through which leader vision influences employees' behavior (Lord et al., 1999; Stam, van Knippenberg, & Wisse, 2010; Strauss, Griffin, & Parker, 2009). One could also consider future work selves on the level of the relational self (Brewer & Gardner, 1996), reflecting representations of hoped for role relationships (Sluss & Ashforth, 2007). As Lord et al. (1999) stated, "Possible selves tied to improved role relationships—being respected by superiors and colleagues or loved and understood by one's spouse—can motivate continued efforts at maintaining or improving social relations" (p. 179). Relational future work selves may be a fruitful mechanism to explore for research investigating how individuals actively shape and improve their networks and dyadic relationships.

References

- Arthur, M. B., & Rousseau, D. M. (1996). *The boundaryless career: A new employment principle for a new organizational era*. New York, NY: Oxford University Press.
- Ashford, S. J., & Black, J. S. (1996). Proactivity during organizational entry: The role of desire for control. *Journal of Applied Psychology, 81*, 199–214. doi:10.1037/0021-9010.81.2.199
- Ashford, S. J., Blatt, R., & VandeWalle, D. (2003). Reflections on the looking glass: A review of research on feedback-seeking behavior in organization. *Journal of Management, 29*, 773–799.
- Ashford, S. J., & Cummings, L. L. (1983). Feedback as an individual resource: Personal strategies of creating information. *Organizational Behavior and Human Performance, 32*, 370–398. doi:10.1016/0030-5073(83)90156-3
- Ashforth, B. E. (2001). *Role transitions in organizational life: An identity-based perspective*. Mahwah, NJ: Erlbaum.
- Atance, C. M., & O'Neill, D. K. (2001). Episodic future thinking. *Trends in Cognitive Sciences, 5*, 533–539.
- Bachman, J., O'Maley, P., & Johnston, J. (1978). *Adolescence to adult change and stability in the lives of young men*. Ann Arbor: University of Michigan Press.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*, 1–26. doi:10.1146/annurev.psych.52.1.1
- Bargh, J. A. (1982). Attention and automaticity in the processing of self-relevant information. *Journal of Personality and Social Psychology, 43*, 425–436. doi:10.1037/0022-3514.43.3.425
- Berzonsky, M. D. (1988). Self-theorists, identity status, and social recognition. In D. K. Lapsley & F. C. Power (Eds.), *Self, ego, and identity: Integrative approaches* (pp. 243–262). New York, NY: Springer.
- Berzonsky, M. D. (1989). The self as theorist: Individual differences in identity formation. *International Journal of Personal Construct Psychology, 2*, 363–376. doi:10.1080/08936038908404746
- Berzonsky, M. D. (1992). Identity style and coping strategies. *Journal of Personality, 60*, 771–788. doi:10.1111/j.1467-6494.1992.tb00273.x
- Bhagat, R. S., & London, M. (1999). Getting started and getting ahead: Career dynamics of immigrants. *Human Resource Management Review, 9*, 349–365. doi:10.1016/S1053-4822(99)00024-8
- Bindl, U., & Parker, S. K. (2010). Proactive work behavior: Forward-thinking and change-oriented action in organizations. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology: Vol. 2. Selecting and developing members for the organization* (pp. 567–598). Washington, DC: American Psychological Association.
- Black, M. E. A., Stein, K. F., & Loveland-Cherry, C. J. (2001). Older women and mammography screening behavior: Do possible selves contribute? *Health Education & Behavior, 28*, 200–216. doi:10.1177/109019810102800206
- Blau, G. J. (1985). The measurement and prediction of career commitment. *Journal of Occupational Psychology, 58*, 277–288. doi:10.1111/j.2044-8325.1985.tb00201.x
- Blau, G. J. (1988). Further exploring the meaning and measurement of career commitment. *Journal of Vocational Behavior, 32*, 284–297. doi:10.1016/0001-8791(88)90020-6
- Bourke, S., Holbrook, A., Lovat, T., & Farley, P. (2004, November). *Attrition, completion and completion times of PhD candidates*. Paper presented at the conference of the Australian Association for Research in Education, Melbourne, Victoria, Australia.
- Brewer, M. B., & Gardner, W. (1996). Who is this "we"? Levels of collective identity and self representations. *Journal of Personality and Social Psychology, 71*, 83–93. doi:10.1037/0022-3514.71.1.83
- Brown, D. J., Cober, R. T., Kane, K., Levy, P. E., & Shalhopp, J. (2006). Proactive personality and the successful job search: A field investigation with college graduates. *Journal of Applied Psychology, 91*, 717–726. doi:10.1037/0021-9010.91.3.717
- Carson, K. D., & Bedeian, A. G. (1994). Career commitment: Construction of a measure and examination of its psychometric properties. *Journal of Vocational Behavior, 44*, 237–262. doi:10.1006/jvbe.1994.1017
- Carver, C. S., & Scheier, M. F. (1981). *Attention and self-regulation: A control-theory approach to human behavior*. New York, NY: Springer.
- Carver, C. S., & Scheier, M. F. (1990). Principles of self-regulation: Action and emotion. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 3–52). New York, NY: Guilford Press.
- Claes, R., & Ruiz-Quintanilla, S. A. (1998). Influences of early career experiences, occupational group, and national culture on proactive career behavior. *Journal of Vocational Behavior, 52*, 357–378. doi:10.1006/jvbe.1997.1626
- Colarelli, S. M., & Bishop, R. C. (1990). Career commitment: Functions, correlates, and management. *Group & Organization Management, 15*, 158–176. doi:10.1177/105960199001500203
- Crant, J. M. (2000). Proactive behavior in organizations. *Journal of Management, 26*, 435–462. doi:10.1177/014920630002600304
- Cross, S. E., & Markus, H. R. (1991). Possible selves across the life span. *Human Development, 34*, 230–255. doi:10.1159/000277058
- Dawis, R. V., & Lofquist, L. H. (1984). *A psychological theory of work adjustment*. Minneapolis: University of Minnesota Press.
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227–268. doi:10.1207/S15327965PLI1104_01
- Diemer, M. A., & Blustein, D. L. (2007). Vocational hope and vocational identity: Urban adolescents' career development. *Journal of Career Assessment, 15*, 98–118. doi:10.1177/1069072706294528
- Dubin, R., & Champoux, J. E. (1975). Workers' central life interests and personality characteristics. *Journal of Vocational Behavior, 6*, 165–174. doi:10.1016/0001-8791(75)90043-3
- Dunkel, C. S. (2000). Possible selves as a mechanism for identity exploration. *Journal of Adolescence, 23*, 519–529. doi:10.1006/jado.2000.0340
- Dunkel, C. S., & Anthis, K. S. (2001). The role of possible selves in identity formation: A short-term longitudinal study. *Journal of Adolescence, 24*, 765–776.
- Eden, D. (1992). Leadership and expectations: Pygmalion effects and other

- self-fulfilling prophecies. *Leadership Quarterly*, 3, 271–305. doi:10.1016/1048-9843(92)90018-B
- Edwards, J. R. (1996). An examination of competing versions of the person–environment fit approach to stress. *Academy of Management Journal*, 39, 292–339. doi:10.2307/256782
- Ellemers, N., de Gilder, D., & van den Heuvel, H. (1998). Career-oriented versus team-oriented commitment and behavior at work. *Journal of Applied Psychology*, 83, 717–730. doi:10.1037/0021-9010.83.5.717
- Elliot, A. J., Sheldon, K. M., & Church, M. A. (1997). Avoidance personal goals and subjective well-being. *Personality and Social Psychology Bulletin*, 23, 915–927. doi:10.1177/0146167297239001
- Freeman, M. A., Hennessy, E. V., & Marzullo, D. M. (2001). Defensive evaluation of antismoking messages among college-age smokers: The role of possible selves. *Health Psychology*, 20, 424–433. doi:10.1037/0278-6133.20.6.424
- Frese, M., & Fay, D. (2001). Personal initiative: An active performance concept for work in the 21st century. *Research in Organizational Behavior*, 23, 133–187. doi:10.1016/S0191-3085(01)23005-6
- Frese, M., Garst, H., & Fay, D. (2007). Making things happen: Reciprocal relationships between work characteristics and personal initiative in a four-wave longitudinal structural equation model. *Journal of Applied Psychology*, 92, 1084–1102. doi:10.1037/0021-9010.92.4.1084
- Fugate, M., Kinicki, A. K., & Ashforth, B. E. (2004). Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior*, 65, 14–38. doi:10.1016/j.jvb.2003.10.005
- Gerbing, D. W., & Hamilton, J. G. (1996). Viability of exploratory factor analysis as a precursor to confirmatory factor analysis. *Structural Equation Modeling*, 3, 62–72. doi:10.1080/10705519609540030
- Gibson, D. E. (2003). Developing the professional self-concept: Role model construals in early, middle, and late career stages. *Organization Science*, 14, 591–610. doi:10.1287/orsc.14.5.591.16767
- Gilbert, D. T., & Wilson, T. D. (2007, September 7). Propection: Experiencing the future. *Science*, 317, 1351–1354.
- Gioia, D. A., & Thomas, J. B. (1996). Identity, image, and issue interpretation: Sensemaking during strategic change in academia. *Administrative Science Quarterly*, 41, 370–403. doi:10.2307/2393936
- Grant, A. M., & Ashford, S. J. (2008). The dynamics of proactivity at work: Lessons from feedback-seeking and organizational citizenship behavior research. *Research in Organizational Behavior*, 28, 3–34. doi:10.1016/j.riob.2008.04.002
- Gray, M. P., & O'Brien, K. M. (2007). Advancing the assessment of women's career choices: The Career Aspirations Scale. *Journal of Career Assessment*, 15, 317–337. doi:10.1177/1069072707301211
- Greenhaus, J. H., Parasuraman, S., & Wormley, W. M. (1990). Effects of race on organizational experiences, job performance evaluations, and career outcomes. *Academy of Management Journal*, 33, 64–86. doi:10.2307/256352
- Griffin, M. A., Parker, S. K., & Mason, C. M. (2010). Leader vision and the development of adaptive and proactive performance: A longitudinal study. *Journal of Applied Psychology*, 95, 174–182. doi:10.1037/a0017263
- Hall, D. T., & Mirvis, P. H. (1995). The new career contract: Developing the whole person at midlife and beyond. *Journal of Vocational Behavior*, 47, 269–289. doi:10.1006/jvbe.1995.0004
- Hayes, A. F., & Krippendorff, K. (2007). Answering the call for a standard reliability measure for coding data. *Communication Methods and Measures*, 1, 77–89. doi:10.1080/19312450709336664
- Higgins, E. T. (1998). Promotion and prevention: Regulatory focus as a motivational principle. *Advances in Experimental Social Psychology*, 30, 1–46. doi:10.1016/S0065-2601(08)60381-0
- Higgins, E. T., King, G. A., & Mavin, G. H. (1982). Individual construct accessibility and subjective impressions and recall. *Journal of Personality and Social Psychology*, 43, 35–47. doi:10.1037/0022-3514.43.1.35
- Higher Education Funding Council for England. (2005). *PhD research degrees: Entry and completion* (HEFCE Issues Paper 2005/02). London, England: Author.
- Hoyle, R. H., & Sherrill, M. R. (2006). Future orientation in the self-system: Possible selves, self-regulation, and behavior. *Journal of Personality*, 74, 1673–1696. doi:10.1111/j.1467-6494.2006.00424.x
- Hurley, A. E., Scandura, T. A., Schriesheim, C. A., Brannick, M. T., Seers, A., Vandenberg, R. J., & Williams, R. J. (1997). Exploratory and confirmatory factor analysis: Guidelines, issues, and alternatives. *Journal of Organizational Behavior*, 18, 667–683. doi:10.1002/(SICI)1099-1379(199711)18:6<667:AID-JOB874>3.0.CO;2-T
- Ibarra, H. (1999). Provisional selves: Experimenting with image and identity in professional adaptation. *Administrative Science Quarterly*, 44, 764–791. doi:10.2307/2667055
- Ibarra, H. (2007, August). *The power of possible selves*. Paper presented at the meeting of the Academy of Management, Philadelphia, PA.
- Jepsen, D. A. (1974). Vocational decision-making patterns among noncollege-aspiring adolescents. *Journal of Vocational Behavior*, 4, 283–297. doi:10.1016/0001-8791(74)90113-4
- Joireman, J., Balliet, D., Sprout, D., Spangenberg, E., & Schultz, J. (2008). Consideration of future consequences, ego-depletion, and self-control: Support for distinguishing between CFC-Immediate and CFC-Future sub-scales. *Personality and Individual Differences*, 45, 15–21. doi:10.1016/j.paid.2008.02.011
- Kanfer, R., Wanberg, C. R., & Kantrowitz, T. M. (2001). Job search and employment: A personality-motivational analysis and meta-analytic review. *Journal of Applied Psychology*, 86, 837–855. doi:10.1037/0021-9010.86.5.837
- Keller, R. T. (1997). Job involvement and organizational commitment as longitudinal predictors of job performance: A study of scientists and engineers. *Journal of Applied Psychology*, 82, 539–545. doi:10.1037/0021-9010.82.4.539
- King, L. A., & Patterson, C. (2000). Reconstructing life goals after the birth of a child with Down syndrome: Finding happiness and growing. *International Journal of Rehabilitation & Health*, 5, 17–30. doi:10.1023/A:1012955018489
- King, L. A., & Raspin, C. (2004). Lost and found possible selves, subjective well-being, and ego development in divorced women. *Journal of Personality*, 72, 603–632. doi:10.1111/j.0022-3506.2004.00274.x
- King, L. A., & Smith, N. G. (2004). Gay and straight possible selves: Goals, identity, subjective well-being, and personality development. *Journal of Personality*, 72, 967–994. doi:10.1111/j.0022-3506.2004.00287.x
- Kossek, E. E., Roberts, K., Fisher, S., & DeMarr, B. (1998). Career self-management: A quasi-experimental assessment of the effects of a training intervention. *Personnel Psychology*, 51, 935–962.
- Kosslyn, S. M. (1987). Seeing and imagining in the cerebral hemispheres: A computational approach. *Psychological Review*, 94, 148–175. doi:10.1037/0033-295X.94.2.148
- Krippendorff, K. (1970). Estimating the reliability, systematic error and random error of interval data. *Educational and Psychological Measurement*, 30, 61–70. doi:10.1177/001316447003000105
- Krippendorff, K. (2004). *Content analysis: An introduction to its methodology* (2nd ed.). Beverly Hills, CA: Sage.
- Leondari, A., Syngollitou, E., & Kiosseoglou, G. (1998). Academic achievement, motivation and future selves. *Educational Studies*, 24, 153–163. doi:10.1080/0305569980240202
- Linville, P. (1982). Affective consequences of complexity regarding the self and others. In M. S. Clark & S. T. Fiske (Eds.), *Affect and cognition* (pp. 79–109). Hillsdale, NJ: Erlbaum.
- Linville, P. (1985). Self-complexity and affective extremity: Don't put all your eggs into one cognitive basket. *Social Cognition*, 3, 94–120. doi:10.1521/soco.1985.3.1.94
- Linville, P. W. (1987). Self-complexity as a cognitive buffer against

- stress-related illness and depression. *Journal of Personality and Social Psychology*, 52, 663–676. doi:10.1037/0022-3514.52.4.663
- Lobel, S. A. (1991). Allocation of investment in work and family roles: Alternative theories and implications for research. *Academy of Management Review*, 16, 507–521.
- Lobel, S. A., & St. Clair, L. (1992). Effects of family responsibilities, gender, and career identity salience on performance outcomes. *Academy of Management Journal*, 35, 1057–1069. doi:10.2307/256540
- Lombard, M., Snyder-Duch, J., & Campanella Bracken, C. (2002). Content analysis in mass communication: Assessment and reporting of intercoder reliability. *Human Communication Research*, 28, 587–604. doi:10.1111/j.1468-2958.2002.tb00826.x
- London, M. (1998). *Career barriers: How people experience, overcome and avoid failure*. Mahwah, NJ: Erlbaum.
- London, M., & Noe, R. A. (1997). London's career motivation theory: An update on measurement and research. *Journal of Career Assessment*, 5, 61–80. doi:10.1177/106907279700500105
- Lord, R. G., Brown, D. J., & Freiberg, S. J. (1999). Understanding the dynamics of leadership: The role of follower self-concepts in the leader follower relationship. *Organizational Behavior and Human Decision Processes*, 78, 167–203. doi:10.1006/obhd.1999.2832
- Louis, M. R. (1980). Career transitions: Varieties and commonalities. *Academy of Management Review*, 5, 329–340.
- Marcia, J. E. (1966). Development and validation of ego identity status. *Journal of Personality and Social Psychology*, 3, 551–558. doi:10.1037/h0023281
- Marko, K. W., & Savickas, M. L. (1998). Effectiveness of a career timing perspective intervention. *Journal of Vocational Behavior*, 52, 106–119. doi:10.1006/jvbe.1996.1566
- Markus, H. R. (1977). Self-schemata and processing information about the self. *Journal of Personality and Social Psychology*, 35, 63–78. doi:10.1037/0022-3514.35.2.63
- Markus, H. R., & Nurius, P. (1986). Possible selves. *American Psychologist*, 41, 954–969. doi:10.1037/0003-066X.41.9.954
- Markus, H. R., & Ruvolo, A. P. (1989). Possible selves: Personalized representations of goals. In L. A. Pervin (Ed.), *Goal concepts in personality and social psychology* (pp. 211–241). Hillsdale, NJ: Erlbaum.
- Markus, H. R., & Wurf, E. (1987). The dynamic self-concept: A social psychological perspective. *Annual Review of Psychology*, 38, 299–337. doi:10.1146/annurev.ps.38.020187.001503
- Markus, H. R., & Zajonc, R. B. (1985). The cognitive perspective in social psychology. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology* (3rd ed., pp. 137–230). New York, NY: Random House.
- McArdle, S., Waters, L., Briscoe, J. P., & Hall, D. T. (2007). Employability during unemployment: Adaptability, career identity and human and social capital. *Journal of Vocational Behavior*, 71, 247–264. doi:10.1016/j.jvb.2007.06.003
- Meara, N. M., Day, J. D., Chalk, L. M., & Phelps, R. E. (1995). Possible selves: Applications for career counseling. *Journal of Career Assessment*, 3, 259–277. doi:10.1177/106907279500300402
- Miller, V. D., & Jablin, F. M. (1991). Information seeking during organizational entry: Influences, tactics, and a model of the process. *Academy of Management Review*, 16, 92–120.
- Morrison, E. W., & Phelps, C. C. (1999). Taking charge at work: Extrarole efforts to initiate workplace change. *Academy of Management Journal*, 42, 403–419. doi:10.2307/257011
- Muthén, L. K., & Muthén, B. O. (2004). Mplus3 (Version 12) [Computer software]. Los Angeles, CA: Author.
- Ng, T. W. H., Eby, L. T., Sorensen, K. L., & Feldman, D. C. (2005). Predictors of objective and subjective career success: A meta-analysis. *Personnel Psychology*, 58, 367–408. doi:10.1111/j.1744-6570.2005.00515.x
- Niedenthal, P. M., Setterlund, M. B., & Wherry, M. B. (1992). Possible self-complexity and affective reactions to goal-relevant behavior. *Journal of Personality and Social Psychology*, 63, 5–16. doi:10.1037/0022-3514.63.1.5
- Nurmi, J.-E. (1992). Age differences in adult life goals, concerns, and their temporal extension: A life course approach to future-oriented motivation. *International Journal of Behavioral Development*, 15, 487–508.
- O'Brien, K. M. (1996). The influence of psychological separation and parental attachment on the career development of adolescent women. *Journal of Vocational Behavior*, 48, 257–274. doi:10.1006/jvbe.1996.0024
- Oyserman, D., Bybee, D., & Terry, K. (2006). Possible selves and academic outcomes: How and when possible selves impel action. *Journal of Personality and Social Psychology*, 91, 188–204. doi:10.1037/0022-3514.91.1.188
- Oyserman, D., & Markus, H. R. (1990). Possible selves and delinquency. *Journal of Personality and Social Psychology*, 59, 112–125. doi:10.1037/0022-3514.59.1.112
- Page, D. (1998). Predicting the job performance of scientists and engineers. *Academy of Management Executive*, 12, 98–99. doi:10.5465/AME.1998.650522
- Parker, S. K., Bindl, U. K., & Strauss, K. (2010). Making things happen: A model of proactive motivation. *Journal of Management*, 36, 827–856. doi:10.1177/0149206310363732
- Parker, S. K., & Collins, C. G. (2009). Taking stock: Integrating and differentiating multiple proactive behaviors. *Journal of Management*, 36, 633–662. doi:10.1177/0149206308321554
- Parker, S. K., Williams, H. M., & Turner, N. (2006). Modeling the antecedents of proactive behavior at work. *Journal of Applied Psychology*, 91, 636–652. doi:10.1037/0021-9010.91.3.636
- Penley, L., & Gould, S. (1981). *Measuring career strategies: The psychometric characteristics of the Career Strategies Inventory*. San Antonio: Center for Studies in Business, Economics and Human Resources, University of Texas.
- Petrocelli, J. V. (2003). Factor validation of the Consideration of Future Consequences Scale: Evidence for a short version. *Journal of Social Psychology*, 143, 405–413. doi:10.1080/00224540309598453
- Pfeffer, J., & Baron, N. (1988). Taking the work back out: Recent trends in the structures of employment. *Research in Organizational Behavior*, 10, 257–303.
- Powell, S., & Green, H. (2007). *The doctorate worldwide*. Berkshire, England: Society for Research into Higher Education & Open University Press.
- Rosenberg, S. (1988). Self and others: Studies in social personality and autobiography. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 57–95). New York, NY: Guilford Press.
- Rosenberg, S. (1997). Multiplicity of selves. In R. D. Ashmore & L. Jussim (Eds.), *Self and identity: Fundamental issues* (pp. 23–45). New York, NY: Oxford University Press.
- Rosenberg, S., & Gara, M. A. (1985). The multiplicity of personal identity. In P. Shaver (Ed.), *Review of personality and social psychology* (Vol. 6, pp. 87–113). Newbury Park, CA: Sage.
- Rousseau, D. M., Ho, V. T., & Greenberg, J. (2006). I-deals: Idiosyncratic terms in employment relationships. *Academy of Management Review*, 31, 977–994. doi:10.5465/AMR.2006.22527470
- Saks, A. M., & Ashforth, B. E. (1999). Effects of individual differences and job search behaviors on the employment status of recent university graduates. *Journal of Vocational Behavior*, 54, 335–349. doi:10.1006/jvbe.1998.1665
- Savickas, M. L., Silling, M., & Schwartz, S. (1984). Time perspective in vocational maturity and career decision making. *Journal of Vocational Behavior*, 25, 258–269. doi:10.1016/0001-8791(84)90049-6
- Seibert, S. E., Crant, J. M., & Kraimer, M. L. (1999). Proactive personality and career success. *Journal of Applied Psychology*, 84, 416–427. doi:10.1037/0021-9010.84.3.416
- Seibert, S. E., Kraimer, M. L., & Crant, J. M. (2001). What do proactive

- people do? A longitudinal model linking proactive personality and career success. *Personnel Psychology*, 54, 845–874. doi:10.1111/j.1744-6570.2001.tb00234.x
- Sheldon, K. M., & Elliot, A. J. (1998). Not all personal goals are personal: Comparing autonomous and controlled reasons for goals as predictors of effort and attainment. *Personality and Social Psychology Bulletin*, 24, 546–557. doi:10.1177/0146167298245010
- Sheldon, K. M., & Elliot, A. J. (1999). Goal striving, need satisfaction, and longitudinal well-being: The self-concordance model. *Journal of Personality and Social Psychology*, 76, 482–497. doi:10.1037/0022-3514.76.3.482
- Sluss, D. M., & Ashforth, B. E. (2007). Relational identity and identification: Defining ourselves through work relationships. *Academy of Management Review*, 32, 9–32.
- Smith Major, V., Klein, K. J., & Ehrhart, M. G. (2002). Work time, work interference with family, and psychological distress. *Journal of Applied Psychology*, 87, 427–436. doi:10.1037/0021-9010.87.3.427
- Strull, T. K., & Wyer, R. S., Jr. (1986). The role of chronic and temporary goals in social information processing. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 503–549). New York, NY: Guilford Press.
- Stam, D. A., van Knippenberg, D., & Wisse, B. (2010). Focusing on followers: The role of regulatory focus and possible selves in visionary leadership. *Leadership Quarterly*, 21, 457–468. doi:10.1016/j.leaqua.2010.03.009
- Stein, F. K. (1994). Complexity of the self-schema and responses to disconfirming feedback. *Cognitive Therapy and Research*, 18, 161–178. doi:10.1007/BF02357222
- Strathman, A., Gleicher, F., Boninger, D. S., & Edwards, C. S. (1994). The consideration of future consequences: Weighing immediate and distant outcomes of behavior. *Journal of Personality and Social Psychology*, 66, 742–752. doi:10.1037/0022-3514.66.4.742
- Strauss, K., Griffin, M. A., & Parker, S. K. (2009, May). *Solving the initiative paradox: Leader vision and the collective future self*. Paper presented at the European Congress of Work and Organizational Psychology, Santiago de Compostela, Spain.
- Stryker, S., & Serpe, R. T. (1994). Identity salience and psychological centrality: Equivalent, overlapping, or complementary concepts? *Social Psychology Quarterly*, 57, 16–35. doi:10.2307/2786972
- Suddendorf, T. (2006, May 19). Foresight and evolution of the human mind. *Science*, 312, 1006–1007.
- Suddendorf, T., & Corballis, M. C. (1997). Mental time travel and the evolution of the human mind. *Genetic, Social, and General Psychology Monographs*, 123, 133–167.
- Suddendorf, T., & Corballis, M. C. (2007). The evolution of foresight: What is mental time travel and is it unique to humans? *Behavioral and Brain Sciences*, 30, 299–351.
- Super, D. E. (1974). Vocational maturity theory. In D. E. Super (Ed.), *Measuring vocational maturity for counseling and evaluation* (pp. 9–23). Washington, DC: National Vocational Guidance Association.
- Taylor, S. E., Pham, L. B., Rivkin, I. D., & Armor, D. A. (1998). Harnessing the imagination: Mental simulation, self-regulation, and coping. *American Psychologist*, 53, 429–439. doi:10.1037/0003-066X.53.4.429
- Tharenou, P., & Terry, D. J. (1998). Reliability and validity of scores on scales to measure managerial aspirations. *Educational and Psychological Measurement*, 58, 475–492. doi:10.1177/0013164498058003008

Appendix

Factor Loadings for Proactive Career Behavior Items (Study 1a)

Item	Career planning	Proactive skill development	Career consultation	Network building
1. I am planning what I want to do in the next few years of my career.	.80			
2. I am thinking ahead to the next few years and plan what I need to do for my career.	.84			
3. I engage in career path planning.	.72			
4. I have recently begun to think more about what I would like to accomplish in my work during the next year or two.	.65			
5. I develop skills which may not be needed so much now, but in future positions.		.62		
6. I gain experience in a variety of areas to increase my knowledge and skills.		.79		
7. I develop knowledge and skill in tasks critical to my future work life.		.85		
8. I seek advice from my supervisor(s) or colleagues about additional training or experience I need in order to improve my future work prospects.			.78	
9. I initiate talks with my supervisor about training or work assignments I need to develop skills that will help my future work chances.			.82	
10. I make my supervisor aware of my work aspirations and goals.			.72	
11. I am building a network of contacts or friendships with colleagues to obtain information about how to do my work or to determine what is expected of me.				.89
12. I am building a network of contacts or friendships to provide me with help or advice that will further my work chances.				.87
13. I am building a network of colleagues I can call on for support.				.85
Loading of subscale factor on higher order proactive career behavior factor	.75	.75	.79	.80

Received December 3, 2010
 Revision received August 22, 2011
 Accepted August 26, 2011 ■