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Self-regulation Training and Job Search Behavior: A Natural Field Experiment Within an Active Labor Market Program

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Abstract

Existing evidence suggests that self-regulation plays an important role in the job search process and labor market reintegration of unemployed persons. We conduct a randomized natural field experiment embedded in an established labor market reactivation program to examine the causal effect of conducting self-regulation training on the job search behavior of long-term unemployed participants. Our treatment involves teaching a self-regulation strategy based on mental contrasting with implementation intentions (MCII). We find that the treatment has a positive effect on the quality of application documents as well as on the probability of participants submitting their documents on time. However, we do not find a positive effect on labor market reintegration—possibly due to the short-term horizon of the data. Because the intervention is very low cost, a rollout to other programs might have high individual and social rates of return.

Keywords: active labor market policy; natural field experiment; job search behavior; unemployed; self-regulation; non-cognitive skills

JEL-codes: C93; J24; J64

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1 Introduction

It is well known that unemployment can have severe adverse effects both on the economy and society in general, as well as on the unemployed individuals in particular. Therefore, in many countries around the world, a tremendous amount of public resources is devoted to reducing unemployment, with a particular focus on long-term unemployment. Nearly half of all unemployed people in the European Union and almost one third of all unemployed people in the United States (US) have been unemployed for 12 months or longer. The total number of long-term unemployed individuals has greatly increased in the OECD countries in the last decade (see, e.g., Duell et al. 2016, OECD 2015). Fighting long-term unemployment requires considerable resources because it is particularly hard to resolve: many long-term unemployed individuals are difficult to place even in a favorable labor market context, as they tend to have particularly low human capital, including unfavorable non-cognitive skills, such as low self-regulation skills (Kokko et al. 2003).

The problem of long-term unemployment is addressed by active labor market policies. Two strands of literature, one in economics and one in psychology, have evaluated the success of such policies. On the one hand, the economic literature—often based on observational or quasi-experimental micro-data from large-scale policy reforms—largely finds that policies attempting to address long-term unemployment have only modest or even negative success rates (see, e.g., Card et al. 2010, 2018, Kluve 2010, Stephan and Pahnke 2011). The labor market policies examined in this strand of the literature aim to either: (i) improve certain aspects of human capital (such as computer skills, health, and technical skills) to increase an unemployed person’s attractiveness to potential employers, or (ii) to improve the job search behavior of unemployed individuals, e.g., by readjusting economic incentives (such as employment subsidies).

More recently, a strand of economic literature has begun to use field experiments to study the specific ingredients of active labor market policies: Altmann et al. (2018) provide job seekers with information about the consequences of unemployment as well as job search strategies. The authors find that the intervention has insignificant effects for their overall sample, but positive

effects in a subsample of unemployed persons who are at risk of long-term unemployment. Belot et al. (2018) find that providing job seekers with suggestions for occupations leads them to receive significantly more invitations for job interviews.

As well as the economics literature, a long-standing strand of literature in psychology largely focuses on specific interventions or certain aspects of the job search process, such as improving self-presentation, boosting self-efficacy, and improving networking or social support. In contrast to the economics literature, these studies often report positive effects of interventions on various aspects of job search activities and cognitions, individual well-being, or reemployment (see, e.g., Caplan et al. 1989, Koen et al. 2013, Noordzij et al. 2013, van Hooft and Noordzij 2009, Vinokur et al. 1995). Liu et al. (2014) provide an overview of this literature. The authors build on the concept of job search as a self-regulatory process and classify the different components of job search interventions into two distinct categories—skill development and motivation enhancement. They conclude that interventions that combine both categories are the most successful with respect to improving job search behavior and reemployment.

Hence, self-regulation skills are not only important in determining human capital, making a person attractive to employers, but also a key ingredient in an individual’s job search behavior. Self-regulation ability or self-control is defined as the ability to set and commit to goals and to regulate behavior, emotions, and attention to strive effectively for these goals.¹ A segment of the literature refers to self-control skills as a crucial skill within the so-called non-cognitive skills category.² In recent decades, non-cognitive skills have generally been documented as strongly influencing labor market success (cf., e.g., Caliendo et al. 2015, Cebi 2007, Dohmen et al. 2009, Heckman and Rubinstein 2001, Heckman et al. 2006, Heckman and Kautz 2012, Heineck and Anger 2010, Lindqvist and Vestman 2011)—whereas the earlier research in economics focused

¹See de Ridder et al. (2012) for a discussion of the definitions of self-control and its behavioral correlates. Here, we use the terms “self-control” and “self-regulation skills” synonymously.

²The term “non-cognitive skills” is used in a great deal of the related economics literature (see, e.g., Cunha and Heckman 2007, 2008) and refers to a broad range of abilities and personality traits; it contrasts with pure cognitive ability, usually measured by IQ tests. We are aware that most of the so-called non-cognitive skills do actually have a cognitive component. Alternative terms include “soft skills”, “socio-emotional skills”, or “character skills” (see, e.g., Heckman and Kautz 2012, Kautz et al. 2014, Koch et al. 2015).

on purely cognitive skills (IQ). Among the non-cognitive skills, self-control and patience have been shown to be core predictors of a number of important life outcomes (Moffitt et al. 2011, Mastrobuoni and Weinberg 2009). More specifically, self-regulation skills have been identified as being especially important for labor market success in general, and lower unemployment duration in particular (Brown et al. 2006, Daly et al. 2015, Kokko et al. 2003, Prussia et al. 2001, Sverko et al. 2008, Turban et al. 2009, Van Hove and Saks 2008, Liu et al. 2014).

One reason for this association is that self-regulation skills can help to improve job search behavior. In the psychological literature, the job search process has been conceptualized as a self-regulatory process (cf. Kanfer et al. 2001, Liu et al. 2014, van Hooft 2018a,b). Specifically, Kanfer et al. (2001) identify job search behavior as the outcome of a self-regulation process based on three main dimensions: intensity–effort, content–direction, and temporal–persistence. Liu et al. (2014) emphasize the importance of both task-relevant skills and task motivation in this self-regulatory process, and highlight the importance of interventions that include both skill development and motivation enhancement to improve job search success effectively.

Our study focuses on the potential to increase self-regulation skills and thus improve job search behavior along the three dimensions conceptualized by Kanfer et al. (2001) by implementing self-regulation training that directly targets the integration and interaction of job search skills and motivational components (cf. Liu et al. 2014, see Section 2 for details). We carried out a randomized-controlled natural field experiment (cf. Harrison and List 2004) by inserting our targeted self-regulation training into an established labor market reactivation program for elderly long-term unemployed individuals in Germany. This framework allows us to causally identify the incremental effect of our low-cost intervention on job search behavior. We primarily focus on the effects of the treatment on the quality of job search (namely, the quality of the prepared application documents) as well as issues of procrastination (namely, submitting documents on time versus late). If the self-regulation training improves job search behavior, this, in turn, is likely to lead to increased labor market reintegration probabilities, as this link has been

well-documented in the literature (cf. Liu et al. 2014, Wanberg et al. 1999, 2002, Wanberg 2012). Therefore, we also analyze the effect of our intervention on short-term labor market reintegration.

The treatment group in our experiment was taught “mental contrasting with implementation intentions” (MCII), a self-regulation strategy developed by psychologists (see, e.g., Oettingen and Gollwitzer 2010) and adapted specifically to our target group. MCII is a self-regulatory strategy that improves goal setting, goal commitment, and goal striving. Its underlying mental and behavioral processes have been intensively researched for several years (Oettingen 2012, 2014). While MCII has not yet been adapted to the labor market context, it has been shown to help people achieve goals in a wide range of contexts, such as health and education (see Section 2). MCII is usually implemented in a very compact and time-efficient manner, and, thus, can be added to the protocol of a labor market reactivation program without considerable expense.

While there is extensive literature on goals and their relevance for self-regulation in psychology (for reviews, see, e.g., Locke et al. 1981, Locke and Latham 2002, 2006), the influence of goals as a key element of the human motivational system has played a rather limited role in the traditional economic approach of modeling individual behavior and decision-making. Rather recently, empirical and theoretical contributions in economics have addressed the question of how goals and implementation intentions can serve as self-regulatory strategies and thus affect decision-making in various contexts. Beshears et al. (2016) attempt to explain from an economic perspective why setting goals (“personal plans”) can help to follow through on intentions. They point out that, on the one hand, people desire to be internally consistent and, on the other hand, goals can be perceived as reference points, which people avoid falling short of owing to loss aversion. The models developed by Bénabou and Tirole (2004), Hsiaw (2013), Koch and Nafziger (2011), and Koch et al. (2014) provide insights into the relationship between goal setting and self-control. Thus, they illustrate the important role of self-regulatory strategies for individual decision-making in economic contexts. Furthermore, the growing literature in behavioral economics on the theory and empirical application of commitment devices emphasizes the

importance of strategies that help to overcome self-control problems (see, for example, Brocas et al. 2004, Bryan et al. 2010, Laibson 2015).

Hence, our study links the literature in labor economics evaluating the effect of active labor market policies on individual behavior with (i) the literature in social psychology on the effectiveness of teaching self-regulation strategies (for more detail, see Section 2), and (ii) the literature in psychology on active labor market interventions. We use a large sample (more than 600 participants) in an externally valid and scalable randomized-controlled field setting to obtain a clean causal identification of the effect of self-regulatory abilities on job search behavior. Moreover, our study contributes methodologically to both strands of literature (i) by using other-rated outcomes, and (ii) by adjusting p-values for multiple hypothesis testing based on a step-down procedure to control for family-wise error rates.

The remainder of the paper is organized as follows. In Section 2, we discuss the background on the self-regulation training that we employed and derive our hypotheses. In Section 3, we present the details regarding our experimental design and the data collection in the study. In Section 4, we report and discuss our results. Section 5 concludes.

2 Background on the Self-regulation Training Employed and Hypotheses

Finding a new job when unemployed is a difficult task, as it requires a great deal of effort to be exerted on a monotonous task over a long period of time. As such, job search has been both theoretically conceptualized and empirically identified as a self-regulatory process (Kanfer et al. 2001, Liu et al. 2014). Successful self-regulation consists of setting and committing to goals, and then effectively striving for them (by successfully regulating behavior, emotions, and attention to tackle critical challenges, such as getting started or staying on track). Kanfer et al.

(2001) define three dimensions of self-regulatory processes that are involved in job search: (i) an intensity–effort dimension (i.e., how often an individual is engaged in job search activities, (ii) a content–direction dimension (referring to the type of activities and their quality), and (iii) a temporal–persistence dimension (referring to the dynamic process of job search over time). Self-regulatory skills can be expected to be linked to (i) increased effort and intensity of job search (e.g., van Hooft et al. 2005, Zikic and Saks 2009), (ii) more goal-directed activities and activities of a higher quality (Van Hooft et al. 2013), and (iii) sustained job search activities over time (Liu et al. 2014, Wanberg et al. 2010, Wanberg 2012). This is particularly crucial for long-term unemployed individuals, who experience repeated setbacks that often result in frustration and discouragement (Wanberg et al. 2012).

The specific self-regulation training that we employ in our study to improve self-regulatory abilities is connected to the conceptual framework outlined by Liu et al. (2014)—they identify two classes of components of (successful) job search interventions, namely *skill development* and *motivation enhancement*. Furthermore, they hypothesize and empirically verify that job search interventions that include *both* components are by far the most successful with respect to reemployment. Thus, they interpret their findings as evidence confirming the notion that “individuals need to possess both the ability to complete the task and the motivation to sustain the effort” (Liu et al. 2014, p. 1027).

We build on these conceptualizations and empirical findings by teaching the unemployed participants a self-regulatory strategy that closely connects and integrates both (i) task-relevant skills and strategies, and (ii) task motivation and intentions: mental contrasting with implementation intentions (MCII). MCII is a self-regulatory strategy that helps people improve their goal setting, goal commitment, goal striving, and, consequently, goal achievement (for an overview see Bargh et al. 2010, Oettingen and Gollwitzer 2012). MCII is a combination of two complementary techniques (described in more detail below), mental contrasting (MC) and implementation intentions (II), that help individuals integrate (i) their intentions and motivations to achieve a certain goal

with (ii) task-specific skills and goal-directed actions that support their actual goal striving. Thus, our self-regulation training follows the insight provided by Liu et al. (2014) by integrating the two key resources for successful interventions in the area of job search behavior. Importantly, in our study, *all* participants (i.e., treatment and control group) are trained in job search skills and goal setting (see Section 3). Thus, any treatment effect will be driven only by the close integration and connection of both resources facilitated by the self-regulation training.

Mental contrasting addresses goal *setting* and goal *commitment* by allowing people to formulate their specific goal (e.g., finding a job), identifying the most positive outcomes associated with reaching this goal (e.g., social recognition by friends or family), and elaborating on the most critical obstacles to achieving the goal (e.g., watching TV instead of searching for job announcements and writing applications). Thus, people applying mental contrasting contrast the desired future with the current reality (see Oettingen 2000, Oettingen et al. 2000, 2001). This process helps people to reflect on their specific goals and scrutinize the goals' feasibility (the expected success), which encourages commitment to feasible goals and effort for goal-directed behavior (e.g., Oettingen and Gollwitzer 2010).

The technique of implementation intentions (II) promotes goal *striving* by helping to overcome the difficulties of, for example, getting started, staying on track, and not overextending oneself. It promotes goal achievement by forming “if–then rules”.³ This technique requires first identifying a goal-relevant situational cue (i.e., the “if” component) and a planned response to that cue (i.e., the “then” component) (Gollwitzer et al. 2010, p. 280) to formulate if–then plans in the form of “*If I encounter situation X, then I will react with behavior Y*” (Gollwitzer 1999). An example in the job search context would be “If/when I feel like watching TV, then I will first spend half an hour searching for job announcements”. In a meta-analysis, Gollwitzer and Sheeran (2006) demonstrate that implementation intentions can substantially improve goal achievement. In the job search context, implementation intentions have been shown to mediate

³More precisely, these rules should be termed “when-then rules” as they usually refer to regularly occurring situations. We nevertheless cite the term “if-then rule” in order to connect to the existing literature on Mental Contrasting with Implementation Intentions (MCII).

the relationship between job search intentions and job search behavior (van Hooft et al. 2005), and have been conceptualized as an important component of planning goal pursuit in the job search process (Van Hooft et al. 2013).

There is ample evidence that the combination of both techniques, i.e., MC and II, in the MCII strategy, effectively improves goal attainment for various target groups across different time horizons and in different areas, such as nutrition (Adriaanse et al. 2010, Stadler et al. 2010, Loy et al. 2016), academic performance (Duckworth et al. 2011, 2013), physical activity (Stadler et al. 2009), health-related domains (Christiansen et al. 2010, Milkman et al. 2011), integrative bargaining (Kirk et al. 2013), personal relationships (Houssais et al. 2012), and time management (Oettingen et al. 2015). However, the MCII strategy has not yet been applied in the labor market context. We expect this strategy to be promising in mitigating long-term unemployment, as it has often been proven to be particularly effective when tailored to goals of high personal importance (Adriaanse et al. 2010, 2009, Koestner et al. 2002)—we assume that finding work for long-term unemployed individual falls into this category.⁴

Because the application of MCII can be expected to link motivation to pursue a specific goal closely with the enactment of goal-directed behavior, we expected that training long-term unemployed individuals in this self-regulation strategy would mostly affect the content–direction dimension of job search (cf. Kanfer et al. 2001). By contrast, it was expected that the intensity–effort dimension would be strongly affected already by the pure goal setting processes (e.g., van Hooft and Noordzij 2009, Noordzij et al. 2013) that were part of the active labor market program for both the treatment and the control group (see Section 3 for details); therefore, we did not expect strong differences in the intensity–effort dimension. Because MCII is known to improve goal striving by helping individuals get started, stay on track, or, more generally, overcome procrastination, we also expected a positive effect of the treatment on the temporal–persistence dimension

⁴We asked participants in our study how important it was for them personally to find a job within the next six months. We found that less than 3% answered that it is “rather not important” or “not important at all”, whereas more than 80% answered that it is “important” or “very important” to them (17% answered that it is “somewhat important”).

of job search behavior (see Gollwitzer and Sheeran (2006) on implementation intentions and procrastination, and Van Hooft et al. (2013) for a theoretical underpinning of procrastination in job search). Therefore, we derive the following hypothesis:

Hypothesis 1:

Unemployed individuals in the treatment group (learning the self-regulation strategy MCII) will display improved job search behavior, mainly in the content–direction dimension (i.e., the quality of their CV) and the temporal–persistence dimension (the timing of the submission of their CV).

Based on broad evidence that improved job search behavior is linked to higher chances for labor market reintegration (cf. Liu et al. (2014) for a meta-analytic overview, and Wanberg et al. (1999, 2002), Wanberg (2012), we further derive the following hypothesis:

Hypothesis 2:

At the end of the program, individuals in the treatment group will have higher rates of labor market reintegration than will individuals in the control group.

3 The Field Experiment

3.1 Procedures

Field Partner. We conducted our study with a long-standing German labor market service provider (henceforth referred to as our “field partner”). Our field partner has long-running programs in the areas of vocational education, further education and training, health education, and reintegration of unemployed individuals. Since 2005, our field partner has operated a training program for the reintegration of elderly long-term unemployed individuals into the labor market. The program has been operated in two different cities located close to each other (henceforth denoted as locations A and B). At both locations, several labor market coaches (henceforth denoted as “coaches”) conducted the program (more details about the coaches are provided below). It is important to emphasize that our field partner had to apply for funding on a year-to-year basis and,

therefore, had to recurrently prove its success in terms of achieving high rates of integration of its participants into the labor market and full-time employment. As this kind of service industry is a very competitive market in Germany, there is constant pressure on our field partner to improve the program further and remain competitive. The fact that our field partner has been running this program successfully since 2005 indicates the high quality of our partner's training concept but also makes further improvements to the program very challenging.

The Existing Reactivation Program. Over the past decade, the setup of the training program established by our field partner has generally resembled that of other German reactivation programs. For each unemployed participant, the program lasted a maximum of six months and employed several strategies to facilitate reemployment. First, a relationship between a participant and a coach was established. Second, the participants were trained in the skills relevant for the job search process, e.g., search strategies, application strategies, and computer skills, to optimize these skills. Third, in addition to these job search-related activities, participants' general activity levels were promoted by offering them health-related activities (e.g., opportunities to exercise were provided). Finally, program participants were recommended to potential employers and equipped with suitable job advertisements and advice on where relevant jobs in the region could be found. All unemployed persons completed the same six-month program; they left the program earlier only if they found a job before the end of the program.

Participants. The federal funding line through which our field partner ran this program focused on elderly long-term unemployed individuals, i.e., individuals aged 50 years and above, who had been unemployed for more than 12 months. The *Jobcenter* (the public employment service center) assigned unemployed persons in groups of around 17 ($SD = 4$) participants to our field partner's program. Our field partner then assigned every incoming group to one coach who accompanied this group throughout the duration of the program. We randomly assigned entire groups (which were exogenously formed by the Jobcenter) to either the treatment or the control condition. Groups started during the course of the year, for the most part between January and July (about 75%). Groups starting after July finished by the end of the year (for organizational

reasons) and, thus, received a shorter program. The treatment and control groups were balanced in terms of the program starting times over the year.

Coaches. During the time of our field experiment, six different coaches managed the program. These coaches held most of the workshops and individual meetings with their groups. All coaches but two trained several groups within both the treatment and control condition. Two coaches trained only one group each—in a robustness test, we exclude the participants trained by these coaches, and our findings from the analyses do not change (see Table A1 columns (6) to (8) and Table A6 columns (5) to (8)). The fact that coaches trained both treatment groups as well as control groups allows us to control for coach-fixed effects.

Timeline. In 2011, we set up our collaboration with the field partner and designed the field experiment and the materials used in the treatment. We decided not to run the intervention ourselves, but to adopt a “train-the-trainer” approach suitable for rollout to many other programs. Thus, in early January 2012, we conducted a training session with all coaches and the administrative staff of our field partner and introduced them to the self-regulatory strategy, the documents and materials used during our intervention, and all the organizational procedures of the study. The intervention started in January 2012 and was initially planned to last for two years. However, because of the strong economic development and constant decrease in the unemployment rate in Germany during the study period, far fewer participants than expected were assigned to our field partner’s program. Therefore, we decided to extend the study for another year until the end of 2014. Thus, our analysis is based on data covering unemployed individuals assigned to our field partner’s labor market program from 2012 to 2014.

3.2 Treatment

All participants, i.e., participants in treatment and control conditions, went through the same reactivation program, which lasted for a maximum of six months. Treatment and control participants only differed with respect to the two training modules described below, each of which

lasted for about 30 minutes (see Table 1 for an overview). Entire groups in the program were randomly assigned to treatment or control condition. At the beginning of each year, we communicated the sequence in which incoming groups should be labeled treatment or control groups to our field partner. Thus, incoming groups sent by the Jobcenter were assigned to treatment or control condition before actually “arriving” at the activation program. This ensured that the treatment assignment was realized without any knowledge about the groups’ or the participants’ characteristics. Individuals were not allowed to change groups during their program participation. Hence, any issues regarding self-selection were ruled out by the design of the study.

The treatment group in our experiment was taught “mental contrasting with implementation intentions” (MCII), a self-regulation strategy developed by psychologists (see, e.g., Oettingen and Gollwitzer 2010) and adapted specifically to our target group. The treatment was embedded into the reactivation program in that the self-regulation training modules were included in two existing workshops: one workshop on application strategies and another on goal setting. All participants were obliged attend all workshops as part of the program. Importantly, no participants were aware that different treatment conditions existed or that an experiment was being conducted; hence, they were not aware of which experimental group they were assigned to. Furthermore, different groups met at different days and different times. Exchange between groups was reduced to a minimum, which made potential spillovers unlikely.

First Self-Regulation Training Module. The first self-regulation training module addressed very specific goals. It took place in week three or four of the program as part of the workshop on application strategies. The workshop provided by our field partner was designed to train participants in general application activities, such as reading job advertisements, writing cover letters, and designing and optimizing a CV. It also provided an overview of the job market and its development within the relevant region. The workshop lasted for about four hours. At the end of the workshop, participants in the treatment and control groups were given an information sheet that encouraged them to consider the importance of a well-prepared CV and informed them that they were required to submit a revised CV to the field partner’s office on a specific date.

Table 1: Treatment group content in comparison to control group content

	Treatment Group	Control Group	
First Self-Regulation Training Module	Workshop content (equal for both groups)	Application training: access to and interpretation of job advertisements, writing cover letters, designing and optimizing one’s CV, information on local job market, stressing the importance of a well-prepared CV, fixed submission date for revised CV	
	MCII Training	Yes, 30 min (squeezed into total time)	No
	Type of goal	Specific / fixed	—
	Total duration	4 hours	4 hours
	Timing	Week 3 or 4	Week 3 or 4
Second Self-Regulation Training Module	Workshop content (equal for both groups)	Goal setting: importance of goal setting, SMART goals, exercise sheet with individual goals (including positive aspects of goal attainment, obstacles or habits preventing goal attainment, and necessary resources)	
	MCII Training	Yes, 30 min (squeezed into total time)	No
	Type of goal	Individual / open	—
	Total duration	2 hours	2 hours
	Timing	Week 5 or 6	Week 5 or 6

From this point, a difference between the treatment and control individuals was introduced, as the MCII strategy was taught solely to participants in the treatment condition. To keep instructions as simple as possible, the strategy was taught as a four-step technique, as follows: (1) “Imagine your goal” (e.g., Why do I want to achieve this goal? How good would I feel after achieving it?); (2) “Potential obstacles” (e.g., What hinders goal attainment? What are the reasons the goal has not been achieved so far?); (3) “Overcoming obstacles” (e.g., How can these barriers be overcome? How can they be prevented from appearing?); and (4) “My if–then–rule” (in the form of “If a critical situation X emerges, I will react with behavior Y!”). Then, the treatment-group participants were requested to complete a document in which they applied the four steps to the goal of submitting their revised CV to our field partner. In addition, the treatment-group participants received a sticker on which the four steps were listed in order that they were asked to put somewhere prominent at home (e.g., on the door of their refrigerator)—this was intended to serve as a constant reminder about the self-regulation strategy (owing to

the large number of native Russian speakers among the participants, all exercise sheets and the sticker notes were also translated into Russian). By contrast, participants in the control group were not taught the MCII strategy, but, like the treatment group, they were requested to complete a document that reminded them of the importance of a well-prepared CV and committed them to submitting a revised CV on a specific date. Hence, while participants in the treatment group applied the MCII strategy by contrasting the desired future to the current reality and formulating specific implementation intentions, participants in the control group were only encouraged to think about the future and to formulate goal intentions.

In this first self-regulation training module, a specific goal was fixed for all participants, as they were all required to submit a revised CV by a specific date. The advantages of prescribing the same goal for all participants (compared with allowing for individualized goals) are that, first, the MCII strategy can be taught more easily using a common goal; second, the MCII strategy has been shown to work better when goals are very specific (compared with “do-your-best” goals, cf. Locke and Latham 2002, 2006); and third, prescribing the same goal for all participants allowed us to measure goal achievement more easily. The disadvantage is that participants may be differentially committed to that predefined goal.

Second Self-Regulation Training Module. The second self-regulation training module aimed at fully utilizing the benefits of setting individualized goals. The module was embedded in an existing workshop on goal setting that lasted for two hours and took place in week five or six of the six-month reactivation program. During this workshop, coaches explained to the participants (in both the treatment and control condition) why goal setting is important, and introduced them to the idea of SMART goals—that is, setting specific (S), measurable (M), appropriate (A) and realistic (R) goals within a specified time frame (T) (Doran 1981). This topic was already part of the existing program, rather than being introduced by us. Thus, our field partner was already covering some of the problems that we hypothesized as being crucial for the job search process. In addition to the common workshop content, participants in the treatment group then received another short tutorial on the MCII strategy and learned to apply the aforementioned four-step technique to their individual goals. Finally, all participants (in the treatment and con-

trol groups) were requested to fill out an exercise sheet on which they specified their goals and obstacles. Coaches emphasized that all participants should consider their individual goals and their own obstacles or habits that hindered them from goal attainment. In addition, participants in the treatment group were requested to apply the four steps of the MCII strategy (see above) to their individual goal when completing the exercise sheet, whereas those in the control group were requested only to list some positive aspects of attaining their goal, obstacles that had to be overcome, and resources required. Both groups started the exercise in class and took it home to finish, submitting it the following week.

Note that both self-regulation training modules only lasted for about 30 minutes each and that they were fully integrated into the existing program provided by our field partner. Importantly, coaches did not spend more time with participants in the treatment group than they did with participants in the control group; additional lessons for the treatment groups were “squeezed” into the given time frame for the sessions without skipping any of the existing topics. All groups covered the same topics, learned the same job search strategies, and were encouraged to think of the same aspects of goal setting. The only difference between the treatment and control groups was the additional teaching and application of the MCII strategy for the treatment group—in the first module for a very specific goal and in the second module for an individualized goal.

3.3 Data Collection

To evaluate the impact of our treatment, we collected information on participants’ job search behavior and labor market integration success. Furthermore, we elicited socioeconomic and psychological background variables.

Main Outcome Variables. For our main estimations, we use three variables reflecting participants’ job search behavior: (i) the other-rated quality of the submitted CV (content–direction dimension), (ii) whether the CV was submitted to our field partner on time (temporal–persistence dimension), and (iii) whether a CV was submitted at all (intensity–effort dimension). As de-

scribed in Section 3.2, in the application workshop, participants learned that a professional CV is the fundamental component of a successful application and is very important for finding a new job. After the workshop, the individuals in both the treatment and the control group committed to revising their curriculum vitae (CV) and submitting the improved document to their coaches on a specific date. Once the CV was submitted, it was first rated and then revised by the administrative staff. The ratings of the CVs ranged from 1 to 4, as follows: 1 = complete revision of the document required, 2 = significant changes required, 3 = small changes required, and 4 = no changes required. Thus, a higher score corresponds to a better expected “performance” of the submitted CV, with respect to the probability of getting a job interview or finding a job. Owing to their long experience with training and placing long-term unemployed people, our field partner was an expert in judging the quality of the groups’ CVs and their probability of success. In determining the rating, the administrative staff compared the expected performance of the submitted CV with the expected performance of the CV after revision by the professionals. Thus, the rating did not reflect the participants’ qualifications, only the way participants presented themselves in their CV. Participants were not aware in advance that the rating would take place or that their CV would be revised. Further, ratings were not communicated to participants. The rating procedure was not introduced by us, as it was part of our field partner’s program prior to our study. Once our study commenced, the rating process was usually conducted by a staff member taking a number of CVs, sometimes mixed between the groups, then rating and revising them one by one. In location A, one of the two staff members responsible for this procedure also conducted some application workshops. We acknowledge the possibility that the staff member from location A who conducted workshops may have recognized an applicant’s name when assessing the CVs and recalled which treatment condition was implemented during the respective workshop; thus, his ratings might have been not blind to treatment condition. However, given the large number of participants and the cognitively demanding process, we consider that this was very unlikely. Nevertheless, we report a robustness test below in which we include only participants from location B, where the rating staff were completely unaware of the treatment condition to which applicants belonged. The effect of our treatment on CV quality proves to be robust even

in this much smaller sample (see Section 4.1 for details). All CVs eventually had to be revised to a similar level of quality by our field partner before they were used in real job applications. This is unfortunate for our study, as it did not allow us to evaluate the importance of CV quality for integration success; however, this is understandably a result of the pressure on our field partner to ensure the highest possible success rates for its participants.

Further Outcome Variables. Initially, we collected information on the number of applications, the number of job interviews, and the number of internships that participants completed. However, our field partner stopped collecting this information after a few months as it was considered to be too work-intensive for the administrative staff. Hence, the data are available only for a very small subgroup of participants and do not allow us to conduct deeper analyses (see Section 4.2 for details).

Moreover, our field partner collected information on whether a participant found a full-time job subject to social insurance contribution during the six months of participation in the program. As this was the primary measure of success for our field partner in reports to their funding institutions, the data quality can be considered to be very high. Unfortunately, no information was collected after participants left the program.⁵ Therefore, we can evaluate labor market integration success only in the very short run.

Control and Moderator Variables. Additional information on participants' sociodemographic and personal characteristics—e.g., gender, age, migration background, work experience, education, and personality—was either directly provided by our field partner or gathered via a survey questionnaire on background characteristics and personality traits, such as self-control and Locus of Control. The questionnaire was distributed to all participants in week one or two of the program, prior to the workshop on job applications (i.e.,⁶ Further, for a small subsample (N=60), we have information about what goals participants set in the workshop. It turns

⁵In a very few cases, the Jobcenter communicated a success to our field partner *after* the six-month program (e.g., when the Jobcenter inferred a strong effect of participation in the program on job finding). As the Jobcenter had no knowledge of the treatment condition to which participants belonged, these cases do not bias our results.

⁶As described in Section 3.1, participants left the program either when they found employment or when the program ended after six months. It was not possible to collect any information on participants after they had left the program.

out that the majority (75%) set job-related goals (i.e., related to job search, preparation, and qualifications). The majority of the remaining participants set health-related goals (17%)—good health is an important prerequisite for some participants for finding a job. Thus, we conclude that the workshop was successful in this respect. Due to the small sample size, however, these data have not been further analyzed.

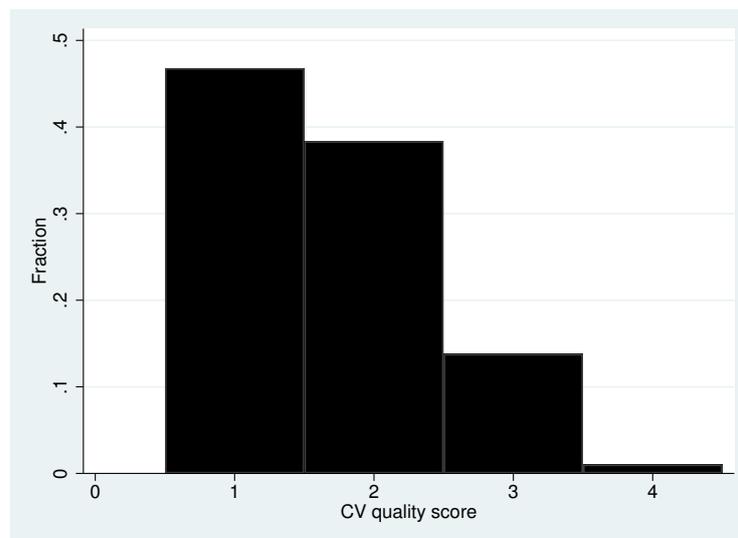
3.4 Descriptive Statistics

Our final sample consists of 616 participants assigned to 45 groups between 2012 and 2014;⁷ A total of 363 participants were assigned to the treatment condition (59%) and 253 to the control condition.⁸ Table 2 provides summary statistics for all variables used. For the variable ‘CV score’, we only have 391 observations because not all participants submitted a CV and not all submitted CVs were rated. For ‘Submission on time’, we only have 339 observations as this is based on those CVs that were actually submitted. Further missing values (i.e., missing information about the timing of submission for some CVs) arose for administrative reasons at our field partner and are unrelated to treatment status. The distribution of the CV scores is shown in figure 1. It is skewed to the left, the mean CV score is 1.7, and 47% have the lowest (worst) score. As Table 2 shows, 65% of the participants submitted their CVs; among these, 63% submitted within the predefined time frame. In total, 88 participants (14%) were actually integrated in the labor market within the observed time horizon. One fourth of the participants were located in location B; mean group size is 16.6. Moreover, 48% of the participants were female, the mean age

⁷In 2012, an additional 57 participants were assigned to the first treatment module only (i.e., that within the application workshop, see Section 3.2) and an additional 76 participants were assigned to the second treatment module only (i.e., that within the goal setting workshop). The reason was that we initially planned to assess the effects of the two treatment modules separately. However, due to an improvement in German labor market conditions, a decreasing number of unemployed individuals entered the program such that the number of observations no longer sufficed to continue separate assessments. Therefore, we decided to assign participants in 2013 and 2014 either to both modules or to none of the modules (the control group), and we discarded from our sample the 133 participants assigned to only one module.

⁸The number of participants assigned to the treatment and control condition is not perfectly balanced because in location B in 2013, our field partner mistakenly assigned two more incoming groups to the treatment condition than initially planned (see Section 3.1). As this occurred without any prior knowledge of the characteristics of the participants, the only drawback is the unbalanced numbers; selection issues do not compromise the randomization procedure. In addition, we include location, coach, and year fixed effects as covariates in our final estimations to account for imbalances with respect to those variables.

was 55 years, 48% had a migration background, 92% had some labor market experience (subject to social insurance contributions), 34% had no professional degree, 54% had a vocational degree, and 12% had a university degree. The cardinal Locus of Control (LOC) score is the standardized average of the six LOC items given in Table A4 in the Appendix. ‘Internal LOC’ is a binary variable that takes a value of one if the cardinal Locus of Control (LOC) score is above its median (i.e., rather internal) and zero if the cardinal LOC is below its median (i.e., rather external). The cardinal self-control score is the standardized average of the eight self-control items given in Table A3 in the Appendix. ‘High self-control’ is a binary variable that takes a value of one if the cardinal self-control score is above its median and zero if it is below its median. Pairwise correlation coefficients for the variables are provided in Table A5 in the Appendix. The table shows that the treatment indicator is correlated with program-related control variables, but uncorrelated with individual (sociodemographic) control variables, as discussed in the following section.



Note: N = 391. CV score is a variable ranging from 1 (“poor”) to 4 (“very good”).

Figure 1: Distribution of CV Score

3.5 Randomization Test

In order to test successful randomization into the treatment and control conditions, we estimate the treatment indicator as a function of various program-related and sociodemographic char-

Table 2: Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Treatment	0.589	0.492	0	1	616
CV score	1.691	0.743	1	4	391
High CV score (binary)	0.532	0.5	0	1	391
CV submission on time (binary)	0.631	0.483	0	1	339
CV submission (yes/no)	0.653	0.477	0	1	616
Number of applications	6.596	6.627	0	47	161
Number of interviews	1.461	2.072	0	14	141
Number of internships	0.456	0.609	0	2	68
Labor market integration	0.143	0.35	0	1	616
Year 2012	0.195	0.396	0	1	616
Year 2013	0.484	0.5	0	1	616
Year 2014	0.321	0.467	0	1	616
Coach 1	0.159	0.366	0	1	616
Coach 2	0.023	0.149	0	1	616
Coach 3	0.019	0.138	0	1	616
Coach 4	0.49	0.5	0	1	616
Coach 5	0.086	0.281	0	1	616
Coach 6	0.222	0.416	0	1	616
Location B	0.245	0.431	0	1	616
Location A	0.755	0.431	0	1	616
Group size	16.584	4.407	5	26	616
Female	0.476	0.5	0	1	616
Age	54.755	3.548	50	65	616
Migration background	0.48	0.5	0	1	590
Work experience	0.92	0.271	0	1	528
No professional degree	0.342	0.475	0	1	549
Vocational degree	0.537	0.499	0	1	547
University degree	0.119	0.324	0	1	547
Internal LOC	0.55	0.498	0	1	509
High self-control	0.593	0.492	0	1	420

'CV score' is a measure for the quality of the submitted CV document, it takes on integer values between 1 (lowest quality) to 4 (highest quality). 'High CV score' is a binary variable that takes on the value 1 if 'CV score' is 2, 3, or 4 and the value 0 if CV score is 1. 'Internal LOC' is a binary variable that takes on the value 1 if the cardinal Locus of Control (LOC) score is above its median (i.e., rather internal) and the value 0 if the cardinal LOC score is below its median (i.e., rather external). The cardinal LOC score is the standardized average of the six LOC items given in table A4 in the appendix. 'High self-control' is a binary variable that takes on the value 1 if the cardinal self-control score is above its median and the value 0 if the cardinal self-control score is below its median. The cardinal self-control score is the standardized average of the eight self-control items given in table A3 in the appendix.

acteristics based on a linear probability model (see Table 3; we also ran probit specifications, results did not change). None of the sociodemographic variables—i.e., gender, age, age squared, migration background, work experience, and education—is significantly linked to the treatment assignment; moreover, these variables are jointly insignificant ($p=0.64$). When we examine pairwise correlations instead of multiple regression, we also find that none of the sociodemographic variables is significantly correlated with treatment status. This suggests adequate randomization with respect to individual characteristics. By contrast, the program-related characteristics—i.e., year fixed effects, location, and group size—are jointly significant ($p<0.01$) in the estimation in Table 3, which was due to administrative issues at our field partner. However, we take care of this imbalance between the groups by adding the program-related characteristics as controls to our regressions. To do so, we decided to proceed as follows: in Section 4 below, we report three versions of our main estimation results: version (1) without further control variables, version (2) including program-related characteristics, and version (3) including program-related as well as sociodemographic characteristics. Our results are very similar for all three versions.

4 Results

4.1 Main Results

In Table 4 we report our main results, i.e., the effect of the treatment on the quality of the submitted CVs (columns (1) to (3)), the probability of submitting the CV to our field partner on time vs. late (columns (4) to (6)), and the probability of handing in any CV (regardless of whether it was on time or late) (columns (7) to (9)). The estimations are based on least squares regressions with standard errors clustered at the group level. As discussed above, we report the results from three specifications: without control variables (columns (1), (4), and (7)), including program-related control variables (year fixed effects, coach fixed effects, and group size; see columns (2), (5), and (8)), and including both program-related and sociodemographic characteristics (gender, age, age squared, migration background, work experience, and education; see columns (3), (6),

Table 3: Randomization Test: Estimation of Treatment Indicator

	Treatment
Year 2013	0.207*** (0.058)
Year 2014	0.039 (0.065)
Location A	-0.126** (0.050)
Group size	0.034*** (0.004)
Female	0.038 (0.042)
Age	-0.218 (0.186)
Age ²	0.002 (0.002)
Migration background	-0.030 (0.046)
Work experience	-0.074 (0.074)
Vocational degree	-0.017 (0.048)
University degree	0.021 (0.071)
Constant	6.005 (5.161)
N	508
R squared	0.132

The estimation is based on a linear probability model. Reference category for year is 2012; reference category for education is no professional degree. Standard errors are in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

and (9)). To account for the fact that we tested multiple hypotheses, we report adjusted p-values using the (very conservative) step-down procedure suggested by Holm (1979). Our findings are robust to adjusting for multiple testing.

Concerning our first main outcome variable, the CV score, we find that the treatment has a significantly positive effect in all three specifications. Taking specification 2 (with program-related control variables) as our main specification—which seems most reasonable given the results from section 3.5—we see that the treatment increases the CV score by 0.206 points, which corresponds to 28% of a standard deviation. From Figure 1 and Table 2, we can see that the majority of participants (47%) were given the lowest CV score. Estimating the treatment effect on a binary CV score measure, we find that the treatment increases the probability of having a high CV score (a score higher than 1) by 15 percentage points (see Table A1 column (1) in the Appendix). As described in Section 3.3, not all CVs in location A were rated by staff members who were fully blind to the treatment. Thus, as a robustness check, we estimate the treatment effect on the CV score for participants in location B only. The result is reported in Table A1 column (2) in the Appendix. Our result is robust despite the small remaining sample size.

Concerning our second main outcome variable, submission on time, we again find that the treatment has a positive effect (see columns (4) to (6) of Table 4). As for the first outcome variable, given the results from section 3.5, we take specification 2 as our main specification (column 5). We conclude that the treatment increases the probability of submitting one's CV on time by 22 percentage points—given that the CV was submitted at all.

As some participants did not submit a CV to our field partner (only 391 CVs of the 616 participants were scored), we consider the possibility that our treatment affected this selection. This would complicate the interpretation of the first two outcomes. To check this, we use the probability of submitting any CV as our third outcome variable in Table 4; see columns (7) to (9). We do not find any significant treatment effect on the probability of submitting a CV to our

field partner in any of the three specifications. Thus, we conclude that selection into the group of those submitting any CV did not change as a result of the treatment.

All reported results are based on linear probability models. Estimating probit models instead, we find very similar results (see Table A1 columns (3) to (5) in the Appendix). Further, as discussed above, two of the labor market coaches trained only one group of participants each. If these two coaches were systematically different from other coaches, this could bias the results. However, estimating the results with a reduced sample (dropping all participants trained these coaches who taught only one group each) yields very similar results (see Table A1 columns (6) to (8) in the Appendix).

Table 4: Treatment Effect on Quality of Submitted CV, Submission on Time, and Submission Probability

	CV score			Submission on time			Submission (yes/no)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Treatment	0.247*** (0.088)	0.206** (0.091)	0.248*** (0.087)	0.136 (0.090)	0.223*** (0.069)	0.239*** (0.069)	-0.086 (0.112)	-0.040 (0.103)	-0.030 (0.110)
MHT-adj. <i>p</i> values (Holm)	.023**	.058*	.014**	.284	.008***	.005***	.890	.697	.785
Program-related char.	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Socio-demographic char.	No	No	Yes	No	No	Yes	No	No	Yes
N	391	391	341	339	339	330	616	616	590
R squared	0.027	0.063	0.185	0.019	0.131	0.147	0.008	0.176	0.190
Adjusted R squared	0.025	0.041	0.145	0.016	0.110	0.115	0.006	0.164	0.172

All estimations are based on a linear probability model with different sets of control variables. ‘CV score’ is a measure for the quality of the submitted CV document, it takes on integer values between 1 (lowest quality) to 4 (highest quality). ‘Submission on time’ and ‘Submitted (yes/no)’ are binary variables. Program-related characteristics include year fixed effects, coach fixed effects, and group size. Socio-demographic characteristics include gender, age, age squared, migration background, labor market experience, and education. Standard errors given in parentheses are clustered on the group level. Multiple hypothesis testing (MHT) adjusted *p* values are formed following the stepdown procedure suggested by Holm (1979) over the three outcomes for each respective set of controls. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

In sum, we conclude that the MCII treatment improved participants' job search behavior in the content–direction and temporal–persistence dimensions (cf. Kanfer et al. 2001), given the substantial treatment effect on the quality of the submitted CV and on the probability of submitting on time. Thus, our findings confirm hypothesis 1. It should be kept in mind that—apart from the two short intervention modules—the control group was participating in the same active labor market program, which explicitly emphasizes the effectiveness of closely integrating and connecting the two critical components of successful job search interventions—skill development and motivational enhancement (cf. Liu et al. 2014).

4.2 Further Results

As mentioned in Section 3.3, we collected some data on the number of applications, job interviews, and internships completed by the participants. The results of regressions on the treatment indicator are reported in Table A2 in the Appendix. The treatment effect is not significantly different from zero for the number of applications or the number of job interviews; for the number of internships, we find a significantly positive treatment effect. However, owing to the very small number of observations for the sample containing this information, we are cautious about interpreting this result; nevertheless, we report the results for completeness.

The resulting labor market integration success is the final economically relevant outcome of any active labor market program. Therefore, in the next set of analyses, we estimate the effect of our treatment on the probability of labor market integration. Note, however, that as soon as a participant leaves our field partner's program (i.e., at a maximum of five months after the second intervention module), we are unable to collect data about his or her labor market success. Hence, we are able to investigate the labor market reintegration success only in the short run. This is unfortunate because first, our sample might be too small to identify small effects on short-run labor market success, and second, a recent field experiment on labor market reintegration suggests that treatment effects are more likely to appear in the long run (see Altmann et al. 2018).

The results of an estimation of the treatment effect on short-run labor market reintegration based on a linear probability model with standard errors clustered at the group level are reported in Table 5 column (1). The treatment effect is close to zero and insignificant.

To investigate whether the treatment improved labor market reintegration for specific subgroups of participants, we conducted some post-hoc analyses to examine heterogeneous treatment effects with respect to three characteristics that we considered to be most relevant in this context. First, given that our treatment addresses problems of self-regulation ability, we analyze whether participants with an initially low self-regulation ability (and, thus, more room to improve their abilities) benefited from the treatment more than those whose self-regulation ability was high prior to the treatment. We proxy initial self-regulation ability using a self-control scale from our questionnaire (see Section 3.3 for details). In Table 5, column (2), we estimate the heterogeneous treatment effect with respect to self-control. The coefficient related to self-control is positive (as expected), but insignificant. The coefficient of the interaction with the treatment is negative (as expected), but also insignificant. Thus, a heterogeneous treatment effect with respect to self-control (as a proxy for initial self-regulation ability) is not supported by our data.

Second, we investigate the heterogeneous treatment effect with respect to Locus of Control (LOC). LOC is an individual difference measure that captures the “generalized belief for internal versus external control of reinforcement” (Rotter 1966, p. 1). It is a measure of the degree to which an individual perceives that success or failure in life follows from his or her own behavior or attributes (internal) rather than being controlled by outside forces such as chance or general circumstances (external). Recent sociopsychological findings point to the fact that self-regulation as a goal-directed behavior is highly dependent on the belief that own actions lead to desired consequences (Cobb-Clark 2015). Similarly, earlier research shows that a person applies self-regulation skills only if he or she believes that own behavior and effort does influence outcomes (Rosenbaum 1980). Therefore, participants who do not believe that their own actions affect the probability of success (i.e., those with an external LOC) are unlikely to adopt a self-

regulatory strategy that helps them achieve their goals; it is most likely that they do not see the point of learning a (new) self-regulation strategy. By contrast, participants who believe that their own actions are crucial for success (i.e., those with an internal LOC) are likely to be keen on learning a new strategy that helps them regulate their own behavior and emotions and thus improve goal-directed actions.⁹

Therefore, we analyze whether the treatment involving teaching a self-regulation strategy was more effective for participants with an internal LOC than for participants with an external LOC. The results of estimating the treatment effect including LOC as well as an interaction effect between the treatment and LOC are reported in Table 5, column (3). The results confirm a strong heterogeneous treatment effect with respect to LOC: the interaction effect with the treatment indicator is significantly positive. This means that the treatment was significantly more effective for participants with an internal LOC than for those with an external LOC. Interestingly, the main effect of having an internal LOC is close to zero and insignificant; thus, in our setting (and our sample), the above-mentioned findings of a direct effect of LOC on labor market outcomes (e.g., Caliendo et al. 2015) are not replicated. In turn, this result is partially in line with Kanfer et al. (2001)—they also report only very weak relationships between LOC and job search behavior.

Third, since our treatment is an abstract strategy and might be rather difficult to understand and apply—although it is strongly adapted to our target group—we analyze whether the treatment was more effective for more highly educated individuals than for less highly educated individuals. We test for a heterogeneous treatment effect with respect to educational background. The results are reported in Table 5, column (4). Neither the main effect of having a vocational or university degree nor the interaction effect with the treatment indicator is significantly different from zero. Thus, our evidence does not support the idea of a heterogeneous treatment effect with

⁹In addition, LOC has also been found to matter directly for labor market outcomes: people with an internal LOC tend to achieve higher wages (Cebi 2007, Heineck and Anger 2010, Piatek and Pinger 2016) and search for jobs more intensively, believing that investments in job search have a higher payoff in terms of reemployment probabilities (Caliendo et al. 2015, McGee 2015).

respect to educational background.

As for our main results, for the outcome of labor market integration, we also perform robustness tests using probit models (Table A6 columns (1)–(4)) and a reduced sample, dropping all participants that were coached by a trainer who trained only one group (Table A6 columns (5)–(8)). The robustness checks confirm all the results discussed above. Further, when using a cardinal (standardized) measure for LOC and for self-control, our results are very similar (see Table A6 columns (9)–(10)).

Table 5: Treatment Effect on Probability of Labor Market Integration—Main Effect and Heterogeneous Treatment Effects

	(1)	(2)	(3)	(4)
Treatment	-0.013 (0.035)	-0.002 (0.057)	-0.085 (0.060)	0.009 (0.042)
Treatment × high self-control		-0.026 (0.063)		
High self-control		0.054 (0.045)		
Treatment × internal LOC			0.140** (0.064)	
Internal LOC			-0.031 (0.045)	
Treatment × voc or univ degree				-0.008 (0.063)
Vocational or university degree				-0.005 (0.050)
Program-related char.	Yes	Yes	Yes	Yes
N	616	420	509	547
R squared	0.011	0.019	0.031	0.015
Adjusted R squared	-0.004	-0.003	0.010	-0.006

Estimations are based on a linear probability model. ‘High self-control’ is a binary variable that takes on the value 1 if the cardinal self-control score is above its median and the value 0 if the cardinal self-control score is below its median. The cardinal self-control score is the standardized average of the eight self-control items given in table A3 in the appendix. ‘Internal LOC’ is a binary variable that takes on the value 1 if the cardinal Locus of Control (LOC) score is above its median (i.e., rather internal) and the value 0 if the cardinal LOC score is below its median (i.e., rather external). The cardinal LOC score is the standardized average of the six LOC items given in table A4 in the appendix. Program-related characteristics include year fixed effects, coach fixed effects, and group size. Standard errors given in parentheses are clustered on the group level. * p<0.10, ** p<0.05, *** p<0.01.

4.3 Favorable Cost -Benefit Ratio

Finally, we outline some cost-benefit considerations for our intervention. As previously mentioned, our intervention (i) is designed in a way that it is easily scalable (it involves a train-the-trainer approach and is minimally disruptive in terms of existing reactivation program schedules), and (ii) involves very low costs (virtually no material costs and very little time costs, only around 60 minutes for participants—this additional time may not even be required as the intervention can be integrated into existing workshops. Costs per participant are conservatively estimated (i.e., giving an upper bound for the cost of the training) as follows. We assume the train-the-trainer session for the coaches lasts for a maximum of five hours, and that about 10 coaches can be trained together by one trainer. This would result in a maximum cost of 500 EUR per coach (including the trained coaches' opportunity costs and the contribution to the salary of the trainer conducting the session). Estimating that 10 groups with 10 participants per group are supervised by one coach results in 5 EUR per participant. Material costs per participant amount to a maximum of an additional 5 EUR. Adding opportunity costs of time of 80 EUR for coaches for the 60-minute MCII training sessions (i.e., about 8 EUR per participant if there are 10 participants per group) and opportunity costs of time of 40 EUR for unemployed participants, we estimate a total cost of about 58 EUR per participant. Despite this very conservative calculation, even a very small positive effect of the intervention would result in a large rate of return. Benefits from possibly reduced unemployment include an increase in well-being as well as an improvement of the financial situation of the previously unemployed individuals; the society as a whole benefits from cost savings, increased tax returns, and improved utilization of its productive capacity in terms of human capital. Participants might even apply the MCII strategy outside the labor market domain to improve their goal achievement, which in turn, might result in improvements in well-being and other life outcomes. We conclude that this potentially high individual and social rate of return would justify the application of our low-cost self-regulation training in the context of labor market reactivation programs.

5 Conclusion

In this paper, we explore the extent to which specific self-regulation training, which we added in a randomized controlled natural field experimental design to an existing and successful active labor market program, can improve job search behavior. More specifically, we use a field experimental setting to investigate whether teaching mental contrasting with implementation intentions (MCII)—an easy-to-learn and well-established self-regulatory strategy—can improve the success of the program.

Our main result reveals a positive treatment effect on participants' job search behavior. In line with our hypothesis, we find that treated participants improve on the content–direction dimension of job search, i.e., they submit a higher quality CV document. Likewise, the treatment group shows better results for the temporal–persistence dimension of job search behavior, i.e., participants in the treatment group are more likely to submit their CV on time. We do not find effects of the self-regulation training on the intensity–effort dimension of job search behavior, i.e., participants in the treatment group are not more likely to submit a CV. All of our results are robust to multiple hypothesis corrections. In further analyses, we cannot identify a treatment effect on the probability of being reintegrated into the labor market. Note, however, that we are able to measure this outcome only in the short term. We also document a heterogeneous treatment effect on labor market reintegration: participants with an internal Locus of Control (LOC) benefit more from the treatment than participants with an external LOC. This is consistent with the theory of LOC: individuals who believe that they can influence their success in life to a high degree (i.e., those with an internal LOC) are more likely to adopt a new strategy that helps them achieve their goals. By contrast, individuals who believe to a high degree that factors outside their control influence their success in life (i.e., those with an external LOC) are less likely to be actively pursuing their goals; consequently, they are less likely to adopt a new strategy that might help them achieve their goals. We do not find heterogeneous treatment effects with respect to self-control or educational background.

As we find a positive treatment effect of the self-regulation training on job search behavior, and because job search behavior constitutes an important determinant of reemployment success (see. Wanberg et al. 2002, Wanberg 2012, Liu et al. 2014), we conclude that the training could improve the success of similar activation programs. At the same time, our finding empirically confirms the relevance of goal setting and self-control for economic decision-making and behavior (cf., for example, Bénabou and Tirole 2004, Beshears et al. 2016, Koch and Nafziger 2011).

The reason why we did not find an overall treatment effect on the reintegration probability into the labor market might be that we have data on reintegration only for a short time horizon (within six months after the start of the reactivation program). As suggested by other recent work on labor market measures (see Altmann et al. 2018), it is likely that effects occur in the long run. Furthermore, the participants in our experiment were elderly unemployed persons (aged between 50 and 65 years), and one could speculate that younger unemployed persons would benefit more from the self-regulation training because the goal of finding a job is more important when the working-age time span remaining is longer. If the goal is more important for younger people, they are likely to be more open to learning a new strategy that assists them in improving their job search behavior. Moreover, there is first suggestive evidence that the MCII strategy works better for younger people (Marquardt et al. 2017). Finally, it has been shown that the internal LOC declines between 35 and 55 years of age (see Specht et al. 2013), indicating that our treatment might have considerably stronger effects for younger individuals. When evaluating the results of our minimally invasive intervention, one needs to keep in mind, first, that active labor market programs are a huge, professional, and highly competitive industry in Germany. Only the comparably high success of our field partner's training program enabled this program to survive for more than 10 years in this industry (cf. section 3.1). Accordingly, any improvement of the program's integration rate can be considered challenging.

To conclude, our paper has further confirmed that using targeted interventions to address sociopsychological and self-regulatory barriers to labor market integration appears to be a worth-

while policy measure to pursue. Our intervention addresses an individual skill that could be targeted in existing programs, it is easy to implement, involves a reasonable cost, and has positive effects on job search behavior. However, more research is clearly needed, in particular, on evaluating long-run effects to advance further our understanding of the key obstacles to reintegration, how to best train unemployed individuals to overcome these obstacles, and which subgroups benefit the most from training.

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Online Appendix

Table A1: Treatment Effect on Quality of Submitted CV, Submission on Time, and Submission Probability—Robustness Tests

	Only location B		Probit			Drop coaches with only one group		
	High CV score (1)	CV score (2)	High CV score (3)	Submission on time (4)	Submission (yes/no) (5)	CV score (6)	Submission on time (7)	Submission (yes/no) (8)
Treatment	0.147** (0.057)	0.322** (0.123)	0.141*** (0.054)	0.209*** (0.061)	-0.040 (0.098)	0.206** (0.091)	0.223*** (0.069)	-0.040 (0.103)
Program-related char.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	391	130	391	339	604	368	327	590
R squared	0.072	0.045				0.058	0.135	0.169
Pseudo R squared			0.054	0.107	0.136			

Columns (1), (2), and (6)-(8) are based on a linear probability model. Columns (3)-(5) are based on a probit model. 'CV score' is a measure for the quality of the submitted CV document, it takes on integer values between 1 (lowest quality) to 4 (highest quality). 'High CV score' is a binary variable that takes on the value 1 if 'CV score' is 2, 3, or 4 and the value 0 if CV score is 1. 'Submission on time' and 'Submitted (yes/no)' are binary variables. Program-related characteristics include year fixed effects, coach fixed effects, and group size. Standard errors given in parentheses are clustered on the group level. * p<0.10, ** p<0.05, *** p<0.01.

Table A2: Treatment Effect on Number of Applications, Number of Interviews, and Number of Internships

	Applications	Interviews	Internships
Treatment	-1.893 (1.583)	-0.156 (0.247)	0.388*** (0.048)
Program-related char.	Yes	Yes	Yes
N	161	141	68
R squared	0.120	0.226	0.675

Estimations are based on a linear probability model. Program-related characteristics include year fixed effects, coach fixed effects, and group size. Standard errors given in parentheses are clustered on the group level. * p<0.10, ** p<0.05, *** p<0.01.

Table A3: Factor Analysis of Self-control Items

	Eigenvalue	
Factor1	2.715915	
Factor2	.4609141	
Factor3	.0947158	
Factor4	.001958	
Factor5	-.0975401	
Factor6	-.1212735	
Factor7	-.157756	
Factor8	-.2571068	

	Factor 1	Factor2
I abstain from things today in order to be able to buy more tomorrow.	.4951207	.2574265
I rather enjoy the day than thinking about tomorrow. (reversed)	.4756091	.2735823
I am good in resisting temptations.	.5948169	.2182237
I am very self-disciplined.	.6755326	.1127346
Sometimes, I do things that are bad for me just because they are fun. (reversed)	.6199503	.0800316
Sometimes, I cannot bestir myself to do things. (reversed)	.5709763	-.2728891
I get distracted easily when I need to get things done. (reversed)	.5662967	-.314824
Often, I do not finish things that I started. (reversed)	.6351148	-.2819222

Factor analysis based on the method of principal factors. In the survey items, participants were asked, “Here we list several personal attitudes and behaviors. To what extent do you agree with them?”. Participant could answer based on a Likert scale ranging from 1 “fully disagree” to 5 “fully agree”. Items 1 and 2 are taken from the youth questionnaire of the German Socio-Economic Panel study; items 3–5 stem from the self-control scale developed by Tangney et al. (2004) and translated into German and validated by Bertrams and Dickhäuser (2009); items 6–8 are developed by the authors of this paper based on the pattern of the Dispositional Self-Control Scale (see Ein-Gar et al. 2008).

Table A4: Factor Analysis of Locus of Control Items

	Eigenvalue	
Factor1	1.479171	
Factor2	.2474783	
Factor3	-.033859	
Factor4	-.1097859	
Factor5	-.1788588	
Factor6	-.2125986	

	Factor 1	Factor 2
In my life, good luck is more important than hard work for success. (reversed)	.3824006	.3001255
Every time I try to get ahead, something or somebody stops me. (reversed)	.6338363	-.0750392
Making plans makes me unhappy, especially because my plans hardly ever work out. (reversed)	.6303498	-.1588733
When I make plans, I am almost certain I can make them work.	.2970989	-.1755022
Chance and luck are very important for what happens in my life. (reversed)	.4306176	.2976461
I do not have enough control over the direction my life is taking. (reversed)	.5100511	-.0844817

Factor analysis based on the method of principal factors. In the survey items, participants were asked, “To what extent do you personally agree with the following statements?” They could answer based on a Likert scale ranging from 1 “fully disagree” to 5 “fully agree”. The questionnaire is taken from the National Education Longitudinal Study of 1988 in the US and translated into German by the authors of this paper.

Table A5: Pairwise Correlation Coefficients

	Treatment index	CV score	CV submission on time	CV submission (yes/no)	Labor market integration	Year 2013	Year 2014	Location A	Group size	Female	Age	Migration backgr	Work experience	Vocational degree	University degree	Internal LOC (binary)	LOC (cardinal)	High self-control (binary)	Self-control (cardinal)	
Treatment	1.000																			
CV score	0.165*** (0.001)	1.000																		
CV submission on time	0.138** (0.011)	0.138** (0.024)	1.000																	
CV submission (yes/no)	-0.089** (0.027)	0.000	0.176*** (0.001)	1.000																
Labor market integration	-0.008 (0.841)	-0.033 (0.518)	-0.005 (0.923)	0.015 (0.704)	1.000															
Year 2013	0.148*** (0.000)	0.121** (0.017)	-0.154*** (0.005)	-0.119*** (0.003)	-0.024 (0.554)	1.000														
Year 2014	-0.097** (0.016)	-0.076 (0.133)	0.024 (0.655)	-0.053 (0.192)	0.007 (0.860)	-0.666*** (0.000)	1.000													
Location A	-0.108*** (0.008)	-0.126** (0.013)	-0.168*** (0.002)	-0.257*** (0.000)	0.071* (0.079)	-0.015 (0.715)	0.037 (0.364)	1.000												
Group size	0.246*** (0.000)	0.090* (0.076)	-0.125** (0.021)	-0.232*** (0.000)	0.055 (0.170)	-0.107*** (0.008)	0.014 (0.735)	0.134*** (0.001)	1.000											
Female	0.002 (0.956)	-0.050 (0.323)	0.060 (0.267)	0.046 (0.251)	-0.240*** (0.000)	-0.005 (0.905)	-0.001 (0.975)	-0.032 (0.434)	-0.073* (0.069)	1.000										
Age	-0.003 (0.945)	-0.022 (0.659)	-0.015 (0.781)	0.039 (0.334)	-0.138*** (0.001)	-0.026 (0.526)	0.052 (0.202)	0.030 (0.460)	0.021 (0.602)	0.020 (0.620)	1.000									
Migration background	-0.058 (0.162)	-0.232*** (0.000)	-0.076 (0.167)	0.050 (0.228)	0.075* (0.068)	-0.018 (0.666)	-0.015 (0.719)	0.114*** (0.006)	-0.006 (0.877)	-0.005 (0.903)	0.032 (0.436)	1.000								
Work experience	-0.064 (0.143)	0.179*** (0.001)	-0.024 (0.669)	-0.078* (0.072)	0.125*** (0.004)	-0.023 (0.599)	0.032 (0.462)	-0.014 (0.744)	-0.042 (0.337)	-0.202*** (0.000)	-0.006 (0.889)	-0.258*** (0.000)	1.000							
Vocational degree	0.015 (0.727)	0.238*** (0.000)	0.010 (0.849)	-0.035 (0.410)	-0.021 (0.628)	0.135*** (0.002)	-0.026 (0.541)	-0.015 (0.724)	-0.039 (0.357)	0.024 (0.577)	0.013 (0.753)	-0.354*** (0.000)	0.069 (0.115)	1.000						
University degree	-0.012 (0.784)	0.019 (0.722)	0.046 (0.406)	-0.004 (0.927)	0.008 (0.854)	-0.135*** (0.002)	0.147*** (0.001)	0.041 (0.334)	0.042 (0.328)	-0.033 (0.444)	0.008 (0.860)	0.166*** (0.000)	-0.003 (0.952)	-0.396*** (0.000)	1.000					
Internal LOC (binary)	-0.007 (0.881)	0.073 (0.187)	0.027 (0.642)	-0.131*** (0.003)	0.068 (0.127)	-0.003 (0.940)	0.048 (0.285)	0.016 (0.716)	0.073 (0.100)	-0.010 (0.828)	-0.002 (0.962)	-0.078* (0.083)	0.005 (0.914)	0.022 (0.632)	0.044 (0.340)	1.000				
LOC (cardinal)	-0.028 (0.532)	0.063 (0.248)	0.019 (0.746)	-0.099** (0.026)	0.051 (0.247)	-0.029 (0.518)	0.044 (0.323)	-0.014 (0.751)	0.049 (0.272)	-0.040 (0.364)	0.007 (0.872)	-0.087* (0.056)	0.022 (0.645)	0.009 (0.843)	0.049 (0.283)	0.791*** (0.000)	1.000			
High self-control (binary)	0.065 (0.186)	0.014 (0.827)	0.086 (0.203)	0.054 (0.272)	0.047 (0.332)	-0.079 (0.104)	0.079 (0.104)	-0.051 (0.295)	-0.024 (0.628)	0.130*** (0.007)	0.137*** (0.005)	0.085* (0.086)	-0.036 (0.487)	-0.003 (0.961)	0.052 (0.314)	0.143*** (0.005)	0.157*** (0.002)	1.000		
Self-Control (cardinal)	0.086* (0.077)	0.072 (0.261)	0.046 (0.495)	0.027 (0.581)	0.059 (0.225)	-0.072 (0.139)	0.072 (0.139)	-0.119** (0.015)	-0.021 (0.674)	0.146*** (0.003)	0.144*** (0.003)	0.095* (0.056)	-0.047 (0.371)	-0.004 (0.942)	0.065 (0.201)	0.150*** (0.003)	0.177*** (0.000)	0.779*** (0.000)	1.000	

'CV score' is a measure for the quality of the submitted CV document, it takes on integer values between 1 (lowest quality) to 4 (highest quality). 'High CV score' is a binary variable that takes on the value 1 if 'CV score' is 2, 3, or 4 and the value 0 if CV score is 1. 'Internal LOC' is a binary variable that takes on the value 1 if the cardinal Locus of Control (LOC) score is above its median (i.e., rather internal) and the value 0 if the cardinal LOC score is below its median (i.e., rather external). The cardinal LOC score is the standardized average of the six LOC items given in table A4 in the appendix. 'High self-control' is a binary variable that takes on the value 1 if the cardinal self-control score is above its median and the value 0 if the cardinal self-control score is below its median. The cardinal self-control score is the standardized average of the eight self-control items given in table A3 in the appendix. *p*-values are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A6: Treatment Effect on Probability of Labor Market Integration—Main Effect and Heterogeneous Treatment Effects—Robustness Tests

	Probit				Drop coaches with only one group				Cardinal LOC/self-control	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Treatment	-0.014 (0.034)	-0.004 (0.058)	-0.097 (0.064)	0.009 (0.041)	-0.013 (0.035)	0.004 (0.057)	-0.090 (0.062)	0.015 (0.043)	-0.010 (0.044)	-0.017 (0.049)
Treatment × high self-control		-0.020 (0.062)				-0.035 (0.064)				
High self-control		0.048 (0.040)				0.064 (0.046)				
Treatment × internal LOC			0.149** (0.067)				0.150** (0.067)			
Internal LOC			-0.032 (0.042)				-0.041 (0.049)			
Treatment × voc or univ degree				-0.010 (0.063)				-0.018 (0.065)		
Vocational or university degree				-0.004 (0.051)				0.005 (0.053)		
Treatment × cardinal LOC								0.088** (0.037)		
Cardinal locus of control								-0.034 (0.029)		
Treatment (d) x Self-Control										-0.034 (0.033)
Self-Control										0.046 (0.029)
Program-related char.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	616	420	499	547	590	407	486	525	509	420
R squared					0.009	0.019	0.028	0.014	0.034	0.023
Pseudo R squared	0.014	0.024	0.037	0.018						

Columns (1)-(4) contain marginal effects from probit estimations; the interaction effects are calculated based on Ai and Norton (2003). Columns (5)-(10) are based on a linear probability model. ‘High self-control’ is a binary variable that takes on the value 1 if the cardinal self-control score is above its median and the value 0 if the cardinal self-control score is below its median. The cardinal self-control score is the standardized average of the eight items given in table A3 in the appendix. ‘Internal LOC’ is a binary variable that takes on the value 1 if the cardinal Locus of Control (LOC) score is above its median (i.e., rather internal) and the value 0 if the cardinal LOC score is below its median (i.e., rather external). The cardinal LOC score is the standardized average of the six items given in table A4 in the appendix. Program-related characteristics include year fixed effects, coach fixed effects, and group size. Standard errors given in parentheses are clustered on the group level. * p<0.10, ** p<0.05, *** p<0.01.

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