



## Self-control trumps work motivation in predicting job search behavior



Pieter E. Baay<sup>a,\*</sup>, Denise T.D. de Ridder<sup>b</sup>, Jacquelynne S. Eccles<sup>c</sup>,  
Tanja van der Lippe<sup>d</sup>, Marcel A.G. van Aken<sup>a</sup>

<sup>a</sup> Department of Developmental Psychology, Utrecht University, Heidelberglaan 1, 3584 CS Utrecht, The Netherlands

<sup>b</sup> Department of Clinical & Health Psychology, Utrecht University, Heidelberglaan 1, 3584 CS Utrecht, The Netherlands

<sup>c</sup> Institute for Social Research, University of Michigan, Ann Arbor, MI 48106-1248

<sup>d</sup> Department of Sociology, Utrecht University, Heidelberglaan 1, 3584 CS Utrecht, The Netherlands

### ARTICLE INFO

#### Article history:

Received 19 June 2014

#### Keywords:

Self-control  
Job search behavior  
Job search intentions  
Work motivation  
School-to-work transition

### ABSTRACT

Current labor market entrants face an increasingly challenging job search process. Effective guidance of job seekers requires identification of relevant job search skills. Self-control (*i.e.*, the ability to control one's thoughts, actions, and response tendencies in view of a long-term goal, such as finding employment) is assumed to be one such relevant job search skill. The current study is the first to empirically assess the importance of self-control in the job search process. This is compared to the role of motivation, which is generally considered a crucial predictor of job searching. Based on a sample of 403 Dutch prospective vocational training graduates, we found that higher levels of self-control were related to higher levels of preparatory job search behavior and job search intentions half a year later, shortly before labor market entrance. Self-control was a significantly stronger predictor of job searching than work motivation. Moreover, relations between self-control and job searching were largely independent of motivation, which may suggest that job-seekers benefit from self-control through adaptive habits and routines that are unaffected by motivation. We propose that job search interventions, which traditionally focus on strengthening motivation, may benefit from a stronger focus on improving self-control skills.

© 2014 Elsevier Inc. All rights reserved.

### 1. Introduction

Recent unemployment rates illustrate the scarcity of employment options for current job seekers. Especially among younger job seekers, for whom unemployment rates have exceeded 50% in parts of the US and Europe (Eurostat, 2012; U.S. Department of Labor, Bureau of Labor Statistics, 2012), a successful transition into the labor market has become increasingly challenging. Furthermore, early careers are characterized as turbulent due to temporary contracts, unstable jobs, and multiple transitions between employment and unemployment (Eurostat, 2012; Russell & Connell, 2001). Given the societal and individual consequences of unemployment (Petersen & Mortimer, 2006; Wanberg, 2012), it is of no surprise that the Action Plan for Youth of the Organisation for Economic Co-operation and Development (OECD) aims “to produce better outcomes for youth in the longer run by equipping them with relevant skills and removing barriers to their employment.” (OECD, 2013, p. 2).

Effective equipment of labor market entrants starts with the identification of the most relevant skills and barriers in the labor market. Focusing on the job search process as a quintessential component of the transition into the labor market (Saks & Ashforth,

\* Corresponding author.

E-mail addresses: [p.e.baay@uu.nl](mailto:p.e.baay@uu.nl) (P.E. Baay), [d.t.d.deridder@uu.nl](mailto:d.t.d.deridder@uu.nl) (D.T.D. de Ridder), [jecclles@umich.edu](mailto:jecclles@umich.edu) (J.S. Eccles), [t.vanderlippe@uu.nl](mailto:t.vanderlippe@uu.nl) (T. van der Lippe), [m.a.g.vanaken@uu.nl](mailto:m.a.g.vanaken@uu.nl) (M.A.G. van Aken).

1999), correlational and intervention research has yielded considerable insight in relevant success factors (Saks, 2006). For example, a meta-analysis of correlational studies found that positive expectancies and motivation are related to more intensive job search behavior and better employment chances (Kanfer, Wanberg, & Kantrowitz, 2001). Accordingly, several intervention programs have been successful in increasing skills of coping with setbacks and more general feelings of self-efficacy, leading to better employment chances (see Wanberg, 2012, and Price & Vinokur, *in press*, for overviews). However, a comparison of the conceptual description of job searching and its empirically assessed correlates suggests that prior empirical studies may have overlooked an important characteristic: job seekers' self-control.

### 1.1. Self-control

Conceptually, job search behavior is described as a process in which self-control plays a pivotal role (Kanfer et al., 2001): job seekers largely manage their own search process as they decide on their investment in terms of job search intensity, diversity and persistence.<sup>1</sup> Self-reflection on the search process and its outcomes may lead to further adjustments in search-related thoughts, affect, and actions. Hence, the ability to regulate one's thoughts and actions seems essential to a successful job search process (Kanfer et al., 2001; van Hove & Saks, 2008). This ability to control thoughts and actions, together with the ability to alter or override dominant response tendencies in view of a long-term goal (e.g., finding a job), is referred to as self-control (de Ridder, Lensvelt-Mulders, Finkenauer, Stok, & Baumeister, 2012). Job search behavior fits the typical description of a self-control dilemma, as people need to make a trade-off between immediately gratifying actions (e.g., video gaming) and actions that have a higher pay-off in the long run (*i.e.*, spending time searching for vacancies that eventually may lead to a job).

Despite self-control potentially being a relevant factor in job searching, it has mainly been considered from a conceptual point of view (Kanfer et al., 2001). One related study has considered the role of controlling one's motivation and emotions (Wanberg, Kanfer, & Rotundo, 1999), but we know of no empirical studies linking the job search process to the general ability to control oneself. Our primary goal in this paper is to fill this gap.

Empirical findings in related fields suggest that self-control may be important in job search behavior. Across a wide range of behavioral outcomes, self-control relates to the promotion of positive outcomes (e.g., happiness, relationship commitment) and the avoidance of negative outcomes (e.g., overeating, overspending, unwanted pregnancy, smoking, alcohol and drug abuse, and lifetime delinquency) (e.g., Baumeister, Heatherton, & Tice, 1994; de Ridder et al., 2012; Gottfredson & Hirschi, 1990; Tangney, Baumeister, & Boone, 2004; Vohs & Faber, 2007). Most notably, self-control is even more predictive of academic achievement than IQ (Duckworth & Seligman, 2005). Based on these studies and the conceptualization of job-searching as a self-regulated process, self-control is important in achievement settings like job-searching. Therefore, we hypothesize that higher levels of self-control predict more job searching.

### 1.2. Self-control and motivation

The extent to which self-control plays a role in the job search process may depend on the job-seeker's motivation to find employment. While the direct role of motivational aspects in the job search process is evident (Kanfer et al., 2001; Zikic & Saks, 2009), it is less evident whether motivation moderates the relation between self-control and job search behavior. As elaborated upon below, it could be that motivation amplifies self-control effects (*i.e.*, people may invest more self-control in job searching when they are more motivated to find work), compensates for self-control (*i.e.*, high motivation may compensate for a lack of self-control, and *vice versa*) or does not influence self-control effects (*i.e.*, self-control is beneficial in job searching irrespective of someone's motivation). The role of motivation in self-control is conceptually debated in the self-control literature (Inzlicht & Schmeichel, 2012; Inzlicht, Schmeichel, & Macrae, 2014), but empirical studies are scarce. Studying the interactive effects of self-control and motivation in the job search process may therefore add insight to both the job search literature and self-control literature.

Amplifying effects of self-control and motivation can be expected when self-control investment is perceived as a conscious decision. Building on the finding that people have limited self-control resources (e.g., Baumeister, Bratslavsky, Muraven, & Tice, 1998; Muraven & Baumeister, 2000), individuals may need to be selective when deciding in which goals they invest their self-control. These decisions on self-control investment may be related to people's motivation (Zimmerman, 2000), which is empirically demonstrated in the context of a problem-solving task (Muraven & Slessareva, 2003). Similarly, people may invest self-control in job searching to the extent that their motivation gives reason for that, rendering a stronger effect of self-control if their work motivation is higher.

Compensatory mechanisms of motivation and self-control may be present in light of motivational conflict (Baumeister & Vohs, 2007). Tasks for which motivation is high, or without conflicting desires, do not constitute a self-control dilemma. However, if two desires clash (e.g., a friend's invitation for video gaming shortly before a job vacancy's application deadline), self-control may be needed to strive for the long-term instead of the short-term goal. Hence, self-control may be most needed in cases of low motivation or

<sup>1</sup> Different types of job seekers experience the job search process differently (Kanfer et al., 2001). For unemployed job seekers in the labor force, job searching may be less autonomous and self-regulated as they need to meet certain criteria to be eligible for unemployment benefits (e.g., Wanberg, Glomb, Song, & Sorenson, 2005). Also for prospective labor market entrants without unemployment benefits, which is the type of job seeker considered in the current paper, external factors may influence the job search process. For example, students may be influenced by work norms in the social environment (Baay, van Aken, van der Lippe, de Ridder, 2014) or career counseling support (Whiston, Brecheisen, & Stephens, 2003). In the presence of these contextual factors, job seekers can still shape their own job searching to a large degree.

when conflicting tasks are equally motivating. There is some empirical evidence that suggest that effects of self-control can indeed compensate for low motivation in the domains of sexuality (Gailliot & Baumeister, 2007) and choice tests (Miller, 1997). Hence, this perspective suggests that self-control and job search behavior may be more strongly related if work motivation is lower.

Independent effects of motivation and self-control would not merely reflect the lack of amplifying or compensatory effects; they can also be predicted from recent literature that introduced effortless self-control. While self-control shows significant relations to effortful behaviors (e.g., making coping plans), this relation is more than twice as strong for effortless behaviors (e.g., habitual snacking) (de Ridder et al., 2012). Studies on how successful self-controllers benefit from their self-control in an effortless way point to the importance of adaptive habits and routines. Instead of intensively using self-control, successful self-controllers actually report to use self-control less frequently (Hofmann, Baumeister, Förster, & Vohs, 2012). One explanation for this seemingly effortless use of self-control is that self-control is related to adaptive habits (Adriaanse, Kroese, Gillebaart, & de Ridder, 2014). In the job search context, these habits could include subscribing for vacancy alerts, instantly updating one's CV when relevant changes occur, and routinely discussing job searching with friends and teachers. As habits automatize behavior and require minimum effort (Verplanken, 2006), they can be effective regardless of people's motivation for this behavior. In fact, motivation and habits are not necessarily related (von Bothmer & Fridlund, 2005). Hence, the effortless self-control perspective suggests that self-control is positively related to job search behavior independent of motivation.

### 1.3. Current study

The current study addresses the role of self-control and motivation in the job search process of prospective vocational training graduates. First, we examine whether higher levels of self-control predict more job search behavior. Second, we explore whether the interactive effects of self-control and motivation in the job search process take place in an amplifying, compensatory, or independent fashion. The research questions are investigated in a sample of vocational training students who intend to enter the labor market upon graduation, answering the call by Kanfer et al. (2001) for more research on non-collegiate new workforce entrants. These relatively lower educated adolescents are more likely to face a difficult transition from school to work, as indicated by unemployment rates that are twice as high compared to higher educated workforce entrants (Statistics Netherlands, 2010, 2013; U.S. Department of Labor, Bureau of Labor Statistics, 2012).

## 2. Methods

### 2.1. Sample and procedures

Data were collected as part of the larger longitudinal study "School2Work" on the school-to-work transition of vocational training students in The Netherlands. A cohort of students is followed from their final year of vocational education until three years later (see Baay, Buers, and Dumhs (in preparation) for an extensive description of the project and data collection process). Vocational education is the lowest of three main tracks that students can enroll in after their high school in The Netherlands. Among vocational graduates, the two main post-graduation possibilities are to enter the labor market or to continue their education in a higher track. Most recent numbers on The Netherlands indicate that 56% of vocational training graduates continue their education (Statistics Netherlands, 2010, 2013), while the economic crisis has likely further increased this rate. The current sample's continuation rate during the second wave is 59%. Most of the other graduates aim to enter the labor market and therefore constitute the current study's subsample of interest.

A total of 1765 prospective vocational graduates participated between September 2011 and December 2011 in the first measurement wave. Approximately six months later, schools were visited for a second measurement wave, still before graduation. This design enabled tracking prospective graduates' post-graduation plans and their preparatory behavior to achieve that plan. For the current study, we measured self-control and motivation at the first wave and job search behavior at the second wave. Of the 747 students who in the first wave indicated that they intended to enter the labor market, we excluded students who did not plan to graduate by the end of the academic year ( $n = 62$ ), who did not complete the questionnaire ( $n = 8$ ), and those who did not fill out the questionnaire seriously (e.g., answering a series of thirty items with "neutral") ( $n = 42$ ). These exclusions resulted in a subsample of 635 vocational training graduates who, at the first wave, intended to enter the labor market.

The response rate at the second wave of the 635 students was 61%. For the current study, students were additionally excluded if they, based on the second wave, had already left their vocational education (with ( $n = 68$ ) or without ( $n = 9$ ) diploma), no longer intended to enter the labor market ( $n = 119$ ) or no longer planned to graduate by the end of the academic year ( $n = 36$ ). This left a total sample of 403 students.

The mean age of the sample was 22.01 years ( $SD = 5.06$ ); 55% of the respondents were female; 32% had an ethnic minority background, with at least one parent born abroad.

Questionnaires were filled out in class under supervision of the students' career counselor and a research assistant. Students who filled out their e-mail address participated in a raffle of 12 vouchers of 25 Euros.

### 2.2. Measures

#### 2.2.1. Self-control

Self-control was assessed at the first measurement wave with the 13-item Brief Self-Control Scale (Tangney et al., 2004). The Self-Control Scale combines people's ability to inhibit inner responses (e.g., "Sometimes I can't stop myself from doing something, even if I

know it is wrong”, reversed) with the ability to initiate action (e.g., “I am able to work effectively toward long-term goals”). Tangney et al. (2004) demonstrated that the extended 36-item scale has good reliability (Cronbach's  $\alpha = .89$ ) and good test–retest reliability ( $r = .89$  over 3 weeks). The current study employed the 13-item brief scale that is also developed by the original authors, which showed good psychometric properties and a strong correlation with the full scale ( $r = .93$ ; Tangney et al., 2004). The scale has been used among different populations including adolescents (e.g., Duckworth & Seligman, 2005). Items were rated on a 7-point scale (1 = Completely disagree, 7 = Completely agree). Cronbach's alpha in the current sample is .78.

### 2.2.2. Motivation

To examine the role of motivation, we use the most commonly used distinction between intrinsic and extrinsic motivation (Ryan & Deci, 2000). *A priori*, we did not suspect one dimension to be a more relevant moderator than the other, so both were taken into account.

Intrinsic motivation was measured at the first measurement wave with the identified regulation subscale of the Self-Regulation Questionnaire – Job Searching (Vansteenkiste, Lens, de Witte, de Witte, & Deci, 2004). The subscale originally consisted of six items but one item was dropped because two items were considered too much alike in Dutch (“I am going to work because I would like to work” and “I am going to work because I find it fun to work”; the former was dropped). The remaining five items were measured on a 7-point scale (1 = Completely disagree, 7 = Completely agree). Cronbach's alpha is .83.

Extrinsic motivation was also measured with the Self-Regulation Questionnaire – Job Searching. Following Vansteenkiste et al. (2004), the external and introjected regulation subscales were combined into one measure for extrinsic motivation. Again, due to questionnaire length constraints, five items that were considered sufficiently distinct were included (i.e., if two items were considered too much alike, only one was included: e.g., “I go working because my salary will allow me to buy all things I ever wanted to buy” and “I go working because my salary will allow me to buy a lot” were considered too much alike; the former was dropped). The items were measured on a 7-point scale (1 = Completely disagree, 7 = Completely agree). Cronbach's alpha is .71.

### 2.2.3. Job search behavior

Intermediate vocational education is organized on an individual basis, so no school-wide graduation date exists. Especially in smaller vocational training programs, each participant graduates as soon as all requirements are completed. Training programs typically last two to four years and practical training takes up to 60%. Hence, students have been exposed to the labor market for an extensive time by their final year and the school expects career counselors in school to encourage students to prepare themselves for the labor market at an early stage. It is therefore expected that students engage in job searching well before graduation, which is supported by the finding that 89% had thought about job searching by the second measurement wave. Active job search behavior may not be exhibited by all students yet (in part due to graduation dates further in the future and career counselors not encouraging it). Therefore, we used measures of preparatory (rather than active) job search behavior and job search intentions. Preparatory job search behavior was assessed with an 8-item index (Blau, 1994) that measured how often participants had performed job search related activities. Sample items include ‘making inquiries/reading about getting a job’ and ‘talking with people from school about possible job leads’. Respondents rated the frequency on a 5-point scale (1 = Never, 5 = More than 10 times). Cronbach's alpha is .82.

Job search intentions were measured with two items: “During the upcoming months, how much effort will you put in finding a job?” (1 = No effort at all, 7 = Very much) and “how much time will you invest in job searching?” (1 = Less than once a month, 6 = Every day). The correlation between the two items is .74. Due to uneven measurement scales, z-scores of the items were used to construct the scale.

## 2.3. Analyses

Respondents who participated in the first wave and fulfilled the selection criteria, but who did not participate in the second wave, were incorporated in the analyses through full information maximum likelihood (FIML). Previous studies have found that the exclusion of missing cases (i.e., listwise deletion) can lead to biased results (Asendorpf, van de Schoot, Denissen, & Hutteman, 2014; Harel, Zimmerman, & Dekhtyar, 2008; Myers, 2011). Instead, it is recommended to incorporate missing cases by imputing values (Multiple Imputation) or by estimating parameters based on the information available in the dataset (FIML) (Enders, 2010; Graham, 2009). As FIML uses the raw data instead of an aggregation of the data (e.g., covariance matrix), FIML uses all available information in the dataset, unlike MI. Simulation studies show that FIML is superior in estimating parameters in regression-type of models compared to other approaches to missing data (Enders, 2001; Olinsky, Shaw, & Harlow, 2003). We denoted in Mplus to estimate models while using FIML with robust standard errors, which accounts for possible non-normality of the data.

We examined the direct and interactive effects of self-control and motivation measured at the first wave on levels of job search behavior at the second measurement wave. Preparatory job search behavior and job search intentions were measured continuously; therefore, ordinary least squares (OLS) regression was performed. Interaction effects were tested with the product variables of the centered scales, separately for intrinsic and extrinsic motivation. We present hierarchical models, starting with the effects of work motivation (Model 1), adding self-control (Model 2) and the interaction effects for self-control with intrinsic motivation (Model 3) and self-control with extrinsic motivation (Model 4). Models 3 and 4 were tested in separate analyses.

**Table 1**  
Descriptive statistics and bivariate correlations of study variables.

	M	SD	2	3	4	5	6	7
1. T1 Self-control	4.24	0.79	.16**	-.08	.07	.24***	.27***	.31***
2. T1 Intrinsic motivation	5.76	0.89		.41***	.21***	.20***	.20**	.07
3. T1 Extrinsic motivation	4.58	1.16			.08	.14*	.08	-.03
4. T1 Preparatory job search behavior	1.70	1.09				.26***	.39***	.10
5. T1 Job search intentions <sup>a</sup>	3.99	1.56					.34***	.40***
6. T2 Preparatory job search behavior	2.27	0.78						.37***
7. T2 Job search intentions <sup>a</sup>	4.09	1.65						

<sup>a</sup> Due to uneven measurement scales, items were z-standardized before the scale was constructed. For illustrative purposes, the scale mean of the unstandardized items is reported in Table 1.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

#### 2.4. Attrition analyses

Attrition analyses were performed to examine whether students who were excluded from the analyses differed on self-control or motivation. Students who were excluded based on their answers on the first wave (*i.e.*, graduation after summer, questionnaire not entirely or seriously filled out) had marginally significantly lower self-control ( $p = .069$ ,  $d = .17$ ) and intrinsic work motivation ( $p = .094$ ,  $d = .18$ ) than those who remained in the analyses. No differences with regard to the study variables were found depending on future plans at the first wave (whether to continue education or to enter the labor market), and response and exclusion criteria at the second wave.

### 3. Results

Table 1 shows the bivariate relations between self-control, motivation, and job search behavior. Self-control is related to (T2) preparatory job search behavior and (T1 and T2) job search intentions, while intrinsic work motivation seems more strongly related to job search behavior than extrinsic work motivation.

The first hypothesis considered the direct relation between self-control and job search behavior. Consistent with this hypothesis, self-control was related to higher levels of T2 preparatory job search behavior ( $\beta = .22$ ,  $t = 3.28$ ,  $p = .001$ ) and T2 job search intentions ( $\beta = .32$ ,  $t = 4.19$ ,  $p < .001$ ) (see Tables 2 and 3).<sup>2</sup>

Neither intrinsic nor extrinsic work motivation predicted T2 job search behaviors once self-control was controlled. Testing whether self-control effects were the same as intrinsic and extrinsic work motivation effects for preparatory job search behavior and job search behavior revealed significant differences (Wald  $\chi^2(4) = 18.01$ ,  $p = .001$ ), indicating that self-control effects were significantly stronger than work motivation effects.

The second hypothesis addressed the relation between the effects of self-control and motivation on job search behavior. Across two measures of job search behavior (*i.e.*, preparatory job search behavior and job search intentions) and two measures of motivation (*i.e.*, intrinsic and extrinsic work motivation), there was no pattern of significant interaction effects between self-control and motivation. The relation between self-control and job search intentions was marginally significantly ( $p = .081$ ) stronger with higher levels of intrinsic work motivation. By and large, the positive relation between self-control and job search behavior was independent of someone's motivation.

Several sensitivity checks for the interaction analyses were performed. First, as methods using latent interaction effects may be better able to detect interactive effects (Marsh, Wen, & Hau, 2004), we additionally investigated the significance of latent interactions (see Nagengast et al., 2011, for an example how to perform this type of analysis). No significant interaction effects were observed with this approach. Second, given the relatively low levels of job search behavior, we examined whether a floor effect affected the results. We performed a median split on preparatory job search behavior and examined the hypothesized relations for the group above the median. For the group with the relatively higher levels of job search behavior, the main and interactive effects of self-control and motivation were similar to those observed for the full sample, suggesting that a potential floor effect did not affect the results. Third, we checked whether the longitudinal character of the data influenced the pattern of our findings. However, no interaction effects were found in the cross-sectional data either.

A post-hoc power analysis was performed to assess whether the observed non-significant interaction-effects were due to low power. Calculations in GPower 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007) showed that our study had a power of .83 to detect a small effect size ( $f^2 = .02$ ). The cross-sectional data, in which 635 respondents participated and no significant interaction-effects were found either, had a power of .95. Hence, the lack of significant interaction-effects is not attributable to low power.

<sup>2</sup> Appendices 1 and 2 show that results were similar when T1 levels of job searching were controlled (Model 1), when students for whom parental financial support would continue after graduation were excluded (Model 2), when students who expected to be able and want to stay with their internship were excluded (Model 3), when T2 measures of work motivation were used (Model 4), and when missing cases were not handled with FIML (Model 5).

**Table 2**Direct and interactive effects of self-control and motivation on T2 preparatory job search behavior ( $N = 403$ ).

	Model 1		Model 2		Model 3		Model 4	
	<i>b</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Intrinsic work motivation	.20*	.10	.14	.10	.14	.10	.14	.10
Extrinsic work motivation	.00	.06	.02	.06	.02	.06	.02	.06
Self-control			.21**	.07	.21**	.07	.21**	.07
Self-control * intrinsic					.03	.09		
Self-control * extrinsic							-.02	.05
$R^2$	.05		.09		.09		.09	

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

## 4. Discussion

The current study examined the predictive effects of self-control and motivation in the job search process of prospective vocational training graduates. In line with previous research showing beneficial effects of self-control for other behaviors, the current study extended this evidence to the job search context: Those who reported higher levels of self-control reported higher levels of preparatory job search behavior and job search intentions, also when initial levels were controlled for. We also showed that the relation between self-control and job search behavior was independent of (intrinsic and extrinsic) motivation. The observed strength of the relation between self-control and the outcome measures is comparable to other domains ( $r_c = .26$  in de Ridder et al., 2012). In sum, it seems that job searchers benefit from self-control skills that enable them to intensively engage in the dynamic, recursive job search process.

### 4.1. Scientific and practical contributions

Our finding that self-control is positively associated with job search behavior has both theoretical and practical implications. Theoretically, we provided support for the notion that job searching is a process that requires self-control. Although this has been described conceptually (Kanfer et al., 2001), the current study is the first to show empirically that the general ability to control oneself is related to the job search process. This finding, together with studies that corroborate the importance of self-control in other domains (de Ridder et al., 2012), provides input for interventions that aim to equip adolescent labor market entrants with relevant skills, as called for by the OECD (2013). Some existing interventions already address elements that can be considered self-control skills, such as the ability to control impulses (Muraven, 2010) and to initiate action (Bode, de Ridder, Kuijter, & Bensing, 2007). Another aspect of self-control that may deserve attention is perseverance (Duckworth, Peterson, Matthews, & Kelly, 2007). Learning these self-control skills may help job seekers to actively, persistently and successfully engage in the job search process.

The current study additionally examined whether benefits from self-control in the job search process depended on job-seekers' motivation. The interrelation between motivation and self-control is debated in the self-control literature, as it has remained unclear whether these factors influence each other and/or interact in self-controlled processes (e.g., Inzlicht & Schmeichel, 2012; Inzlicht et al., 2014). The current study provided evidence that the use of self-control may be independent of motivation. Apart from one marginally significant interaction effect, the pattern of non-significant interaction effects between self-control and motivation suggest that students who were lowly motivated to start working derived equal benefits from their self-control capacities as compared to highly motivated students. One interpretation for the lack of additive self-control benefits for motivated students, which receives increasing attention in the self-control literature, is that self-control operates as a relatively effortless, routine process (Adriaanse et al., 2014; Hofmann et al., 2012). Instead of a conscious, motivation-based investment of self-control, successful self-controllers may have

**Table 3**Direct and interactive effects of self-control and motivation on T2 job search intentions ( $N = 403$ ).

	Model 1		Model 2		Model 3		Model 4	
	<i>B</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Intrinsic work motivation	.08	.11	-.03	.11	-.03	.10	-.04	.11
Extrinsic work motivation	-.07	.06	-.01	.06	.02	.06	.00	.06
Self-control			.38***	.10	.32**	.10	.38***	.10
Self-control * intrinsic					.18†	.10		
Self-control * extrinsic							-.06	.05
$R^2$	.01		.10		.09		.10	

†  $p < .10$ .\*  $p < .05$ .\*\*  $p < .01$ .\*\*\*  $p < .001$ .

generally adaptive habits and routines that steer them away from distractions and in the direction of job searching. It could, for example, be that they initiate job search behavior more habitually (e.g., subscribing for vacancy alerts, instantly updating one's CV when relevant changes occur). Also, in line with research that shows that (only) successful self-controllers unconsciously use temptations as reminder of long-term goals, which evokes behavior toward those goals (Fishbach, Friedman, & Kruglanski, 2003), it may be that successful self-controllers also deal differently with distractions (e.g., invitations for video gaming).

#### 4.2. Directions for future research and limitations

Because our study is the first to test the interactive relation between motivation and self-control in survey research, more research is needed to better understand how self-control functions in the job search process. Even though our findings suggest that the use of self-control in the job search process is effortless, the self-report measure of the general availability of self-control can only provide an indication in this direction. Alternatively, it could be that self-controllers search for a job because of other motives than captured by the measure of work motivation (e.g., compliance with classmates who search for a job or with career counselors who encourage job searching). If self-control is indeed effortless in the job search process, it is worthwhile examining mechanisms through which routine self-control works. Based on prior research it could be that successful self-controllers create a mental link between temptations and long-term goals (Fishbach et al., 2003), build adaptive habits (Adriaanse et al., 2014), and use routines that help to avoid distracting temptations (Hofmann et al., 2012). Insight into these mechanisms may be gained by examining which type of job search behaviors relate to self-control most strongly. On the one hand, it may be worthwhile to ask respondents to report on domain-specific habits and challenges (e.g., in a diary study that also assesses more habitual forms of job searching, such as vacancy alerts; see also Wanberg et al., 1999). On the other hand, as effortless use of self-control may be difficult to accurately report on, future research may also benefit from designing behavioral tasks that assess the role of self-control in the job search process. For example, respondents can be asked to search for vacancies in a lab setting, where temptations (e.g., Facebook pop-ups, video game requests) are presented to distract job seekers.

More research is needed to rule out alternative explanations before the non-significant interaction effects between self-control and motivation can be interpreted as convincing evidence for the effortless self-control perspective. Although most previously studied self-control behaviors require skills to inhibit a response to a specific temptation (e.g., drug use), job search behavior seems to require skills that initiate rather than inhibit action. A recent study on different dimensions of self-control found support for the distinction between the ability to inhibit a response to a temptation (i.e., inhibitory self-control) and the ability to focus on long-term goals (i.e., initiatory self-control) (de Ridder, de Boer, Lugtig, Bakker, & van Hooft, 2011). The alternative explanation that a stronger effect of self-control when job seekers are motivated only applies to initiatory (and not to inhibitory) capacities could be investigated with measures that distinguish between these dimensions of self-control. A second difference with traditional self-control research is that we conceptualized self-control as a relatively stable trait-characteristic, while part of the theorizing on self-control pertains to self-control as a state characteristic that fluctuates across actions. It might be the case that motivation is more likely to compensate for temporarily low levels as opposed to low trait-levels of self-control. Instead of studying the job search process over a 6 months' time-interval, future research could examine interactive effects of self-control and motivation in the job search process in a shorter time-frame (e.g., by using a daily diary design).

Several study characteristics may limit the generalizability of the results. The second wave took place while many of the students were working full-time at their internship, which led to a response rate of 61%. However, given that the cross-sectional models as well as the models that accounted for missing cases led to the same conclusions, non-response does not seem to have affected the conclusions. Moreover, the current study focused on lower-educated labor market entrants. The type of job seeker (e.g., labor market entrant, unemployed individual, and job-to-job seeker) as well as the educational background of the job seeker may be related to the job search process (Kanfer et al., 2001). Especially differences in motivation seem likely, which could affect the self-regulation of the job search process. We aimed to contribute to the understanding of the job search process of a group at high risk for unemployment; future research could assess whether self-control is important in different samples and in predicting job search success as well.

## 5. Conclusion

The current study provided evidence for the role of self-control as an important factor that influences the job search process of lower-educated labor market entrants. The beneficial effects of self-control on job search behavior were independent of someone's motivation, which aligns with studies showing that people benefit from their self-control through adaptive habits and routines.

## Acknowledgment

This paper is part of the School2Work project, which is embedded in the Coordinating Societal Change (CSC) focus area of Utrecht University. Financial support for this study was provided by Instituut Gak (#2013–203), although the opinions expressed in this paper are solely those of the authors. We wish to thank the fellow project members – in particular Corine Buiers and Lisa Dumh's – for the collaboration on the School2Work project.

### Appendix 1. Additional analyses with different measures or inclusion criteria with T2 preparatory job search behavior as outcome variable.

	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	SE	B	SE	b	SE	B	SE	B	SE
Intrinsic work motivation	.08	.10	.22** <sup>a</sup>	.08	.11	.13	.23***	.06	.14	.10
Extrinsic work motivation	.02	.06	-.03	.06	.09	.08	.09*	.04	.02	.06
Self-control	.22**	.07	.24**	.08	.17 <sup>†</sup>	.09	.23**	.07	.24**	.07
Self-control * Intrinsic	.08	.11	.00	.10	-.10	.11	.20**	.07	.03	.10
Self-control * Extrinsic	.03	.05	-.00	.06	-.09	.07	.08	.05	.00	.05
T1 preparatory job search behavior	.26***	.05								

Note: the main effect of self-control, the interaction effect of self-control and intrinsic work motivation, and the interaction effect of self-control and extrinsic work motivation were tested in separate models but are presented below each other to keep the appendix more parsimonious.

Model 1: Analyses while controlling for T1 job searching.

Model 2: Analyses excluding students for whom parental financial support would continue after graduation.

Model 3: Analyses excluding students who expected to be able and want to stay with their internship.

Model 4: Analyses included T2 intrinsic and extrinsic work motivation.

Model 5: Analyses without imputation of cases who were missing at T2.

<sup>a</sup>The significant direct effect of intrinsic work motivation on preparatory job search behavior is marginally significant when T1 preparatory job search behavior is controlled for ( $b = .15, SE = .08, p = .061$ ).

\*\*\* $p < .001$ .

\*\* $p < .01$ .

\* $p < .05$ .

<sup>†</sup> $p < .10$ .

### Appendix 2. Additional analyses with different measures or inclusion criteria with T2 job search intentions as outcome variable.

	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	SE	b	SE	B	SE	b	SE	b	SE
Intrinsic work motivation	-.08	.10	-.01	.13	.02	.13	.00	.10	-.01	.11
Extrinsic work motivation	-.07	.06	-.02	.08	-.09	.06	-.01	.07	.01	.06
Self-control	.28**	.10	.34***	.11	.26*	.13	.36***	.10	.37***	.10
Self-control * Intrinsic	.18 <sup>†</sup>	.10	.21 <sup>†</sup>	.11	.28*	.13	.15	.10	.19 <sup>†</sup>	.11
Self-control * Extrinsic	-.08	.05	-.02	.06	-.05	.07	-.01	.08	-.04	.06
T1 job search intentions	.43***	.09								

Note: the main effect of self-control, the interaction effect of self-control and intrinsic work motivation, and the interaction effect of self-control and extrinsic work motivation were tested in separate models but are presented below each other to keep the appendix more parsimonious.

Model 1: Analyses while controlling for T1 job searching.

Model 2: Analyses excluding students for whom parental financial support would continue after graduation.

Model 3: Analyses excluding students who expected to be able and want to stay with their internship.

Model 4: Analyses included T2 intrinsic and extrinsic work motivation.

Model 5: Analyses without imputation of cases who were missing at T2.

\*\*\* $p < .001$ .

\*\* $p < .01$ .

\* $p < .05$ .

<sup>†</sup> $p < .10$ .

## References

- Adriaanse, M.A., Kroese, F. M., Gillebaart, M., & de Ridder, D. T. D. (2014). Effortless inhibition: Habit mediates the relation between self-control and unhealthy snack consumption. *Frontiers in Psychology, 5*, 1–6.
- Asendorpf, J. B., van de Schoot, R., Denissen, J. J., & Hutteman, R. (2014). Reducing bias due to systematic attrition in longitudinal studies: The benefits of multiple imputation. *International Journal of Behavioral Development, 38*, 453–460. <http://dx.doi.org/10.1177/0165025414542713>.
- Baay, P. E., Buers, C. C. E., & Dumhs, L. (2014n). *School2Work: A longitudinal study of the transition from vocational education and training to the labour market in The Netherlands*. (Manuscript in preparation).
- Baay, P. E., van Aken, M.A. G., van der Lippe, T., & de Ridder, D. T. D. (2014). Personality moderates the links of social identity with work motivation and job-searching. *Frontiers in Psychology, 5*, 1044. <http://dx.doi.org/10.3389/fpsyg.2014.01044>.
- Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D.M. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology, 74*, 1252–1265.

- Baumeister, R. F., Heatherton, T. F., & Tice, D.M. (1994). *Losing control: How and why people fail at self-regulation*. San Diego, CA: Academic Press.
- Baumeister, R. F., & Vohs, K. D. (2007). Self-regulation, ego depletion, and motivation. *Social and Personality Psychology Compass*, 1, 115–128.
- Blau, G. (1994). Testing a two-dimensional measure of job search behavior. *Organizational Behavior and Human Decision Processes*, 59, 288–312.
- Bode, C., de Ridder, D., Kuijjer, R. G., & Bensing, J. (2007). Effects of an intervention promoting proactive coping competencies in middle and late adulthood. *The Gerontologist*, 47, 42–51.
- de Ridder, D. T. D., de Boer, B. J., Lugtig, P., Bakker, A. B., & van Hooft, E. A. J. (2011). Not doing bad things is not equivalent to doing the right thing: Distinguishing between inhibitory and initiatory self-control. *Personality and Individual Differences*, 50, 1006–1011.
- de Ridder, D. T. D., Lensvelt-Mulders, G., Finkenauer, C., Stok, F. M., & Baumeister, R. F. (2012). Taking stock of self-control: A meta-analysis of how trait self-control relates to a wide range of behaviors. *Personality and Social Psychology Review*, 16, 76–99.
- Duckworth, E., Peterson, C., Matthews, M., & Kelly, D. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92, 1087–1101.
- Duckworth, A. L., & Seligman, M. E. P. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science*, 16, 939–944.
- Enders, C. K. (2001). The performance of the full information maximum likelihood estimator in multiple regression models with missing data. *Educational and Psychological Measurement*, 61, 713–740. <http://dx.doi.org/10.1177/00131644011615001>.
- Enders, C. K. (2010). *Applied missing data analysis*. Guilford Press.
- Eurostat (2012). Unemployment statistics. [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Unemployment\\_statistics#Further\\_Eurostat\\_information](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Unemployment_statistics#Further_Eurostat_information)
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G\*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175–191.
- Fishbach, A., Friedman, R., & Kruglanski, A. (2003). Leading us not unto temptation: Momentary allurements elicit automatic goal activation. *Journal of Personality and Social Psychology*, 84, 296–309.
- Gailliot, M. T., & Baumeister, R. F. (2007). Self-regulation and sexual restraint: Dispositionally and temporarily poor self-regulatory abilities contribute to failures at restraining sexual behavior. *Personality and Social Psychology Bulletin*, 33, 173–186.
- Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. Stanford, CA: Stanford University Press.
- Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology*, 60, 549–576. <http://dx.doi.org/10.1146/annurev.psych.58.110405.085530>.
- Harel, O., Zimmerman, R., & Dekhtyar, O. (2008). Approaches to the handling of missing data in communication research. In Hayes, Slater, & Snyder (Eds.), *The SAGE sourcebook of advanced data analysis methods for communication research* (pp. 349–371). Los Angeles, CA: Sage Publications.
- Hofmann, W., Baumeister, R. F., Förster, G., & Vohs, K. D. (2012). Everyday temptations: An experience sampling study on desire, conflict, and self-control. *Journal of Personality and Social Psychology*, 102, 1318–1335.
- Inzlicht, M., & Schmeichel, B. J. (2012). What is ego depletion? Toward a mechanistic revision of the resource model of self-control. *Psychological Science*, 7, 450–463.
- Inzlicht, M., Schmeichel, B. J., & Macrae, C. N. (2014). Why self-control seems (but may not be) limited. *Trends in Cognitive Sciences*, 18, 127–133.
- 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*, 5, 837–855.
- Marsh, H. W., Wen, Z., & Hau, K. -T. (2004). Structural equation models of latent interactions: Evaluation of alternative estimation strategies and indicator construction. *Psychological Methods*, 9, 275–300.
- Miller, R. S. (1997). Inattentive and contented: Relationship commitment and attention to alternatives. *Journal of Personality and Social Psychology*, 73, 758–766.
- Muraven, M. (2010). Practicing self-control lowers the risk of smoking lapse. *Psychology of Addictive Behaviors*, 24, 446–452.
- Muraven, M. R., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin*, 126, 247–259.
- Muraven, M., & Slessareva, E. (2003). Mechanism of self-control failure: Motivation and limited resources. *Personality and Social Psychology Bulletin*, 29, 894–906.
- Myers, T. A. (2011). Goodbye, listwise deletion: Presenting hot deck imputation as an easy and effective tool for handling missing data. *Communication Methods and Measures*, 5, 297–310. <http://dx.doi.org/10.1080/19312458.2011.624490>.
- Nagengast, B., Marsh, H. W., Scalas, L. F., Xu, M. K., Hau, K. T., & Trautwein, U. (2011). Who took the “x” out of expectancy-value theory? A psychological mystery, a substantive-methodological synergy, and a cross-national generalization. *Psychological Science*, 22, 1058–1066.
- Olinsky, A., Shaw, C., & Harlow, L. (2003). The comparative efficacy of imputation methods for missing data in structural equation modeling. *European Journal of Operational Research*, 151, 53–79. [http://dx.doi.org/10.1016/S0377-2217\(02\)00578-7](http://dx.doi.org/10.1016/S0377-2217(02)00578-7).
- Organisation for Economic Co-operation and Development (2013). The OECD action plan for youth. <http://www.oecd.org/els/emp/Youth-Action-Plan.pdf>
- Petersen, A.C., & Mortimer, J. T. (2006). *Youth unemployment and society*. Cambridge University Press.
- Price, R. H., & Vinokur, A.D. (2014s). The JOBS program: Impact on job seeker motivation, reemployment, and mental health. In U. Klehe, & E. van Hooft (Eds.), *The Oxford handbook of job loss and job search*. Oxford, UK: Oxford University Press (in press).
- Russell, H., & Connell, P. J. (2001). Getting a job in Europe: The transition from unemployment to work among young people in nine European countries. *Work, Employment and Society*, 15, 1–24.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68–78.
- Saks, A.M. (2006). Multiple predictors and criteria of job search success. *Journal of Vocational Behavior*, 68, 400–415.
- 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.
- Statistics Netherlands (2010, 2013). Statline. Retrieved from <http://statline.cbs.nl>
- Tangney, J., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality*, 72, 271–324.
- U.S. Department of Labor, Bureau of Labor Statistics (2012). Current population survey. Retrieved from <http://www.bls.gov/cps>
- van Hooft, E. A. J., & Saks, A.M. (2008). Job search as goal-directed behavior: Objectives and methods. *Journal of Vocational Behavior*, 73, 358–367.
- Vansteenkiste, M., Lens, W., de Witte, S., de Witte, H., & Deci, E. L. (2004). The ‘why’ and ‘why not’ of job search behaviour: Their relation to searching, unemployment experience, and well-being. *European Journal of Social Psychology*, 34, 345–363.
- Verplanken, B. (2006). Beyond frequency: Habit as mental construct. *British Journal of Social Psychology*, 45, 639–656.
- Vohs, K. D., & Faber, R. J. (2007). Spent resources: Self-regulatory resource availability affects impulse buying. *Journal of Consumer Research*, 33, 537–547.
- von Bothmer, M. I. K., & Fridlund, B. (2005). Gender differences in health habits and in motivation for a healthy lifestyle among Swedish university students. *Nursing and Health Sciences*, 7, 107–118.
- Wanberg, C. R. (2012). The individual experience of unemployment. *Annual Review of Psychology*, 63, 369–396.
- Wanberg, C. R., Glomb, T. M., Song, Z., & Sorenson, S. (2005). Job-search persistence during unemployment: A 10-wave longitudinal study. *Journal of Applied Psychology*, 90, 411–430. <http://dx.doi.org/10.1037/0021-9010.90.3.411>.
- Wanberg, C., Kanfer, R., & Rotundo, M. (1999). Unemployed individuals: Motives, job search competencies, and job search constraints as predictors of job seeking and re-employment. *Journal of Applied Psychology*, 84, 897–910.
- Whiston, S.C., Brecheisen, B. K., & Stephens, J. (2003). Does treatment modality affect career counseling effectiveness? *Journal of Vocational Behavior*, 62, 390–410. [http://dx.doi.org/10.1016/S0001-8791\(02\)00050-7](http://dx.doi.org/10.1016/S0001-8791(02)00050-7).
- Zikic, J., & Saks, A.M. (2009). Job search and social cognitive theory: The role of career-relevant activities. *Journal of Vocational Behavior*, 74, 117–127.
- Zimmerman, B. J. (2000). Attainment of self-regulation: A social cognitive perspective. In M. Boekaerts, P. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation, research, and applications* (pp. 13–39). Orlando, FL: Academic Press.