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DISCUSSION PAPER

NHH



Institutt for samfunnsøkonomi  
Department of Economics

**SAM 13/2019**

**ISSN: 0804-6824**

March, 2020

This series consists of papers with limited circulation, intended to stimulate discussion.

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

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March 24, 2020

## Abstract

Recent evidence suggests that self-regulation abilities play an important role for the job finding success of unemployed persons. We conduct a randomized controlled trial embedded in an established labor market reactivation program to examine the effect of a self-regulation training on job search effort of long-term unemployed participants. Our treatment involves teaching a self-regulation strategy based on mental contrasting with implementation intentions. 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 significant positive effect on labor market reintegration. We discuss several reasons for this null finding and conduct further exploratory analyses to learn about heterogeneous treatment effects.

**Keywords:** active labor market policy, natural field experiment, job search effort, job application effort, labor market reintegration, long-term unemployment, self-regulation, self-control, non-cognitive skills

**JEL-codes:** C93, J24, J64

**Acknowledgments:** The authors are very thankful to our field partner and the possibility to cooperate in this project. Also, we would like to thank Florian Berger, Sylwia Bialek, Florian Hett, and Gabriele Oettingen for valuable comments. Further, we thank the participants of the 18th IZA Summer School in Labor Economics 2015, the Conference on Economic Design in Istanbul 2015, the Workshop on Economics of Education and Self-Regulation in Mainz 2015, the Workshop in Behavioral and Experimental Economics at the Choice Lab in Bergen 2015, the Workshop on Microeconomics in Lüneburg 2016, the Spring School in Behavioral Economics at the Rady School of Economics in San Diego 2016, the Field Days 2016 at the Social Science Center (WZB) in Berlin, the EEA-ESEM Conference in Lisbon 2017, and the Annual Conference of Verein für Socialpolitik in Vienna 2017 for their comments. The authors are also grateful to seminar participants at the University of Mainz, the University of Lüneburg, the Economic Colloquium at the IAAEU in Trier, and the Experimental Design Workshop at Goethe University in Frankfurt. Stefan Brungs, Dominik Dietrich, Alexander Dzionara, Tim Klausmann, Svenja Lüling, Hannah Schwabl, and Daniel Solbach provided valuable research assistance. The authors gratefully acknowledge financial support by the Fritz Thyssen Foundation (grant number 10.12.1.102).

# 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, a tremendous amount of public resources is devoted to reducing unemployment in many countries around the world. A particular focus is set on long-term unemployment: Nearly half of all unemployed individuals in the European Union and almost one third of all unemployed individuals in the US have been unemployed for twelve months or longer. The total number of long-term unemployed individuals has strongly 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).

One widespread approach of reducing long-term unemployment is active labor market policy. However, the overall success of active labor market policies—often evaluated based on observational or quasi-experimental micro-data<sup>1</sup>—tends to be modest or even negative (see, e.g., Card et al. 2010, 2018, Kluve 2010, Stephan and Pahnke 2011).<sup>2</sup> While active labor market policies vary a lot in their content, they usually follow either one of two general goals: (i) improve certain aspects of human capital (such as computer skills, health conditions, technical skills) in order to increase an unemployed individual’s attractiveness for potential employers, or (ii) to improve the job search behavior of unemployed individuals, e.g., by readjusting economic incentives (such as employment subsidies).

Self-regulation skills are not only an important aspect of human capital, making a person more attractive for employers, but they are also key to an individual’s job search effort. Self-regulation ability or self-control is a non-cognitive skill<sup>3</sup> defined as the ability to set and commit to goals and to regulate effort, emotions, and attention to strive effectively for these

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<sup>1</sup>A recent literature has started to use field experiments for studying specific ingredients of active labor market policies: Altmann et al. (2018) provide job seekers with information about consequences of unemployment as well as job search strategies. The authors find that the intervention has mostly insignificant effects in the overall sample but positive effects in a subsample of unemployed persons who are at risk for long-term unemployment. Belot et al. (2018) find that providing job seekers with suggestions for occupations leads the job seekers to receive significantly more invitations for job interviews. Maibom et al. (2017) find that frequent individual meetings between newly unemployed workers and their caseworkers have significant effects on employment rates.

<sup>2</sup>Some studies conclude that certain active labor market programs (e.g., low-cost short-term training schemes (Osikominu 2013)) can have positive (long-term) effects under special conditions: in times of higher unemployment rates (Lechner and Wunsch 2009), for programs targeted at participants’ specific needs (such as for young unemployed persons (Blundell et al. 2004) or for immigrants (Sarvimäki and Hämäläinen 2016)).

<sup>3</sup>The term “non-cognitive skills” is used in a large part of the related 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

goals.<sup>4</sup> In addition to cognitive skills, non-cognitive skills have been established as key determinants for 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). Among non-cognitive skills, especially self-control and patience have been shown to be core predictors 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 Hoyer and Saks 2008). One reason for this association is that self-regulation skills can help to enhance job search activities (van Hooft and Noordzij 2009, Noordzij et al. 2013). Self-regulation seems to be a particularly important skill for exerting high job search effort because searching for employment is a highly autonomous activity which requires the ability to constantly self-regulate effort and emotions. Job seekers have to self-organize and manage their search as they decide on the search intensity, diversity, and persistence. Discouragement and frustration due to rejections as well as uncertainty about job finding opportunities might further corroborate the role of self-regulation skills, particularly for long-term unemployed persons (Wanberg 2012). Kanfer et al. (2001) identify job search behavior as the outcome of a self-regulation process. That self-regulation skills are an important ingredient for the job search process is further supported by Lammers et al. (2013)—they show that enforcing stricter search requirements for unemployed individuals (and, thus, partially bypassing the self-regulation problems) leads to strong changes in outflows to employment but also to disability benefits. In fact, DellaVigna and Paserman (2005) report a negative correlation between impatience and job search effort as well as unemployment exit rates. They conclude that a new channel for active labor market policies is likely to be beneficial, namely “direct assistance that forces the worker to go through the most unpleasant steps of the search process” (DellaVigna and Paserman 2005, p. 570). Baay et al. (2014) even found that self-control is a significantly stronger predictor of job search behavior than work motivation; the authors propose that interventions should focus on improving self-control skills. Therefore, our study focuses on the potential of increasing self-regulation skills in order to improve job search effort. Improved job search effort (intensity as well as quality), in turn, is likely to result in increased reemployment probabilities as documented in the literature (cf. Wanberg et al. 1999, 2002, Wanberg 2012).

We carried out a randomized-controlled field experiment in which we included a targeted self-regulation training into an established active labor market program. In this paper, we

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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).

<sup>4</sup>See, for example, 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.

study the incremental effect of this low-cost intervention on job search effort. While “job search effort” consists of a wide range of activities, in the present study, we primarily focus on job applications, i.e., effort spent on activities like preparing and revising one’s CV, writing applications, showing up for job interviews, etc. We analyze micro-data from a natural field experiment<sup>5</sup> embedded in an existing labor market reactivation program for elderly long-term unemployed individuals in Germany.

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. We expected the self-regulatory training to promote effort spent on job search activities that, in turn, facilitate the labor market reactivation of unemployed individuals.

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. Setting personal goals might be considered as an internal commitment mechanism (Bénabou and Tirole 2004). In contrast, external commitment mechanisms include, for example, making promises to other parties (Carrillo and Dewatripont 2008) and buying

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<sup>5</sup>We refer to our experiment as a natural field experiment because our participants were not aware of their participation in the experiment (cf. Harrison and List 2004).

commitment-savings products (Ashraf et al. 2006, Thaler and Benartzi 2004). 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 Laibson (2015) for an overview).

To the best of our knowledge, this is the first study to investigate the impact of teaching unemployed individuals a self-regulation strategy. Our study links a broad and long-standing literature in labor economics evaluating the effect of active labor market instruments on individual behavior (see Card et al. (2018) for a review) with (i) the economic literature on goals and self-control as well as (ii) the literature in social psychology on the effectiveness of teaching a self-regulation strategy (see Section 2).

Our main results show that the self-regulation training improves job search effort: (i) we find a positive treatment effect on the quality of the CV submitted by participants at our field partner; (ii) we find a positive treatment effect on the probability of submitting the CV document on time instead of late (among those who do submit); (iii) we find no treatment effect on the probability of submitting any CV document at our field partner. The results are robust to multiple hypothesis corrections. In further analyses, we investigate the effect of our treatment on short-term labor market integration. While we do not find an overall treatment effect, we find (consistent with psychological theory) participants with an internal Locus of Control to benefit more from the self-regulation training than participants with an external Locus of Control. We do not find a heterogeneous treatment effect with respect to baseline self-control or education. Overall, as our intervention comes at a very low cost, we argue that the self-regulation training could potentially be a cost-efficient ingredient for reactivation programs addressing long-term unemployment.

The paper is organized as follows: Section 2 provides details on the self-regulation training that we applied in the treatment group. Section 3 explains our experimental design and data collection. Section 4 presents the results. Section 5 discusses and concludes.

## **2 The Self-Regulation Training: Background Information**

Finding a new job when unemployed is a difficult task which requires a lot of effort. To exert job search effort for such a monotonous task over a longer period of time demands high self-regulatory skills (see discussion in Section 1). Successful self-regulation comprises *setting* oneself goals, *committing* to them, and then effectively *striving* for these goals (by successfully regulating behavior, emotions, and attention to tackle critical challenges such as getting started or staying on track). Strong self-regulatory skills help to sustain job search activities over time (see Wanberg 2012); this is particularly crucial for long-term unemployed indi-

viduals who experience repeated setbacks that often result in frustration and discouragement (Wanberg et al. 2012). To address these challenges, we teach the unemployed participants a self-regulatory strategy: mental contrasting with implementation intentions.

Mental contrasting with implementation intentions is a self-regulatory strategy that helps people to 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, mental contrasting (MC) and implementation intentions (II), which we both describe in turn.

Mental contrasting addresses goal *setting* and goal *commitment* by allowing people 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 the 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). Hence, people applying MC contrast the desired future with the current reality (see Oettingen 2000, Oettingen et al. 2000, 2001). Mental contrasting helps people to reflect on their specific goals and scrutinize the goals' feasibility (the expected success). This encourages commitment to feasible goals and effort for goal-directed behavior (e.g., Oettingen and Gollwitzer 2010).

The technique of implementation intentions 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 so-called "if-then-rules". This technique requires to first "identify a future goal-relevant situational cue (i.e., the if-component) and a related planned response to that cue (i.e., the then-component)" (Gollwitzer et al. 2010, p. 280) in order to then formulate if-then plans in the form of "*If I encounter situation X, I will react with behavior Y*" (Gollwitzer 1999). An example in the job search context would be "When I feel like watching TV, I 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. For example, Milkman et al. (2011) show that reminder emails which include implementation intention prompts significantly increase vaccination rates relative to a control group which receives a reminder without an implementation intention prompt.

Both techniques, mental contrasting and implementation intentions, are combined to MCII because mental contrasting improves goal commitment and the technique of implementation intentions has been found to be particularly effective for goals people are highly committed to (see Sheeran et al. 2005). There is broad evidence in the psychological literature that 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 technique has not yet been applied in the labor market context. We expect this strategy to be particularly promising in mitigating long-term unemployment as the technique has often proven to be especially effective when tailored to goals of high personal importance (Adriaanse et al. 2010, 2009, Koestner et al. 2002)—as we assume is finding work for long-term unemployed individuals.<sup>6</sup>

## 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 been running various 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 location 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 field partner’s training concept but at the same time makes it challenging to further improve the program.

**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 for a maximum of six months and employed several strategies to facilitate reemployment: First, a relationship be-

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<sup>6</sup>We 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 unimportant” 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”).

tween 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. 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). Finally, program participants were recommended to potential employers and equipped with suitable job advertisements and advice on where relevant jobs in the region can 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 have been unemployed for more than 12 months. The *Jobcenter* (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. 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. Treatment and control groups were balanced in terms of starting time 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; 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 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 roll-out 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). We assigned entire groups (which were exogenously formed by the Jobcenter) to either treatment or control conditions. At the very 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 their 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 design. The treatment was embedded in the flow of the reactivation program by including self-regulation training modules in two existing workshops: one workshop on application strategies, the other on goal setting. All participants were obliged to be present in all workshops as part of the program. Importantly, participants neither knew that different treatment conditions existed nor that an experiment was being conducted; hence, they were not aware of which experimental condition they were assigned to. Furthermore, different groups met at different days and different times. Exchange between groups was reduced to a minimum which makes potential spillovers unlikely.

**First Self-Regulation Training Module.** The first self-regulation training module addressed very specific goals. It took place in week 3 or 4 of the program as part of the workshop on application strategies. The existing workshop was designed to train general application activities such as reading job advertisements, writing cover letters, 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 as well as the control condition filled out a form that encouraged them to think of 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.

From this point, the difference between the treatment and control individuals was introduced by teaching the MCII strategy 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" (Why do I want to achieve this goal? How good would I feel af-

Table 1: Treatment Group Content in Comparison to Control Group Content

		Treatment Group	Control Group
<b>First Self-Regulation Training Module</b>	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
<b>Second Self-Regulation Training Module</b>	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

*Notes:* Overview of the two workshops in treatment and control group. Both groups share much of the content but only the treatment group receives the MCII training. Duration and timing of the workshops do not differ between treatment and control group.

ter achieving it? Etc.), (2) “Potential obstacles” (What hinders goal attainment? What are reasons for not having reached the goal so far? Etc.), (3) “Overcoming obstacles” (How to overcome barriers? How to prevent them from appearing? Etc.), and (4) “My if-then-rule” (in the form of “If critical situation X emerges, I will react with behavior Y!”). Participants in the treatment condition were then requested to fill out a form applying the four steps to the goal of submitting their revised CV document to our field partner. They also received a sticker note listing the four steps in order to be put on the door of their refrigerator—this was intended to remind them about the self-regulation strategy.<sup>7</sup> Participants in the control condition, in contrast, did not learn the MCII strategy but were also requested to fill out a form which, however, only reminded them of the importance of a well prepared CV document and committed them to hand in 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 condition 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 (as compared with allowing for individualized goals)

<sup>7</sup>Due to the large number of native Russian speakers among the participants, all exercise sheets and the sticker note were also translated into Russian.

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 (as 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 5 or 6 of the six-month reactivation program. During this workshop, coaches explained to the participants (both in treatment and control conditions) why goal setting is important, and introduced them to the idea of SMART goals—setting specific (S), measurable (M), appropriate (A) and realistic (R) goals within a specified time frame (T) (Doran 1981). Note that 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 condition then received another short tutorial on the MCII technique and learned to apply the aforementioned four-step technique to their individual goals. Finally, all participants (in treatment and control conditions) 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 condition were additionally requested to apply the four steps of the MCII strategy (see above) to their individual goal when completing the exercise sheet, whereas participants in the control condition 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 condition than they did with participants in the control condition; additional lessons for the treatment groups were “squeezed” into the given time frame for the sessions without skipping any of the previously 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 treatment and control groups was the additional teaching and application of the MCII technique for the treatment groups—in the first module for a very specific goal, and in the second module for an individualized goal.

### 3.3 Data Collection

In order to evaluate the impact of our treatment, we collected information on participants' application effort and labor market integration success. Furthermore, we elicited socio-economic and psychological control and moderator variables.

**Main Outcome Variables.** For our main estimations, we use three variables reflecting participants' application effort: (i) the quality of the submitted CV, (ii) whether the CV document was submitted to our field partner on time (versus late), and (iii) whether or not a CV document was submitted at all. As described in Section 3.2, participants learned in the application workshop that a professional CV document is the fundamental component of a successful application and is very important for finding a new job. After the workshop, treatment as well as control groups committed to revise their CVs and hand in 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. Participants were neither aware of the rating nor of the revision of their CV document in advance. Also, ratings were not communicated to participants. The ratings of the CVs ranged from 1 ("poor") to 4 ("very good"). Thus, a higher rating 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. The rating process was usually conducted in the following way: a staff member of our field partner took a large stack of CVs, sometimes mixed between groups, then rate and revise them one by one. In location A, one of the two staff members responsible for this procedure also conducted some application workshops. In case this staff member were to recognize the current name from the pile of CVs and remember which treatment condition was implemented during the respective workshop, his ratings might not have been blind to treatment. However, given the large number of participants and the cognitively demanding process, this was very unlikely. Nevertheless, we report a robustness test below in which we include only participants from location B, where the rating staff was completely blind to treatment conditions. 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 finally had to be revised to a similar level of quality by our field partner before they were used in real job applications. On the one hand, this is unfortunate for our study, as it prevented 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. On the other hand, the fact that our field partner decided to invest considerable resources in optimizing every participant's CV underlines the major importance of CV quality for labor market reintegration in our field setting; thus, it highlights that the effects of our intervention on CV quality are—very likely—important for general reintegration success.

**Further Outcome Variables.** Initially, we started to collect the number of applications, the number of job interviews, and the number of internships that participants completed. Yet, 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, this 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.<sup>8</sup> Therefore, we can evaluate labor market integration success only in the very short-run.

**Control and Moderator Variables.** Additional information on participants' socio-demographic and personal characteristics—gender, age, migration background, work experience, education, personality, etc.—was either directly provided by our field partner or surveyed by use of a questionnaire on a number of background characteristics as well as personality traits such as self-control and Locus of Control. The questionnaire was distributed to all participants in a workshop prior to the workshop on job applications (i.e., in week 1 or 2 of the program).<sup>9</sup>

### 3.4 Descriptive Statistics

Our final sample consists of 616 participants assigned to 45 groups between 2012 and 2014;<sup>10</sup> A total of 363 participants were assigned to the treatment condition (59%) and 253 to the control condition.<sup>11</sup> Table 2 provides summary statistics for all variables used. For the

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<sup>8</sup>In 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 was blind to treatment, these cases do not bias our results.

<sup>9</sup>As 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.

<sup>10</sup>In 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 (control group) and we discarded from our sample the 133 participants assigned to only one module.

<sup>11</sup>The number of participants assigned to 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). Yet, as this occurred without prior knowledge of the characteristics of the participants, the only drawback of this are unbalanced numbers in treatment and control group; 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.

Table 2: Summary Statistics

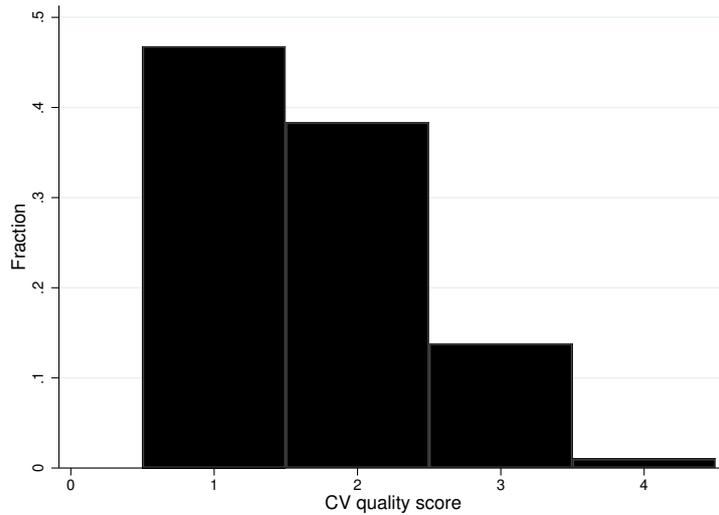
Variable	Mean	Std. Dev.	Min.	Max.	N
Treatment	0.589	0.492	0	1	616
CV score	1.691	0.743	1	4	391
High CV score (binary)	0.532	0.5	0	1	391
CV submission on time (binary)	0.631	0.483	0	1	339
CV submission (yes/no)	0.653	0.477	0	1	616
Number of applications	6.596	6.627	0	47	161
Number of interviews	1.461	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

*Notes:* ‘CV score’ is a measure for the quality of the submitted CV, it takes integer values from 1 (lowest quality) to 4 (highest quality). ‘High CV score’ is a binary variable that takes a value of one if ‘CV score’ is 2, 3, or 4 and the value zero if CV score is 1. ‘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 the value zero 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 A5 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 the value zero 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 A4 in the Appendix.

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, this is based on those CVs that were actually submitted. Missing values are due to administrative reasons at our field partner and 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. Overall, 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 was 16.6. Moreover, 48% of the participants were female, the mean age was 55 years, 48% had a migration background, 92% had some labor market experience, 34% had no professional degree, 54% had a vocational degree, 12% had a university degree. The cardinal LOC score is the standardized average of the six LOC items given in Table A5 in the Appendix.

Figure 1: Distribution of CV Score



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

‘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 0 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 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 0 if below median.

### 3.5 Randomization Test

To test successful randomization into treatment and control conditions, we estimate the treatment indicator as a function of various program-related and socio-demographic characteristics based on a linear probability model (see Table 3).<sup>12</sup> None of the socio-demographic variables—i.e., gender, age, age squared, migration background, work experience, and education—is significantly linked to 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 socio-demographic 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 the result of administrative issues at our field partner (see Section 3.4 for details). However, we take care of this imbalance between the groups by adding the program-related characteristics as controls to our regressions. To do so in a transparent way, we report three versions of our main estimation results in Section 4 below: version (1) without further control variables, version (2) including program-related characteristics, and version (3) in-

<sup>12</sup>We also validated successful randomization with probit specifications; results did not change.

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 <sup>2</sup>	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

*Notes:* 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.

cluding program-related as well as socio-demographic characteristics. Our results are very similar for all three versions.

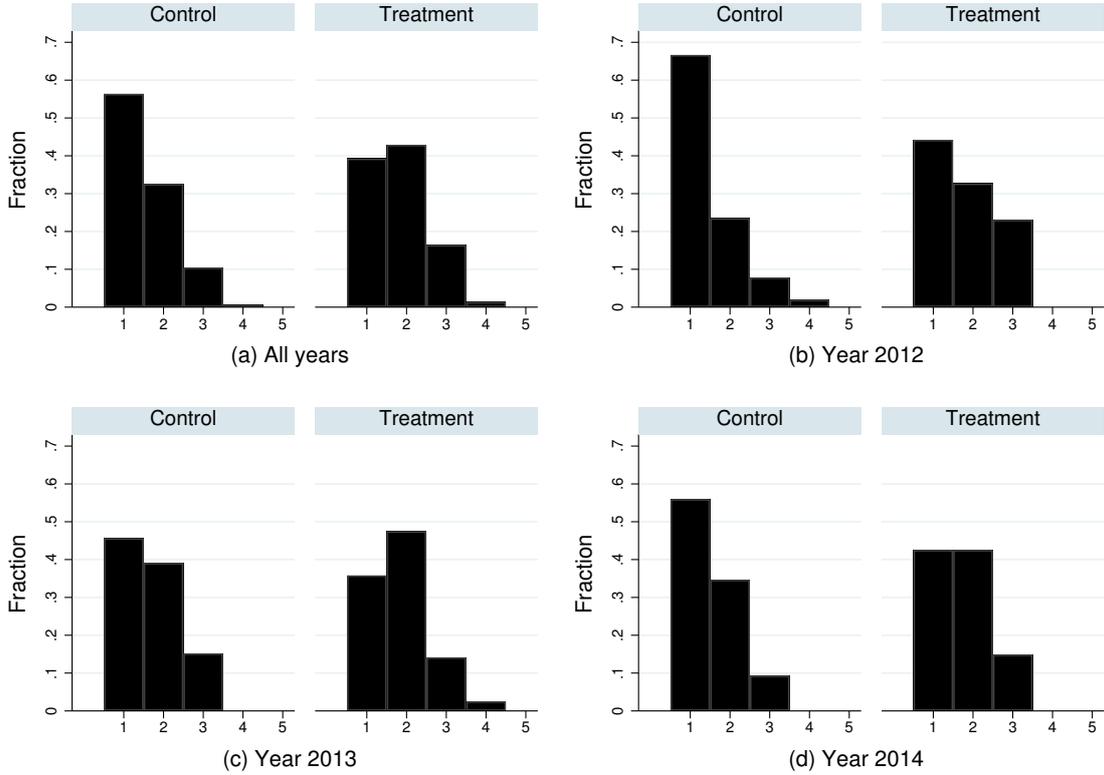
## 4 Results

### 4.1 Main Results

Concerning our first main outcome variable, the CV score, we first look at the raw distribution by treatment status (Figure 2, Panel (a)). We see that the fraction of CVs rated at the lowest score (= 1) is smaller in the treatment than in the control group. In contrast, the fraction of CVs rated 2, 3, or 4 is higher in the treatment than in the control group. This pattern is similar in each year of the intervention (see Figure 2, Panels (b)–(d)).

In Table 4, we report our main results, i.e., the treatment effect on the quality of the submitted CV document (columns (1) to (3)), on the probability of submitting the CV document to our field partner on time versus late (columns (4) to (6)), and on the probability of handing in any CV document (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

Figure 2: Distribution of CV Score By Treatment Status and Year



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

effects, coach fixed effects, and group size; see columns (2), (5), and (8)), and including both program-related and socio-demographic characteristics (gender, age, age squared, migration background, work experience, and education; see columns (3), (6), 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.

Considering the results for CV score in Table 4, 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. Given that the score is an ordinal rating rather than a true cardinal scale, we also estimate the CV outcome by probit and ordered probit models and come to similar results: From Figure 1 and Table 2, we can see that a very large fraction of participants (45%) received the lowest CV score. We therefore cut the score between 1 and 2 for obtaining a binary variable. Estimating the treatment effect by a probit model we find that the treatment increases the probability of having a high CV score by 15 percentage points (see Table A1 column (1) in the Appendix). Estimating an ordered probit

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)	0.223*** (0.073)	-0.086 (0.112)	-0.040 (0.103)	0.005 (0.106)
MHT-adj. <i>p</i> values (Holm)	.023**	.058*	.014**	.284	.008***	.014**	.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	315	616	616	508
R squared	0.027	0.063	0.185	0.019	0.131	0.143	0.008	0.176	0.195
Adjusted R squared	0.025	0.041	0.145	0.016	0.110	0.100	0.006	0.164	0.169

*Notes:* 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, it takes integer values from 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. Sociodemographic characteristics include gender, age, age squared, migration background, labor market experience, and education. Standard errors given in parentheses are clustered at the group level. Multiple hypothesis testing (MHT) adjusted *p* values are formed following the step-down procedure suggested by Holm (1979) over the three outcomes for each respective set of controls. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

model leads to very similar results (see Table A2 in the Appendix). As described in Section 3.3, not all CVs in location A were rated by staff members 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.

Turning to our second main outcome variable, the submission of the CV document 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 document on time by 22 percentage points (given that the CV was submitted at all).

As some participants did not submit a CV document to our field partner (we have only 391 CVs scored from the initial 616 participants), 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 document 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 document to our field partner in any of the three specifications. Thus, we conclude that selection into the group of those submitting any CV document did not change as a result of the treatment.

The results on the last two outcomes despite being binary variables 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 sys-

tematically different from other coaches, this could bias the results. However, estimating the results with a reduced sample (dropping all participants trained by these coaches who taught only one group each) yields very similar results (see Table A1 columns (6) to (8) in the Appendix).

In sum, we conclude that the self-regulation training increases participants' effort in application-related job search activities. The treatment improves the quality of the submitted CV (by approx. 30% of a standard deviation) and increases the likelihood that participants submit their CV on time (by more than 20 percentage points). 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 emphasized the importance of intensive job search effort and the relevance of a professional CV document.

## 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 A3 in the Appendix. The treatment effect is neither significantly different from zero for the number of applications nor 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 also 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 might rather 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 (we

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

*Notes:* Estimations are based on a linear probability model. ‘High Self-control’ is a binary variable that takes a value of one if the cardinal self-control score is above its median and the value zero 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 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 the value zero 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 A5 in the Appendix. Program-related characteristics include year fixed effects, coach fixed effects, and group size. Standard errors given in parentheses are clustered at the group level. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

discuss potential reasons for this in Section 5).

In an exploratory analysis investigating whether the treatment was beneficial to labor market reintegration for subgroups of the participants, we examine heterogeneous treatment effects with respect to three characteristics that we hypothesize to be most relevant in this context. First, given that our treatment addresses problems of self-regulation ability, we hypothesize the treatment to be more effective for persons with low self-control than for persons with high self-control. Using the pre-treatment assessment of self-control, we estimate the heterogeneous treatment effect with respect to self-control (Table 5 column (2)). The coefficient related to self-control is positive (as expected), but insignificant. The coefficient of the interaction with treatment is negative (as expected), but also insignificant. Thus, our hypothesis about a heterogeneous treatment effect with respect to self-control is not confirmed.

Second, we investigate the heterogeneous treatment effect with respect to Locus of Control. Locus of Control is a concept of 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).<sup>13</sup> Recent socio-psychological 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). A person applies self-regulation skills only if he or she believes that own behavior and effort does influence outcomes (Rosenbaum 1980). People who do not believe that their own effort affects the probability of success (i.e., people with an external Locus of Control) are unlikely to adopt a strategy that helps them increase own effort; 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 locus of control) 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.<sup>14</sup>

We therefore analyze whether the treatment involving teaching a self-regulation strategy to be more effective for participants with an internal Locus of Control than for participants with an external Locus of Control. The results of estimating the treatment effect including Locus of Control as well as an interaction effect between the treatment and Locus of Control are reported in Table 5 column (3). The results confirm our hypothesis of a heterogeneous treatment effect with respect to Locus of Control: the interaction effect with the treatment indicator is significantly positive. This means that the treatment was significantly more effective for participants with an internal Locus of Control than for those with an external Locus of Control. Interestingly, the main effect of having an internal locus of control is close to zero and insignificant; thus, in our setting (and our sample), the above-mentioned findings of a direct effect of locus of control 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 Locus of Control and job search effort.

Third, since our treatment is an abstract strategy and might be 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. To do so, 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 or the interaction effect with the treatment indi-

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<sup>13</sup>The psychological trait of Locus of Control has been used in a number of economic contexts, e.g., by Heckman et al. (2006). In the context of labor economics, people with an internal Locus of Control have been found 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).

<sup>14</sup>In addition, locus of control has been found to matter directly for labor market outcomes: people with an internal locus of control 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).

cator is significantly different from zero. Thus, our evidence does not support the idea of a heterogeneous treatment effect with respect to educational background.

Like for our main results, we also perform robustness tests using probit models for the outcome of labor market integration (Table A6 columns (1)-(4)) and using a reduced sample dropping all participants that were coached by a trainer with only one group (Table A6 columns (5)-(8)). The robustness checks confirm all results we have discussed above. Also, our findings are robust to using a cardinal (standardized) measure for self-control and Locus of Control (see Table A6 columns (9)-(10)).

### **4.3 Cost-benefit Analysis**

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 of 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 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. Taken together, as our intervention comes at a very low cost, the self-regulation training would likely be a cost-efficient ingredient improving existing reactivation programs focusing on long-term unemployment.

## 5 Discussion & Conclusion

Quasi-experimental techniques are frequently used in labor economics to evaluate the success of active labor market programs. While this literature mostly examines the overall success of these programs, there is little knowledge about its active components. In this paper, we explore the extent to which a specific self-regulation training, which we added in an RCT-design to an existing and successful labor market program, affects job search effort. More specifically, we use this 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 application effort: we find that treated participants submit a higher quality CV document and treated participants are more likely to submit their CV document on time instead of late. We do not find that treated participants are more likely to submit a CV document. 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 (for a discussion, see below). In an exploratory analysis, we find an interesting heterogeneous treatment effect, as participants with an internal Locus of Control benefit more from the treatment than participants with an external Locus of Control. This is consistent with the theory of Locus of Control: Individuals who believe that they can influence success in life to a high degree (i.e., those with an internal Locus of Control) are more likely to adopt a new strategy that helps them to exert effort. 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 Locus of Control) are less likely to exert effort; in consequence, they are less likely to adopt a new strategy that might help them to exert effort. We do not find heterogeneous treatment effects with respect to self-control or educational background of participants.

There are several potential reasons why we did not find an overall treatment effect on the reintegration probability into the labor market. First, as discussed before, we only have data on reintegration 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 only in the longer run. Second, improvements of the existing program of our field partner can be considered challenging. 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). The main success measure to acquire funding is a program's reintegration rate. Accordingly, any improvement of the program's integration rate is likely extremely difficult. In addition, all participants

in our control group also underwent a very focused program (including goal setting components), hence the control group itself was very “strong”. Third, our sample of long-term unemployed individuals aged between 50 and 65 years likely faces barriers to reintegration which are hard to overcome with an increase in job search effort. For example, they might suffer from deteriorating human capital, are likely negatively selected based on skills and/or education if they participate in such a program, could face (e.g., age-based) discrimination from potential employers, or might lack the knowledge how to search more productively (cf. Belot et al. 2018). Of course, the positive treatment effects on job search effort documented in the present study might in turn be specific to the population under study, namely elderly long-term unemployed. Yet, one could speculate that younger unemployed individuals 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 Locus of Control 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.

As we find a strongly positive treatment effect of the self-regulation training on job search effort, and because job search effort constitutes an important determinant of reemployment success (see. Wanberg et al. 2002, Wanberg 2012), we conclude that the training is likely to improve the success of similar activation programs. Also, our finding confirms empirically the relevance of goal setting and self-regulation for economic decision-making and behavior (cf., for example, Bénabou and Tirole 2004, Beshears et al. 2016, Koch and Nafziger 2011). Finally, as mentioned earlier our train-the-trainer approach is inexpensive and could easily be transferred to other programs; hence, potential positive effects on job search effort could yield considerable individual and social returns.

To conclude, our paper has demonstrated that using targeted interventions to address socio-psychological and self-regulatory barriers to labor market integration appears to be a worthwhile policy measure to pursue. Our intervention addresses an individual skill that could be targeted in existing programs, it is easy to implement at scale, it involves a reasonable cost, and it has positive effects on job search effort. 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			

*Notes:* 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, it takes integer values from 1 (lowest quality) to 4 (highest quality). ‘High CV score’ is a binary variable that takes a value of one if ‘CV score’ is 2, 3, or 4 and the value zero 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 at the group level. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

Table A2: Treatment Effect on Quality of Submitted CV—Ordered Probit Estimation

	dy/dx	Delta-method Std. Err.
Pr(CV score = 1)	-0.128**	0.056
Pr(CV score = 2)	0.054**	0.023
Pr(CV score = 3)	0.065**	0.030
Pr(CV score = 4)	0.009	0.006

*Notes:* Ordered probit estimation of the dependent variable ‘CV score’, marginal effects reported. The model includes the program-related control variables (year fixed effects, coach fixed effects, and group size). N = 391. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

Table A3: 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

*Notes:* 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 at the group level. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

Table A4: 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

*Notes:* Factor analysis based on the method of principal factors. To survey the items participants were asked, “Here we list several personal attitudes and behaviors. How much do you agree with them?” and can answer on a Likert scale 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 A5: 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

*Notes:* Factor analysis based on the method of principal factors. To survey the items participants were asked, “To what extent do you personally agree with the following statements?” and can answer on a Likert scale 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 in German by the authors of this paper.

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

	Probit				Drop coaches with only 1 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 LOC								-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						

Notes: 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 a value of one if the cardinal self-control score is above its median and the value zero 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 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 the value zero 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 A5 in the Appendix. Program-related characteristics include year fixed effects, coach fixed effects, and group size. Standard errors given in parentheses are clustered at the group level. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

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