The Effects of a Training Program to Encourage Social Entrepreneurship

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We study the impact of a new nationally advertised six-month intensive training program to encourage leadership in social entrepreneurship among youth. Program costs were on the order of 12,000 euros per participant. We conduct a randomized field experiment where 50 applicants were randomly allocated to the program and 50 similar applicants were rejected. A short but intensive training effort provided no robust treatment effects on character skills, social entrepreneurial aspirations and intentions, sustainable behaviour, entrepreneurial actions and venture progression. Those that had made more progress on their venture prior to the start of the program were more likely to make progress afterwards, irrespective of treatment. There were also large ceiling effects. Those having the highest expectations before selection to treatment, as measured by their self-ratings on a battery of scores, and those having the highest selectivity scores as rated by independent experts experienced the smallest subsequent increase across all outcome measures, irrespective of treatment. Training people to become entrepreneurs seems to be difficult and costly.

***Key words*:** social entrepreneurship; entrepreneurship; field experiment.

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1. Introduction

Entrepreneurs are thought by many to be important for creating economic growth and employment. Entrepreneurship is also considered to be a difficult skill to acquire and while most people want to become entrepreneurs, few actually take the plunge (Blanchflower, 2000). Among those that become entrepreneurs, a dominant fraction stops just after a few years (Hyytinen and Ruovinen, 2008). It may thus be motivated for educational institutions and other agents to provide training in entrepreneurship.

Social entrepreneurship is a recent and rapidly growing phenomenon. It has become a global movement that is widely recognized in the media, and by policy makers (e.g., EC, 2014; Economist, 2006; Forbes, 2014). Social entrepreneurs are entrepreneurs who primarily seek to solve societal problems (Austin et al., 2006).[1] Social entrepreneurship courses and programs are steadily growing in numbers and participants.[2]

Governments and donors spend billions of dollars subsidizing entrepreneurship training programs around the world (Fairlie et al., 2015). However, little is known about the effects of training entrepreneurship. The few studies that have conducted program evaluations where the training is randomized, or where selection into program choice is instrumented, so far have found small or negligible effects on most short-term outcomes measured. Our knowledge of social entrepreneurship training programs is even more limited, even though "identifying a variety of effective pedagogical approaches will become increasingly important for business education in particular and society in general" (Smith and Woodworth, 2012, p. 390).

Prior studies on entrepreneurship education can be characterized along different dimensions. First, there are studies on entrepreneurship education in the Western world that can be distinguished from studies in emerging and developing countries. The latter are mostly programs intended to increase the level of self-employment among poor people, often coupled with financial assistance, while Western-world programs instead typically offer a potential career path to those interested in becoming an entrepreneur, or try to promote entrepreneurial attitudes in general (often among youth). Factors that lead to positive outcomes of entrepreneurship education and training are better understood for developing and emerging countries (van der Sluis et al., 2005; Cho and Honorati, 2014; Banerjee et al., 2015; McKenzie and

[1] Social entrepreneurship is different from non-profit organizations. The main difference is that social entrepreneurs focus on economic activity and market oriented approaches to implement social change (Mair et al., 2012). As one major result, social entrepreneurs seek to generate revenues to finance their activities instead of exclusively relying on donations.

[2] See for example NYU Wagner School's Social Entrepreneurship undergraduate minor, Duke's Fuqua School of Business' MBA concentration in Social Entrepreneurship, or Stanford School of Business' Executive Program in Social Entrepreneurship. See also the Skoll Foundation's website on social entrepreneurship training programs: http://archive.skoll.org/2011/01/18/training-the-next-generation-of-social-entrepreneurs/.

Woodruff, 2015), while evidence on Western-world programs is mixed and has demonstrated both positive, zero and negative outcomes (Oosterbeek et al., 2010; Martin et al., 2013). Second, focusing on Western-world entrepreneurship education and training programs from now on,[3] their contents, intents, and length varies substantially. Some programs tend to focus on providing entrepreneurship knowledge and hard skills such as pitching techniques, accounting, financing options, etc., that aim at tackling the most important barriers to successful entrepreneurship. Other programs tend to have a strong focus on the promotion of an entrepreneurial character, networking with inspiring role models, coaching and mentoring.

Evaluation studies have examined entrepreneurship education of various kinds in schools (e.g. Elert et al., 2015; Oosterbeek et al., 2010; Peterman and Kennedy, 2003; Souitaris et al., 2007; von Graevenitz et al., 2010; Rosendahl Huber et al., 2014), and entrepreneurship training programs of various forms outside of formal schooling programs (e.g. Fairlie et al., 2015). Most studies have focused on the effect of coursework or being mentored on an entrepreneurial project on a limited set of outcomes in the near future, such as intentions to become an entrepreneur or actual progress. A few have expanded the scope of outcomes to examine changes in various entrepreneurial character skills (e.g. Oosterbeek et al., 2010; Rosendahl Huber et al., 2014). It is not yet well understood to what extent the program content or program type (formal academic and school education vs. trainings) influence the outcomes of entrepreneurship education and trainings (Martin et al., 2013; Betcherman et al., 2007).[4] And although forcefully argued and shown by Heckman and Kautz (2013) that character skills such as agreeableness and conscientiousness are very important for labor market and other life outcomes,[5] it is not clear which character skills predict entrepreneurial success or whether they can be affected by a limited-term training program or course. Finally, one of the most striking issues in entrepreneurship education is that there are only a few studies that use experimental approaches relative to the vast majority of studies that provides qualitative or narrative accounts of the outcomes of entrepreneurship programs. The few existing meta-analyses on entrepreneurship education have pointed out that this makes it difficult to judge the quality and validity of measured outcomes of entrepreneurship education (Martin et al., 2013; Betcherman et al., 2007).[6]

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[3] For a review of developing world economies programs, see McKenzie and Woodruff (2015).

[4] Martin et al. (2013) find some evidence in their meta-analysis of entrepreneurship education and trainings that "academic-focused" entrepreneurship education leads to better entrepreneurial outcomes than "training-focused" interventions, while the meta-analysis by Betcherman et al. (2007) supports the conclusion that there are no major differences across different categories of entrepreneurship interventions in terms of impact or even cost-effectiveness.

[5] For example, Heckman and Kautz (2013) cite meta-analyses showing that measures of character skills rival IQ and measures of socioeconomic status in predicting longevity.

[6] Martin et al. (2013) conducted a meta-analytic review of the outcomes of entrepreneurship education and training (EET) and point out that "the EET literature includes many studies that do not meet a high standard

We situate our study as a randomized-control field-experimental study of a Western-world entrepreneurship education intervention that combines three academic and non-academic training components; promoting entrepreneurial character skills, providing participants with some knowledge on how to do entrepreneurship, and providing some "project acceleration" (to be defined). We compare results from this study primarily against evaluations of entrepreneurship programs offered in Western-world schools as they are likely most similar, but also take the few comparable studies to ours into account.[7] Our study is to our knowledge the first to evaluate a social entrepreneurship training program. These programs include the regular components of traditional entrepreneurship education programs, but additionally provide strong character training components.

Since the impacts of the programs are likely to be dependent on their design, for example by length of exposure, intensity, subject matter, and maybe quality of delivery, as well as timing and type of outcome measurement, we in Appendix A summarize the studies that are relevant for our research along these dimensions (to the extent possible). The upshot is that many of the programs evaluated are of low-intensity short-term coursework type, where the outcomes is measured typically as the intention to become an entrepreneur immediately upon graduation. It is therefore unclear whether one should expect any large treatment effects from these programs, or, when detected, whether they would persist.[8] On the one hand, it could be argued that teaching entrepreneurship is a matter of learning some simple tricks of the trade, such as how to write a business plan (a very popular subject), and how to present oneself well in a sales pitch. On the margin of taking a business degree, these types of courses may do little extra to prepare a person for entrepreneurship. On the other hand, teaching entrepreneurship might be very important if it has a significantly positive effect for the economy, is difficult to learn, requires extensive training effort, and where an entrepreneurial character is key to its success.

In this paper we study the impact of a new nationally advertised six month intensive program to encourage social entrepreneurship among youth. The program had a two-fold target: to increase the entrepreneurial character, particularly leadership potential, of a group of 50 youth committed to changing social

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of rigor, and there is no clear indication of a trend toward increased methodological rigor at this time. Further, our results suggest that the lower rigor studies tend to overestimate the impact of EET. Many studies do not incorporate both pre- and post-EET intervention measures and treatment and control group comparisons. To improve the value of the EET literature in the future, studies should be designed to include both of these elements (ideally at several points in time post-intervention). Such methodological rigor will greatly improve the ability of researchers to make accurate claims about the impact of EET on entrepreneurship related outcomes" (p. 212).

[7] Other types of entrepreneurship training programs such as "accelerators" may also contain some similar components (e.g. Gonzalez-Uribe and Leatherbee, 2014; Yu, 2015). Accelerators run limited-duration programs that offer mentorship, education, coaching, networking, peer interaction, and co-working space. However, accelerators typically invest in start-up companies in exchange for equity, and are therefore quite different compared to school-based programs.

[8] Heckman and Kautz (2013) considers two to three years to be short, and show that in many cases initial differences between control and treatment groups disappear when looking several years ahead.

problems and to help them develop a social entrepreneurship business. Following these two goals we focus on measures of the improvement of the participants' entrepreneurial character (motivation to lead and transformational leadership) style as well as the progress on a venture either started before or during the program. To cover additional potential treatment effects we also measure their non-cognitive skill development, and aspirations and intentions towards social entrepreneurship.

Program costs were approximately 12,000 euros per participant, or about the same as one year of tuition at the most prestigious business schools in Europe. About 15% of the program's funding came from the French Minister of National Education, Youth, and Sport. The Minister actively supported the program and was present at multiple program events. The main part of the program lasted 10 days and took participants on a bus tour around France, where each day was filled to the brim with activities focusing on both personal development and venture project development. There was also a six month support period after the completion of the tour. The design was modeled on the Jagriti Yatra[9] train program in India, with some modifications to fit the French environment and the interest of the organizers, a group of highly motivated youth interested in improving social entrepreneurship in the country. The organizer had a large and dedicated group of advisors with either senior business experience and/or teaching experience from business schools to help design and execute the program.

Participants were selected through an elaborate screening procedure where they were ranked along several dimensions considered important for social entrepreneurship and an overall score was determined through a linearly additive algorithm. Among the top 100 finalists, we conduct a randomized field experiment where 50 finalists were randomly allocated to the program and 50 similar applicants were assigned to a control group. Despite large training efforts we find no robust treatment effects on leadership motivation, leadership style, social entrepreneurial aspirations and intentions, non-cognitive skills, sustainable behaviour, entrepreneurial actions and venture progression. However, those that had made more progress on their venture prior to the start of the program were more likely to make progress afterwards, irrespective of treatment. There were also large ceiling effects. Those having the highest expectations before selection to treatment, as measured by their self-ratings on a battery of scores, and those having the highest selectivity scores as rated by independent experts, experienced the smallest subsequent increase across all scores, irrespective of treatment. Training people to become entrepreneurs seems to be difficult and costly.

2. The Program

The social entrepreneurship program was offered by a French social enterprise founded in 2014 (called "the organization"). Since its foundation, the organization has won several awards in France (including

[9] http://www.jagritiyatra.com/

the 2015 *Google Impact Challenge*[10]), has been promoted widely, and was referenced by politicians as a flagship program for social entrepreneurship.[11] The mission of the organization is to activate the potential of young talented people and empower them to positively change society through entrepreneurship. Inspired by the Indian Jagriti Yatra program, the organization offered an intensive social entrepreneurship program with a strong leadership training component for the first time in the summer of 2014. The central component of the 2014 program was a 10 day bus trip with stops in different French cities. The 50 participants were coached and met experts in leadership, entrepreneurship, and related topics. The bus trip was followed by a 6 months support program.

The organization wanted to attract French youth from various backgrounds, thereby representing the French youth population in a fair manner based on socio-economic background, gender, and education. The major criteria for participation was a person's motivation to contribute to a better and more sustainable society. The total program budget was 640,000 euros of which 275,000 euros were in-kind donations. The French government accounted for about 15% of funds, 5% were from other public sources, while 80% were raised from foundations, companies, and individuals. Participants who could afford it paid a symbolic participation fee of 400 euros. The organization estimated the cost of the training program at about 12,000 euros per person.[12]

To attract participants, the organization reached out via social networks (Facebook, Twitter, alumni networks of universities), e-mail lists from partner organization (e.g., Ashoka, Make Sense), in-person presentations at French institutions of higher education, and presentations at numerous public events on social entrepreneurship, sustainability, and related topics. The call for applications (available on the organizations website) described the ideal candidate as follows: "We are looking for 50 budding entrepreneurs motivated to put their talents to the service of society and to bring change through entrepreneurship and social innovation. No matter your social origin, schooling, diploma (or lack thereof), hobbies or skills, we are looking for young persons extremely motivated, enthusiastic, optimistic and eager to commit."[13] In the same document, the program was described as follows: "We propose a […] program to help you to become social entrepreneurs. The […] adventure begins with a 10-day trip, from August 26 to September 6, 2014, aboard private buses, appointed and chartered specially for the occasion. The buses travel during the night and stop during the day at stations in Paris, Marseille, Valence, Lyon, Strasbourg and Lille, to go and meet the most inspiring pioneers of our country. During the 10

[10] https://impactchallenge.withgoogle.com/france2015

[11] The French minister Najat Vallaud-Belkacem was the patron of the 2014 edition and mentioned the organization in several interviews. Nobel Prize winner Muhammad Yunus supported the organization with a video on youtube.

[12] Note that in the second edition of the program in 2015 some paid 10,000 euros to participate.

[13] Translation by the researchers from original in French. All future descriptions are similarly translated by the researchers.

days, you go through different steps to discover your own way to be a change agent, and to invent sustainable solutions to social and environmental problems of our society. This intensive program, designed and run by experts and leading entrepreneurs, implements an extremely innovative pedagogy, based on action-research, collaboration, and experimental learning to transform dreamers into actors!" The organization explained further that the bus trip was followed by a support period: "After the tour, a number of resources will be offered to participants during 9 months to help them launch their projects and to accompany them on their path to social entrepreneurship."[14]

The organization received 397 applications during the period March 17 to April 30, 2014. Each applicant answered open-ended questions using a web survey (see Appendix E). Applicants were informed which four characteristics were important to be selected: capacity to dream, willingness to change society, leadership potential, and ability to communicate. Their free-text answers were independently examined by up to three judges. Judges received instructions from the organization how to rate applicants on the four characteristics. See Appendix F for items defining the constructs to rate applicants, and their weights.[15] Weights of constructs and items were pre-determined by the organizers based on their preferences. The organization (not the judges) formed a "suitability" score using a linear additive weighting rule and formed an average over the three judges to rank applicants. Based on our analyses using concordance correlation coefficients (CCC) (Barnhart et al., 2002), we find that there was generally low concordance between judges (unweighted average of pairwise CCCs=0.32), and that there was a high variation of agreement (SD=0.25) across all pairs of judges who ranked the same candidate.[16] The 100 top-ranked applicants based on the "suitability" score were randomly assigned to either the treatment or control group (details below).

Three professional coaches were responsible for program content, and were facilitators of events during the bus trip. The pedagogical concept was based on three pillars labeled *inspiration*, *introspection*, and *taking action*. The *inspiration* phase informs participants on social entrepreneurship and the problems tackled, allows them to meet major actors on the social entrepreneurship scene, to get a sense of pressing problems in French society, and to create awareness about opportunities and issues around social entrepreneurship. In the *introspection* phase, participants work on their biographies, understand personal strengths, and find a social issue that is most important for them. Participants should develop a social entrepreneurial idea or personal desire to contribute to a fairer and more sustainable society. The last

[14] The advertised nine month support period was later reduced by the organizers to six months.

[15] Constructs were obtained from research on leadership and items were sourced from the *International Personality Item Pool (IPIP)* (http://ipip.ori.org/).

[16] The CCC measures the distance in the plane of each pair of data to the 45-degree line through the origin. Compared to, for instance, the widely used Pearson correlation coefficient which only measures the precision of a linear relationship, CCC provides an index that allows interpretation of the degree of variation and the degree of location or scale shift (see Barnhart et al., 2002).

phase was labeled *taking action*. During this phase, participants worked on their projects. The projects were presented during a public event in Paris which also represented the last day of the bus trip. The complete program of the bus trip is displayed in appendix D.

The six-month follow-up program mainly consisted of (1) informal lunches every Monday with exchange of information about progress on projects and provision of contacts for pressing needs (2-3 hours)[17], (2) a formal event on October 29 with about 20 participants, (3) two weekends (December and February) for about 20-30 participants, (4) a one-day coaching session in collaboration with a French university for 6 participants, and (5) two formal meetings with the organization's person in charge with 20-30 participants. The main focus of the follow-up program was on providing networking, coaching, and other personalized venture development support.

3. Data and Method

3.1 Data Generating Process for the Field Experiment

The top 100 candidates were selected using stratified random sampling from the rank-ordering of applicants by their overall suitability score. The organizers decided to slightly oversample (compared to the applicant pool) females, people that had struggled with adversities (race, gender or other types of discrimination or adversity), youth graduating from elite schools, while providing representative participation for those with an education in business versus those not having a business degree. We want to emphasize that the sampling preferences were determined by the organizers and not the researchers. The researchers simply provided a methodologically sound selection process given the preferences of the organizers. Table 1 reflects the sampling strata, proportions and actual numbers decided by the organizers. In the Tables in the body of the paper we use the data without sampling weights to compute sample specific estimates. In Appendix G we report regression results where the sampling proportions are inverted and used as weights to represent population-level estimates.

Table 1

Sampling Strata, Sampling Proportions and Sampling Numbers

		No Adversity		Adversity		Total
		Not elite	Elite	Not elite	Elite	
Non Business	Male	0.16 / 12	0.36 / 8	0.29 / 6	0.0 / 0	26
	Female	0.24 / 20	0.38 / 8	0.25 / 4	0.57 / 4	36
Business	Male	0.15 / 6	0.40 / 4	0.22 / 2	0.40 / 2	14
	Female	0.21 / 10	0.30 / 6	0.31 / 4	0.61 / 4	24
Total		48	26	16	10	100

[17] The organization did not keep track of which participants joined lunches and events.

Notes. The first number in the cell is the fraction sampled from the top 100 applicants. The second number is the number sampled. Elite schools include HEC, ESSEC, ESCP Europe, EM Lyon, EDHEC, Dauphine, LSE, Polythechnique, Écoles des Mines, Ponts & Chaussées, Centrale Paris, Agro Paris Tech, ENSAE, SciencesPo Paris or Instituts Études Politiques (Aix, Bordeaux, Strasbourg, Lille, Lyon, Grenoble, Rennes, Toulouse). Business=1 are Kedge Business School, France Business School, ESC Pau, Clermont, Dijon, Chambery, Saint-Etienne, Montpellier, La Rochelle, Rennes, Brest, Telecom, INSEAD, ESC Grenoble, HEC, ESSEC, ESCP, EM Lyon, EDHEC, Institut Superieur de Gestion, Ecole 3A, ICN, Audencia, Novancia, ESG, Neomia, EM Strasbourg, Skema, LSE, if candidates are students in "Classes Préparatoires aux Grandes Écoles de Commerce" or graduated or are still students of Licence / Bachelor / Master / Doctorat / DUT, in any university focused and specialized in one of the following areas: management, project management, international business, economics, business development, marketing, financing, accounting, entrepreneurship or human resources. The label "Adversity" reflect applicants which have faced adversities. Stratas were defined by the organizers.

In each stratum the applicants are rank ordered based on their overall suitability score. From each stratum half of the top candidates were randomized to be in the treatment group and the other half of the top candidates were randomized to be in the control group. The organizers preferred to use stratified random sampling from these groups to ensure a diversity of participants rather than to select the top candidates from an absolute rank ordering. Nevertheless, the selection process provided non-distinguishable averages in the overall suitability score between the various strata as computed in Table 2 (t-tests available on request from the corresponding author.) However, the average suitability scores were significantly higher for those in the top 100 than for those 297 candidates left out for selection into treatment. t-tests of average scores by stratum between the top 100 candidates and those 297 not in the top 100 are provided in Table 2.

Table 2

Means and t-tests of overall suitability scores by stratum between top 100 and the rest

		Not Adversity		Adversity		Total
		Not elite	**Elite**	**Not elite**	**Elite**	
	M	4.05/ 3.10	3.99 / 3.15	4.25 / 2.93	n.a.	4.07 / 3.08
Non		t=11.44	t=5.68	t=6.04		t=14.03
Busi-	**F**	4.20 /3.25	4.41 / 3.62	4.19 / 3.48	4.315/ 3.30	4.23 / 3.34
ness		t=13.17	t=4.61	t=4.18	t=2.75	t=13.58
	M	3.99 / 3.16	4.12 / 3.22	4.35 / 3.05	4.06 / 2.61	4.05 / 3.13
Busi-		t=7.07	t=5.99	n.a.	t=8.49	t=10.51
ness	**F**	4.23 / 3.29	4.26 / 3.26	4.11/ 3.39	4.13/ 3.73	4.20 / 3.31
		t=9.23	t=6.08	t=5.81	n.a.	t=11.79
		4.13 / 3.20	4.16 / 3.34	4.21 / 3.20	4.12 / 3.22	4.15/ 3.22
Total		t=20.22	t=9.42	t=10.01	t=4.14	t=24.34

Note. The first number in the cell is the mean of the suitability score for those in the top 100, the second number is the mean of the suitability score for the rest, and the third number is the Student t-value using a two-tailed t-test with unequal variances. t-test are not performed when one of the cell counts has less than 5 observations.

3.2 Measurements

In this program the focus is on training people to become leaders affecting change through social entrepreneurship. It is not just about starting an entrepreneurial project. The grand goal of training leaders is reflected in both the selection criteria for inclusion in the program and by the efforts of the program

organizers to train participants. As discussed in Section 2, there was an emphasis to train participants on leadership skills and non-cognitive skills (e.g. the *inspiration* pillar of the program included working on personal strengths, learning to deal with uncertainty, and to apply creative methods). Consequently, we tried to match measuring progress on leadership skills and key non-cognitive skills commensurate with the goals of the program.

We collected data on a range of social entrepreneurship aspirations, intentions, skills, actions and venture progress days before the candidates had been informed that they had been selected (or denied) participation in the program as well as six months after the completion of the bus tour.

Our measurements for tracking leadership skills concerns the following: motivation to lead (MTL) (Chan and Drasgow, 2001), and transformational leadership style (TLS) (Podsakoff et al., 1990). We were expecting those in the treatment group to improve on the measures MTL and TLS as the program intends to improve the participants' abilities to be leaders in social entrepreneurship. Previous research has pointed out that one measure for the effectiveness of social entrepreneurship interventions is that participants report an increased desire to take up leadership roles as social entrepreneurs. For instance, Smith and Woodworth (2012) stress that social entrepreneurship interventions "can be a catalyst that channels and enhances students' desires to make a difference in the world" (p. 391).

Motivation to lead (MTL) is a three-part measure. We use the exact items as developed by Chan and Drasgow (2001), which are supposed to measure valence associated with the act of leading others, the person's non-calculative beliefs about the outcomes associated with success, and finally social norms related to the act of leadership.[18] The Cronbach's α for these three sub-scales ranged between α=0.65 and α=0.91 across three separate samples in Chan and Drasgow, (2001). In our sample, the Cronbach's α was between 0.71-0.77 for the three sub-scales of MTL after treatment.

Transformational leadership style (TLS) instead reflects *how* people lead others (Podsakoff et al., 1990), rather than their motivations to lead others. A transformational leadership is one particular leadership style attributed to social entrepreneurs (Litzky et al., 2010). In contrast to a transactional leadership style where leaders motivate subordinates by providing or withholding extrinsic rewards (MacKenzie et al., 2001), "transformational leaders get their followers to 'buy into' their visions and internalize them so that the followers become intrinsically motivated to strive for common goals and visions" (Goodwin et al., 2001, p. 772). We measure three aspects of transformational leadership behavior in line with both social entrepreneurship and the objectives of the program, based on Podsakoff et al. (1990): *articulating a vision*, *providing an appropriate role model*, and *fostering the acceptance of group goals*. The Cronbach's α for the three sub-scales related to TLS ranged between 0.54-0.82 after treatment.

[18] An example item of affective identity is "I am the type of person who likes to be in charge of others", of non-calculative is "I would agree to lead others even if there are no special rewards or benefits with that role" and of social-normative motivations "I have been taught that I should always volunteer to lead others if I can".

To guide our selection of additional non-cognitive variables that could also be relevantly affected by experiences in the program, we examined prior entrepreneurship training program evaluations, which for example have included the following candidate non-cognitive variables: risk taking, creativity, need for achievement, self-efficacy, social orientation, pro-activity and persistence (see e.g. Rosendahl-Huber et al., 2014; Oosterbeek et al., 2010; von Graevenitz et al., 2010). We included similar variables because the organizers informed us that they were interested, for example, in affecting participants beliefs in their ability to take action and control their life (self-efficacy), their ability to work hard and be goal-oriented (persistence), and their ability to work in teams and fit into situations that they might otherwise have felt awkward participating in (emotional intelligence). The program also included a great deal of events to stimulate participants' generation of innovative ideas (creativity) (see Appendix D). We therefore chose to include the following non-cognitive variables: Self-efficacy, Persistence, Emotional Intelligence, and Creativity. The scales for these constructs were taken from IPIP: http://ipip.ori.org/newIndexofScaleLabels.htm. The prior established Cronbach's α for these scales were α =0.76, 0.81, 0.78, and 0.84. In our study we computed Cronbach's α for these scales after treatment as α =0.70, 0.85, 0.74, and 0.83, respectively.

To measure entrepreneurial outcomes we include a standard question on intentions to become an entrepreneur: ''*I expect to start up a new firm or to take over an existing firm within the next fifteen years*'', with answers on a seven-point scale ranging from ''completely agree'' to ''completely disagree'' (see also Oosterbeek et al., 2010, p. 447; von Graevenitz et al., 2010).

We further use a more elaborate measure of the progress which a person has made with their venture which is available from the Panel Study of Entrepreneurial Dynamics (http://www.psed.isr.umich.edu/psed/data). The measure asks yes/no questions for a list of 22 different entrepreneurial actions taken. See Appendix B for the full list of questions. We sum all affirmative answers and call this scale "Traditional Actions". Evaluating two entrepreneurship courses, Soutaris et al. (2007) use a slight variation of this scale with 19 actions. Other variations have also been used (see Carter et al., 1996).

In addition, we asked people to answer yes or no to 5 actions taken to become a social entrepreneur (see Appendix C). We did not find any prior study measuring such activities, and so we developed this scale ourselves after examination of the literature on what typically constitutes social entrepreneurial actions (e.g., Dees, 2001; Kwong et al., 2012). We sum all affirmative answers and call this scale "Social Actions".

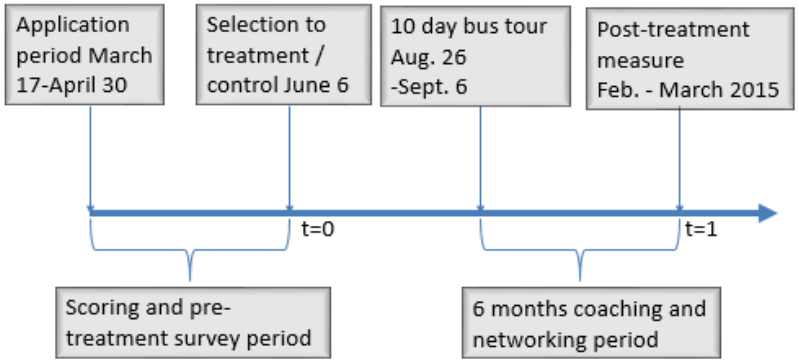
Recently, researchers have suggested to track students' career aspirations as a measure of the impact of social entrepreneurship interventions (Kickul et al., 2012). Consequently, we constructed four items representing social entrepreneurship aspirations, such as the individual's desire to make a contribution to society and to serve a social mission in his or her job (Kwong et al., 2012; Kickul et al., 2012; Smith and Woodworth, 2012). We label this scale "Social Career Aspirations". The Cronbach's α for this scale

was α =0.81. In addition we measure a scale on general career aspirations and call that "Traditional Career Aspirations". Six items were sourced from established ideal employer studies, and employer branding surveys (McKinsey, 2009; Universum, 2009), and included items about general career aspirations such as the desire to have prestige, the importance of the competitiveness of the employer, and salary. The Cronbach's α for this scale was α =0.77. See Appendix C for all items of Social and Traditional Career Aspirations.

Finally, a scale for sustainable behavior was developed by the researchers for this project. The program contained modules promoting sustainable behaviour, for example working for a social or non-profit organization or donating money to charitable organizations. Relatedly, we asked 11 questions, such as "I have systematically recycled waste in my daily life" and summed the number of affirmative answers. At t=0 the questions pertained to a period 3 months prior, while at t=1 the question pertained to a 6 month period. See Appendix C for a list of the 11 questions. The Cronbach's α for this scale was 0.65 for post-treatment values.

Data were taken days before the individuals were informed about their selection (or exclusion) (t=0) as well as six months after completing the tour (t=1). For entrepreneurial actions the question at t=0 refers to the cumulative number of actions taken by the individual up to that point. The question at t=1 refers to the marginal change in the number of actions taken by the individual between t=0 and t=1. We intentionally decided to query so that it would be clear to the person at t=1 not to count actions taken before time t=0. We call the cumulative number of actions taken at t=0 Actions_cum and the marginal number of actions taken between t=0 and t=1 Actions_marg. Sustainable behaviour was measured in a similar way.

Figure 1. Timeline of Data Collection.



The progression in the number of actions taken will differ if a person decides to scrap their old venture and start a new between t=0 and t=1, rather than continue on the venture they were working on before joining the program. In order to account for this possibility we also asked at t=1: "*Did you start working on a new business idea during the last months (since June 2014, when the participants of the 2014 [the program] Tour were announced)?*" and we code that as New Business=1 if participants answered Yes,

and =0 if they answered No.

We also collected data on standard demographic items in order to provide some description of the participants and the control group. Questions were asked on age, gender, education, and various household and employment status characteristics. The data collection process is described in Figure 1.

3.3 Sample

Table 3 shows the sample composition for the treatment and control group on demographics and sampling variables in the bottom two panels. All measures are taken at most within a month (at least one day) *prior to* random assignment to treatment and control. The combined treatment and control samples are also compared to the applicants who were screened out. Data on demographics for those that were screened out were also taken at the time when all the applicants submitted their applications. The samples selected to treatment and control were 50 each. One participant became ill just before the tour started and another person found this out and showed up to take the ill person's place. We exclude the replacement person from our analysis.

Even though we have allocated individuals randomly to the treatment and control sample, we need to check that the randomization worked. We do so in Table 3. Differences across the two groups are compared at t=0 in column 3 for data only from those replying both at t=0 and t=1. There are no statistically significant differences on any of our outcome variables, or the sampling variables, or any of the demographic variables at the beginning of the evaluation period for those that ended up answering both surveys between treatment and control groups, except a statistically significant difference (p=0.04) in whether the "Father had had different kinds of jobs". Since this is one case out of 31 we chalk this up to the ordinary statistical chance of a false positive. We conclude that the randomization was successful. However, as already stated, the top 100 selected for inclusion have higher suitability scores than those not included, as shown in the row for "suitability score", with t=27.04, p<001.

We obtained answers from 38 individuals in the treatment group and 23 in the control group at both t=0 and at t=1. Because there is the potential for non-random attrition between the treatment and control group across the variables of interest, we also weight responses with the inverse of the probability of non-response. We multiply that weight with the weight for the sampling proportion to create statistics weighted by sampling and non-response patterns (Holt et al., 2003). In Appendix G we re-create Results Tables 4 and 5 using both sampling and non-response weights.

Table 3

Pre-treatment differences between the treatment, control, rejected applicants, and respondents at pre- and post-treatment survey

Measures	**Treatment Group (std. err.)**	**Control Group (std. err.)**	**Difference [*p-value*] (1)-(2)**	**Treatment + Control (std. err.)**	**Rejected**	**Difference [*p-value*] (4) - (5)**
	t=0	t=0	t=0	t=0	t=0	t=0
	(1)	(2)	(3)	(4)	(5)	(6)
Leadership motivations and skills						
MTL affective identity	3.56 (0.08)	3.56 (0.12)	0.00 [*0.99*]	3.56 (0.69)	n.a.	n.a.
MTL non-calculative	4.07 (0.07)	3.99 (0.15)	0.08 [*0.63*]	4.04 (0.73)	n.a.	n.a.
MTL social-normative	3.33 (0.09)	3.35 (0.13)	-0.02 [*0.95*]	3.34 (0.07)	n.a.	n.a.
PLS vision	4.11 (0.07)	4.01 (0.09)	0.10 [*0.45*]	4.07 (0.06)	n.a.	n.a.
PLS role model	3.79 (0.08)	3.72 (0.12)	0.07 [*0.62*]	3.77 (0.07)	n.a.	n.a.
PLS group goals	4.35 (0.08)	4.42 (0.10)	-0.07 [*0.61*]	4.38 (0.06)	n.a.	n.a.
Non-cognitive skills						
Emotional intelligence	4.16 (0.08)	4.26 (0.10)	-0.10 [*0.43*]	4.19 (0.06)	n.a.	n.a.
Persistence	3.88 (0.08)	3.83 (0.11)	0.05 [*0.69*]	3.86 (0.07)	n.a.	n.a.
Self-Efficacy	3.98 (0.07)	4.02 (0.08)	-0.04 [*0.69*]	3.99 (0.05)	n.a.	n.a.
Creativity	4.07 (0.09)	4.10 (0.10)	-0.03 [*0.85*]	4.08 (0.07)	n.a.	n.a.
Social Entrepreneurship Aspirations and Intentions						
Traditional career aspirations	5.19 (0.19)	5.14 (0.24)	0.05 [*0.86*]	5.17 (0.15)	n.a.	n.a.
Social career aspirations	8.12 (0.19)	7.51 (0.38)	0.61 [*0.16*]	7.89 (0.19)	n.a.	n.a.
Entrepreneurial intentions	5.76 (0.24)	5.82 (0.29)	-0.06 [*0.87*]	5.78 (0.18)	n.a.	n.a.
Entreprenurial actions						
Social Entrepreneurial Actions_cum	0.89 (0.14)	0.82 (0.21)	0.07 [*0.79*]	0.86 (0.12)	n.a.	n.a.
Traditional Entrepreneurial Actions_cum	2.36 (0.53)	3.74 (0.96)	-1.38 [*0.22*]	2.88 (0.49)	n.a.	n.a.

Sustainable behavior	7.36 (0.38)	7.47 (0.46)	-0.11 [*0.85*]	7.40 (0.29)	n.a.	n.a.
Sampling variables						
Elite business school (elite=1)	0.29 (0.07)	0.21 (0.09)	-0.08 [*0.53*]	0.26 (0.05)	0.13 (0.02)	-0.13 [*0.04*]
Gender (male=1)	0.47 (0.08)	0.47 (0.10)	0.00 [*0.13*]	0.47 (0.06)	0.45 (0.03)	-0.02 [*0.81*]
Adversity=1	0.24 (0.07)	0.17 (0.08)	-0.07 [*0.55*]	0.21 (0.05)	0.16 (0.02)	-0.05 [*0.39*]
Education=business	0.37 (0.08)	0.39 (0.10)	0.02 [*0.86*]	0.37 (0.06)	0.39 (0.03)	0.02 [*0.80*]
Suitability score	4.09 (0.04)	4.09 (0.05)	-0.00 [*0.97*]	4.09 (0.02)	3.28 (0.03)	-0.81 [*0.00*]
Demographics						
Age (years)	25.79 (0.45)	25.34 (0.45)	0.44 [*0.49*]	25.62 (0.33)	25.27 (0.19)	-0.35 [*0.35*]
Marital status (single=1)	0.73 (0.07)	0.60 (0.10)	0.13 [*0.31*]	0.69 (0.06)	0.82 (0.02)	0.13 [*0.04*]
Student=1	0.24 (0.07)	0.39 (0.10)	-0.15 [*0.22*]	0.29 (0.06)	0.29 (0.03)	-0.00 [*0.99*]
Full-time employed	0.29 (0.07)	0.17 (0.08)	0.12 [*0.29*]	0.25 (0.05)	0.27 (0.03)	0.02 [*0.68*]
Ever self-employed	0.31 (0.07)	0.26 (0.09)	0.05 [*0.65*]	0.29 (0.06)	0.22 (0.02)	-0.07 [*0.27*]
Ever started business with employees	0.05 (0.04)	0.04 (0.04)	0.01 [*0.87*]	0.05 (0.03)	0.05 (0.01)	-0.00 [*0.96*]
Have had different kinds of jobs	0.52 (0.08)	0.65 (0.10)	-0.13 [*0.34*]	0.57 (0.06)	0.56 (0.03)	-0.00 [*0.91*]
Father had different kinds of jobs	0.29 (0.07)	0.56 (0.10)	-0.27 [*0.04*]	0.39 (0.06)	0.37 (0.03)	-0.02 [*0.74*]
Mother had different kinds of jobs	0.37 (0.08)	0.30 (0.10)	0.07 [*0.61*]	0.34 (0.06)	0.34 (0.03)	-0.00 [*0.98*]
Parents total income last year (More than €150K=1)	0.05 (0.04)	0.17 (0.08)	-0.12 [*0.18*]	0.09 (0.04)	0.02 (0.01)	0.07 [*0.06*]
Number of observations	**38**	**23**		**61**	**251**	

Note. Data provided in this table are without correcting for unequal sampling or varying non-response proportions. The number of observations in columns 1, 2, and 4 are total number of responses with repeated data at t=0 and t=1. p-values in columns 3, and 6 are italicized and put within brackets to visually separate them better from the standard errors which are within parenthesis.

This study does not intend to make inferences about all those which applied to the program, but simply to compare outcomes for treatment and control groups. Nevertheless, it might be of some interest to compare the combined sample of treatment and control to those rejected to see if they differ markedly. In the bottom panel of Table 3, columns 4-6 we compare the combined treatment and control groups to that of the rejected on the sampling and demographic variables. We have previously reported large differences in suitability scores for those selected for inclusion in the study and those rejected. In the bottom panel, column 6 we observe that there are also some additional demographics differences to those excluded from the study, namely that included were more likely to have an education from an elite business school ($p<0.05$), were less likely to be married ($p<0.05$), and parents had total income greater than €150,000 ($p<0.10$). Overall though, the selected individuals for the study do not differ much from those excluded from study.

4. Results

Table 4 reports means and standard errors for leadership motivations and skills, non-cognitive skills, aspirations, intentions, and actions by t=0 and t=1 for the treatment and control group without weights. Table 4 reports first differences for treatment and control groups in Columns 3 and 6, respectively. Define the first difference in each variable Δy. Δy is measured per individual *i* by the change in the score of each construct between t=0 and t=1 ($\Delta y_i = y_{i1} - y_{i0}$). Add notation T for treatment and C for control group. The first difference between the two measures, $\Delta yT_i = yT_{i1} - yT_{i0}$ and $\Delta yC_i = yC_{i1} - yC_{i0}$, reports the changes in the level of the outcome variable between time t=0 and t=1 for an individual in the treatment or the control group, respectively. The average change per outcome variable between the pre-test and the post-test of all individuals in the treatment and the control group are denoted by ΔyT and ΔyC. In the Appendix we report the same statistics for the sample with non-response and sampling weights.

With respect to leadership motivations and skills, we do not see strong changes in neither the control group nor the treatment group for any of the variables. Variables on Motivations To Lead appears to be all reducing over time, both for the control and treatment group, while the various Transformational Leadership Style variables bounce around a bit, although with no statistically significant differences.

Regarding the non-cognitive skills variables, we do not see any large changes in neither the control group nor the treatment group for any of the variables. The control group is reporting being less strong on all the skills over time, with an average reduction of 18 percent. Also for the treatment group there are reductions from t=0 to t=1, on the order of 10%.

Considering traditional career aspirations, Table 4 shows that they remained almost unchanged when comparing pre- and post-test results in the treatment group (going from 5.19 to 5.17) and the control group (going from 5.14 to 5.11). For social career aspirations, we also find that they remained almost unchanged (but on different levels) in the treatment group (going from 8.12 to 8.07) and the control

group (going from 7.51 to 7.48). For entrepreneurial intentions the treatment group did not change (going from 5.8 to 5.8) while the control group reduced their future intentions from 5.8 to 5.6.

Considering the entrepreneurial actions, Table 4 shows that the control group had taken more traditional steps towards commercializing their venture at t=0, approximately 3.7 actions, while the treatment group had taken approximately 2.4 traditional entrepreneurial actions. This differences is statistically significant (t=6.32, p<0.001). The number of social entrepreneurial actions were both similar and both low for the treatment group (0.89) and the control group (0.82) at t=0. The difference was not significant, with t=0.26.

After the treatment period, the treatment group had taken on average 3.8 traditional actions towards commercializing their venture, slightly more than the control group which had taken approximately 3.6 actions. The treatment group had also taken slightly more actions towards social entrepreneurship (1.7) than the control group (1.4). Further, approximately half of the members of the control group as well as the treatment group had both commenced starting on a new business.

The Difference-in-Difference (DID) estimate is given by D=ΔyT-ΔyC. To estimate the DID we regress Δy_i on D_i, a dummy variable taking the value one if the individual was in the treatment group, zero otherwise, and in addition include in the estimating equation the lagged outcome y_{i0}. Including the lagged outcome corrects for saturation and/or initial effects. The estimating model will also include additional controls as

$$\Delta y_i = \alpha + \delta D_i + \beta y_{i0} + \lambda X_{i0} + \varepsilon_i \quad (1)$$

where X_{i0} is a set of control variables. The control variables include whether the person started a new business during the treatment period, gender, elite school, business school, suitability score, student, father had different kinds of jobs and parental total income. All variables are standardized for the regressions so that the magnitude of δ can be directly compared across rows. The DID statistic δ computed using equation (1) is reported in Column 1 in Table 5 without covariates X_i and in Column 3 with covariates X_i. Columns 2 and 4 contain the estimated regression coefficient β for the lagged outcome, while coefficient estimates for the control variables are suppressed, but available on request.

Table 5 reports a dominant majority of null treatment effects. The program did not cause participants to become more motivated to be a leader, to improve their transformational leadership style, to improve their emotional intelligence, persistence, self-efficacy, creativity, and it did not increase their intentions to become an entrepreneur in the future, compared to the control group. There is a statistically significant positive impact on their social career aspirations, but since this is only one out of 24 estimated effects, it could reasonably be attributed to a false positive result (which would occur in one out of twenty estimations by chance at the p< 0.5 level.) An alternate set of results weighted for sampling and/or non-response patterns reported in Table 5A in Appendix G provide the same conclusions. The weighted regressions also produce null treatment effects, although depending on the weighting scheme applied, some coefficients sometimes become significant. However, no results robustly survive

throughout alternative specifications.

There is negative serial correlation between the change in all outcome variables reported in Table 5 and their lagged pre-treatment values (see columns 2 and 4). The estimated conditional correlations typically range between -0.34 and -0.57, except for social career aspirations, where the conditional correlation is -0.81. That is, the higher the individuals self-rate themselves the smaller is the increase during the observation period across all non-action measures. We interacted the lagged outcome with being in the treatment group and found no differential effects for those in treatment and those in the control group (Results available on request). Participants and non-participants alike who self-rate themselves as high on for example motivation to lead, emotional intelligence or creativity up to the day of selection subsequently have a significantly smaller increase in their self-evaluated scores on these items during the treatment period. To bolster the argument that we are observing strong ceiling effects, we display yet another control variable of potential interest in Table 5B in Appendix G, the suitability score. This variable is marginally significant and negative in eight out of 13 cases. That is, the more suitable a person judged for inclusion by an outside expert, the smaller the change in most of the outcome variables (for example persistence, being able to provide a vision, and non-calculative leadership style). Recall that the suitability score was difficult for the judges to arrive at common agreement on, the concordance between judges was a paltry 0.32, which may cause noise in the estimated correlation coefficient. Together these results suggest that the individuals most difficult to improve are those selected from the top of the distribution.

Not all outcome measures were taken in levels. In particular, the progression of entrepreneurial actions, both traditional and social, the creation of a new business, and sustainable behavior, were not taken in levels at t=1 as these scales are not amenable to such measurement. However, if one is ready to interpret the survey measurement of actions and behavior between t=0 and t=1 for individual *i* as Δy_i, one can proceed to compare simple means or OLS (WLS) treatment estimates, with and without conditioning on all relevant baseline covariates, not weighted (weighted) by sampling an non-response fractions. These results are reported in Table 6 (OLS) and in Appendix G (WLS).

Table 6 reports no robust significant treatment effects on any of the outcomes progression of entrepreneurial actions, both traditional and social, the creation of a new business, and sustainable behavior. The Table, however, does report robust positive and highly significant serial correlations in the action outcome variables. These results indicate that those which had made more entrepreneurial progress before the program or were more sustainably oriented, afterwards also made more entrepreneurial progress, in both traditional and social entrepreneurial actions, and afterwards were more sustainably oriented. This may seem tautological, but it is an important point. The results indicate that young people are of different "types". There are those that are more entrepreneurially action oriented and more oriented to do something to protect the environment – than others, and the rather intensive training program is not able to change that. That is, it appears from these data that social entrepreneurship is a "trait"

which is hard to change.

The effects of the lagged action outcome variables reduce in size but stay significant when introducing the variable "New Business". This probably reflects that those that are more action oriented are more likely to create a new business as well as they are more likely to be more socially entrepreneurially oriented. That is, the new business variable is endogenous to being socially entrepreneurially oriented. It is also the case that starting on a new business idea means that an individual is able to pursue less actions during the treatment period than if the person was continuing on an old business idea, but this has no relation to whether the person belongs to the treatment group or not.

We further experiment with an analysis of heterogeneous treatment effects, some which was already mentioned above. It could be that the program might be able to accelerate the efforts by those that pre-treatment are already more socially entrepreneurially oriented as they may be more receptive, or alternatively that the program has more of an effect on those that previously were less entrepreneurially oriented as it may be that for those which are already committed, the program would be preaching to the choir. However, there are no such observable effects on any of the outcome variables. All interaction terms between treatment and lagged outcomes are insignificant. There is further no interaction between treatment and creating a new business idea substantiating that there is simply no program treatment effect on any of the actions taken by the individuals. In the final panel of Table 6 we show that being part of the treatment group does not increase the probability of creating a new business idea. Results are robust to various weighting schemes, as reported in Table 6A in Appendix G. Results are also robust to running the regression using SUR as reported in Table 6B in Appendix G.

There is the reasonable concern that we inadvertently accept the null hypothesis of no treatment effect because of low statistical power. The power could be low because we only have 61 observations.[19] The effect sizes are on the other hand reasonable, with an average effect size of 8.6% in the first columns across both Tables 5 and 6. In comparison, the average effect size in the study by Rosendahl-Huber et al. (2014) was 6.4% across 11 similar measures. We compute the recommended sample size no to falsely reject the null hypothesis of no treatment effect for the average effect size and average standard error using these data for a two-sided test with default power of 80%.[20] The recommended sample size is 64 observations. With a difference of only three observations (the power for a sample of 61 is 0.786) we feel reasonably confident that we are not rejecting the null hypothesis inadvertently.

Instead of computing the average power one might consider this study to contain repeated draws of the test of the null hypothesis that there are no treatment effects. There are 17 draws of the test that there is no treatment effect. One can compute the compound probability that all tests jointly do not reject the

[19] Power increases with the square root of the sample size. Unfortunately power cannot be increased in our study as the number of participants was fixed, and we thoroughly exhausted the opportunity to receive additional survey replies.

[20] We use the command power oneway 0 0.086, sd(0.24).

null hypothesis, and the power associated with that test, assuming independent draws of probabilities of type II from the binomial distribution. Taking n=61, and effect sizes and standard errors from column 1 in Table 5 and column 2 in Table 6 we compute first the independent probability to falsely rejecting the null hypothesis for each row and then the compound probability that there in fact is a treatment effect to be 0.xx. This test shows a very low compound probability that we overall do not falsely reject the null hypothesis. Overall then, while it is certainly possible to raise the concern that we sometimes inadvertently reject the null hypothesis on any single test, it is more difficult to argue that we falsely reject the null hypothesis that the average tests, or the compound probability that all test of treatment effects are jointly insignificant.

The power of the tests of the coefficients for β are a lot stronger because of larger effect sizes. Here it might instead be argued that we overstate the significance rather than understate the significance of the test of H0 because of repeated draws. Although maybe in fairness to the study it should not be possible to both overstate the significance and understate the significance of our tests at the same time. Nevertheless, the significance of the correlations with the lagged outcome variable can be downgraded by performing Bonferroni corrections of the p-values. This entails simply adjusting the cut-off p-value of 0.05 with the number of repeated tests, which are 16, counting all tests in Table 5, column 1 and Table 6, column 2 (since there is no lagged value for "New Business"). The required p-value for statistical significance then becomes 0.003. Six out of 16 tests do not pass the new statistical significance cut-off of 0.003, but 10 still do. On balance then, there is a preponderance of a failure to accept the null hypothesis of no correlation between the lagged outcome variable and a change in the outcome variables during the treatment period.

An alternative way to adjust for the low power is to perform seemingly unrelated regression. This takes into account potential common correlation across the outcome variables. If the common correlation is positive and substantial, then the regressions presented in Table 5 would be upwards biased. Table 5B and 6B in Appendix G provide results running SUR instead. Results remain in the direction already indicated, except with more stable coefficient estimates across the different outcomes variables.

Table 4 *Comparison of Means and Differences in Means Between Treatment and Control Groups*

Measures	Treatment		Diff	Control		Diff
	(1)	(2)	(3)	(4)	(5)	(6)
	t=0	t=1	ΔyT	t=0	t=1	ΔyC
Leadership motivations and skills						
MTL affective identity	3.56 (0.08)	3.43 (0.09)	-0.13 (0.13)	3.56 (0.12)	3.42 (0.09)	-0.14 (0.16)
MTL non-calculative	4.07 (0.07)	4.02 (0.08)	-0.05 (0.11)	3.99 (0.15)	3.93 (0.15)	-0.06 (0.21)
MTL social-normative	3.33 (0.09)	3.22 (0.09)	-0.11 (0.13)	3.35 (0.13)	3.24 (0.10)	-0.11 (0.17)
PLS vision	4.11 (0.07)	3.91 (0.09)	-0.20 (0.11)	4.01 (0.09)	3.93 (0.08)	-0.08 (0.13)
PLS role model	3.79 (0.08)	3.85 (0.10)	0.06 (0.13)	3.72 (0.12)	3.76 (0.13)	0.04 (0.18)
PLS group goals	4.35 (0.08)	4.37 (0.08)	0.02 (0.11)	4.42 (0.10)	4.33 (0.12)	-0.09 (0.16)
Non-cognitive skills						
Emotional intelligence	4.16 (0.08)	4.09 (0.07)	-0.07 (0.11)	4.26 (0.10)	4.12 (0.11)	0.13 (0.15)
Persistence	3.88 (0.08)	3.67 (0.11)	-0.21 (0.14)	3.83 (0.11)	3.57 (0.11)	-0.25 (0.16)
Self-Efficacy	3.98 (0.07)	3.85 (0.07)	-0.13 (0.10)	4.02 (0.08)	3.83 (0.10)	-0.19 (0.13)
Creativity	4.07 (0.09)	4.07 (0.08)	0.00 (0.12)	4.10 (0.10)	3.97 (0.12)	-0.13 (0.16)
Social Entrepreneurship Aspirations and Intentions						
Traditional career aspirations	5.19 (0.19)	5.17 (0.22)	-0.02 (0.29)	5.14 (0.24)	5.11 (0.29)	-0.03 (0.38)
Social career aspirations	8.12 (0.19)	8.07 (0.14)	-0.05 (0.24)	7.51 (0.38)	7.48 (0.29)	-0.03 (0.48)
Entrepreneurial intentions	5.76 (0.24)	5.78 (0.27)	0.02 (0.37)	5.82 (0.29)	5.56 (0.36)	-0.26 (0.46)
Entrepreneurial actions						
Social Actions_cum	0.89 (0.14)	n.a.	n.a.	0.82 (0.21)	n.a.	n.a.
Social Actions_marg	n.a.	1.71 (0.25)	n.a.	n.a.	1.43 (0.32)	n.a.
Traditional Actions_cum	2.36 (0.53)	n.a.	n.a.	3.74 (0.96)	n.a.	n.a.
Traditional Actions_marg	n.a.	3.81 (0.78)	n.a.	n.a.	3.56 (0.93)	n.a.
Sustainable behavior	7.36 (0.38)	7.39 (0.38)	0.03 (0.54)	7.47 (0.46)	7.78 (0.46)	0.31 (0.65)
New Business	n.a.	0.50 (0.08)	n.a.	n.a.	0.52 (0.10)	n.a.
N	38	38		23	23	

Table 5 *Diff-in-Diff Treatment Effects with Lagged Outcomes*

Measures	**D-in-D, no controls**		**D-in-D, with controls**	
	(1) δ	(2) β	(3) δ	(4) β
Leadership motivations and skills				
MTL affective identity	0.02 (0.25)	-0.34 (0.12)**	0.18 (0.28)	-0.34 (0.14)**
MTL non-calculative	0.07 (0.25)	-0.38 (0.12)**	0.02 (0.26)	-0.41 (0.12)**
MTL social-normative	-0.03 (0.24)	-0.48 (0.12)***	-0.14 (0.25)	-0.51 (0.12)***
PLS vision	-0.16 (0.25)	-0.40 (0.12)***	-0.01 (0.27)	-0.45 (0.13)***
PLS role model	0.08 (0.24)	-0.49 (0.12)***	0.34 (0.25)	-0.57 (0.12)***
PLS group goals	0.13 (0.24)	-0.46 (0.12)***	0.40 (0.23)†	-0.55 (0.11)***
Non-cognitive skills				
Emotional intelligence	0.07 (0.24)	-0.44 (0.12)***	0.09 (0.26)	-0.42 (0.13)**
Persistence	0.11 (0.25)	-0.38 (0.12)***	0.20 (0.27)	-0.41 (0.12)**
Self-Efficacy	0.10 (0.25)	-0.35 (0.12)**	0.08 (0.27)	-0.34 (0.13)**
Creativity	0.29 (0.25)	-0.39 (0.12)**	0.41 (0.26)	-0.36 (0.12)**
Social Entrepreneurship Aspirations and Intentions				
Traditional career aspirations	0.02 (0.25)	-0.38 (0.12)**	0.06 (0.29)	-0.42 (0.14)**
Social career aspirations	0.29 (0.19)	-0.75 (0.09)***	0.43 (0.20)*	-0.81 (0.10)***
Entrepreneurial intentions	0.13 (0.23)	-0.51 (0.11)***	0.31 (0.24)	-0.50 (0.12)***

Note. *** <0.001, ** <0.01, * <0.05, † <0.10. Standard errors in parentheses. Variables standardized. Individual without repeated values at t=0 and t=1 removed. N=61 in all regressions. Estimates are from separate regressions for each row. Treatment effects reported in cols 1 and 3. Coefficient for lagged outcome (y_0) reported in cols 2 and 4. Controls include new business created, gender, elite school, business school, suitability score, student, father had different kinds of jobs and parental total income.

Table 6 *Regression Results on Entrepreneurial Actions without Sampling and Nonresponse Weights*

Measures	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable : Traditional Actions_marg						
Treatment		0.21 (0.25)	0.36 (0.27)	0.18 (0.24)	0.21 (0.25)	0.13 (0.80)
Traditional Actions_cum		0.44 (0.12)***	0.43 (0.13)**	0.33 (0.12)***	0.40 (0.16)*	0.32 (0.13)*
New Business				-0.59 (0.24)*		-0.62 (0.43)
Treatment x Lagged Outcome					0.08 (0.24)	
Treatment x New Business						0.03 (0.50)
Covariates	Yes	No	Yes	No	No	No
Adjusted R2	0.00	0.16	0.14	0.23	0.15	0.21
Dependent variable : Social Actions_marg						
Treatment		0.15 (0.25)	0.27 (0.28)	0.17 (0.23)	0.15 (0.25)	0.28 (0.75)
Social Actions_cum		0.38 (0.12)**	0.34 (0.13)*	0.29 (0.11)*	0.41 (0.18)*	0.29 (0.12)*
New Business				-0.76 (0.23)**		-0.71 (0.40)†
Treatment x Lagged Outcome					-0.04 (0.24)	
Treatment x New Business						-0.07 (0.49)
Covariates	Yes	No	Yes	No	No	No
Adjusted R2	0.00	0.12	0.08	0.25	0.11	0.24
Dependent variable : Sustainable Behavior						
Treatment		-0.13 (0.22)	-0.04 (0.24)	-0.13 (0.22)	-0.14 (0.22)	-0.76 (0.70)
Lagged Outcome		0.57 (0.10)***	0.52 (0.12)***	0.59 (0.11)***	0.83 (0.19)***	0.59 (0.11)***
New Business				0.18 (0.81)		-0.08 (0.35)
Treatment x Lagged Outcome					-0.38 (0.23)	
Treatment x New Business						0.41 (0.44)

Covariates	Yes	No	Yes	No	No	No
Adjusted R2	0.07	0.30	0.31	0.30	0.30	0.30

Dependent variable : New Business

Treatment		0.02 (0.13)	0.02 (0.16)
Covariates	Yes	No	Yes
Adjusted R2	0.05	0.00	0.03

Note. *** <0.001, ** <0.01, * <0.05, † <0.10. Standard errors in parentheses. Variables standardized. Individual without repeated values at t=0 and t=1 removed. N=61 in all regressions. Covariates include gender, elite school, business school, suitability score, student, father had number of different kinds of jobs, parental total income.

5. Discussion

In this paper, we asked whether a new nationally advertised six-month intensive training program to encourage social entrepreneurship among youth had any effect on participants across a number of dimensions. Program costs were on the order of 12,000 euros per participant, representing a substantial effort by organizers to affect change. We conduct a randomized field experiment where 50 applicants were randomly allocated to the program and 50 similar applicants were rejected. We measure leadership motivations and style, social entrepreneurial aspirations, intentions, skills, entrepreneurial actions, and sustainable behaviour.

Our primary result is straightforward. Although both the intent and the effort to treat people to become social entrepreneurship leaders was extraordinary, we find no robust treatment effects on participants' motivation to lead or transformational leadership style, nor on skills, entrepreneurial intentions, career aspirations or sustainable behavior. In terms of impacting entrepreneurial actions, the treatment effects were null on ventures' progression six months after program completion. The results conclude that training people to become entrepreneurs is difficult and costly.

Our second result suggests that young people are of different "types" with respect to social entrepreneurial actions. We found that those that had taken more actions prior to the start of the program were more likely to take action afterwards, irrespective of whether they joined the program or not. Apparently there are those that are more entrepreneurially action oriented and more prone to make efforts to care about the environment than others, and the rather intensive training program is not able to change that. That is, it appears from these data that social entrepreneurship is a "trait" which is hard to change.

The implications of these two main results for program designers of similar programs should be cautious, not draconian. Although our results are consistent with prior results showing that it is very hard to accomplish strong treatment effects of entrepreneurship training programs, it is still a bit premature to argue that these programs do not or will not fulfil a purpose or that they are unimportant. The lack of treatment effects may be due to low statistical power, although the researchers provide evidence that the repeated lack of failure to accept the null hypothesis over a number of tests has higher statistical power. It is still possible that the program was able to teach participants entrepreneurial skills which were not measured, such as how to assess a business opportunity, how to conduct a market study, or how to write a business plan. We did not specifically measure participants' improvements on such skill components but rather how much progress they made on entrepreneurial efforts, for example whether they wrote a business plan or not. The participants might still have written better business plans than the control group. It can also be that participants later have better use of these unmeasured skills and that the program have more of an impact in the long term.

Our third result reveals significant ceiling effects across all non-action outcome measures – potential candidates who self-rated themselves as high on for example self-efficacy, social career intentions or emotional intelligence up to the day of selection subsequently experienced smaller increases in their

self-evaluation scores on these items after the program was over than those rating themselves lower, irrespective of whether these highly rated individuals were in the treatment group or not. Further, even though the suitability score measure was extremely noisy it predominantly was negatively correlated, and in eight of 13 regressions at least marginally significantly so, with an increase in the outcome measures. These results are further indications that irrespective of measure and source of data, individuals at the top of the distribution are more difficult to change. The results suggest that programs to stimulate entrepreneurship should not select those most interested or those judged the best candidates. Results will be stronger if one selects from the bottom of the distribution.

In two recent RCT studies of entrepreneurship training programs in schools, non-cognitive skills and other measures are taken between one to three months after program completion. These studies find distinctly different treatment effects. First, Oosterbeek et al. (2010), find no effects on a range of non-cognitive and entrepreneurial skills from participating in the almost year-long JACP program for Dutch bachelor students (details described in Appendix A). Second, Rosendahl Huber et al. (2014) find a large number of significant positive treatment effects among Dutch children aged 11 or 12 participating in a one-week entrepreneurial project training program (BizWorld). The treatment effect is statistically significantly positive for seven out of nine non-cognitive skills: Risk taking propensity, Creativity, Need for Achievement, Self-efficacy, Pro-activity, Persistence and Analyzing. However, there is no significant effect on entrepreneurial knowledge in that study, while treatment effects on two measures of entrepreneurial intentions are, as stated before, significantly negative.

It is interesting to try and make sense of the general direction of these studies and ours. Why would the BizWorld program that only takes one week have more of an effect than the Junior Achievement program that takes one year, or the 10 day high-intensive French training program which includes a substantial 6-month follow-up period? The commonality between the French program and the JACP is that they are both targeting youth, while the BizWorld training program targets children aged 11 and 12. Rosendahl Huber et al. (2014) argue that the insignificant treatment effects found in other studies (and now including ours) "may well be due to the fact that entrepreneurial skills and knowledge are more easily developed earlier in life or because the returns to training programs later in life depend on investments in knowledge and skills made earlier." (p. 90) and they cite Cunha and Heckman (2007) who emphasize such cumulative learning effects at an early age. One could summarize this interpretation of current results by the old adage "you can't teach an old dog new tricks."

An alternative interpretation is that the effects observed for the BizWorld training program are taken too close to the completion of the program, are thus temporary and that they will decrease with time. Supporting this interpretation, it is rather curious that so many and highly varied non-cognitive traits are all positively affected by the treatment, while entrepreneurial skills are unaffected. One might ask how the BizWorld program specifically trains the children to increase their risk taking, creativity, need

for achievement, self-efficacy, pro-activity, persistence, and analyzing ability. It is not clear in the instructional package that the program even addresses these skills. One might also ask why entrepreneurial skills are not affected as that is the focus of the program. It is more plausible that these common increases on self-evaluated perceptual scales are due to a single Hawthorne effect. A second alternative interpretation is that the combined set of studies indicates that entrepreneurship is a personality trait which does not easily change. Non-treatment based evidence reported in this study are consistent both with the Hawthorne interpretation and the interpretation that entrepreneurship is a strong and not easily perturbed personality trait. The early age effects observed by Rosendahl Huber et al. (2014) may suggest that an entrepreneurial orientation is socially acquired and more easily affected before a personality has hardened. This interpretation is supported by prior findings showing strong family inheritance patterns in entrepreneurial tendencies (e.g. Lindquist et al., 2015).

A conclusion by both the organizers and the researchers were that the 2014 program did not manage to change participants on target non-cognitive skills, in particular their motivation to lead and their leadership styles, and did little to affect the participants' progress on their ventures during the 6-month intervention. Our findings had concrete implications for the organization and are important for entrepreneurship training evaluations. For the organization, our findings impacted the organization's selection process, the program for the bus trip, as well as the follow-up training of participants. First, the importance of identifying individuals who had at least some previous entrepreneurship experience (instead of just a high motivation towards entrepreneurship) became a key component of the 2015 program, and a MOOC to gain further entrepreneurship experiences was offered to all participants before the bus trip as well as to anyone else interested in social entrepreneurship.[21] Second, the organization selected only those participants as potential candidates for the 2015 bus trip who certified a clear commitment to and time for the follow-up program. Third, the program for the bus trip was redesigned to include more concrete tools for entrepreneurs as well as the acquisition of hard skills (such as business plan writing, business model development tools and financing strategies, pitch techniques, collective intelligence approaches, etc.). In addition, participants were given more time during the bus trip to work on their entrepreneurial projects and they were given more help and feedback from experts and peers who accompanied them. Further, leadership skill training and team exercises were significantly reduced during the tour. Finally, the follow-up program was much more sophisticated compared to the relatively light and ad-hoc mentoring of the first tour. It followed the spirit of the bus trip redesign as it had a stronger focus on hard skills and several more structured feedback loops with experts and peers.

[21] The MOOC was built on videotapings of training sessions, lectures and participants' testimonials performed during the 2014 tour with additional material and lectures from faculty at a top business school in Europe. The MOOC was highly subscribed across the globe with x,xxx subscribers, of which y,yyy completed the course.

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APPENDIX

NOT FOR PUBLICATION

The Effects of a Program to Encourage Social Entrepreneurship

APPENDIX A. Review of Field Experiment Studies on the Effects of Entrepreneurship Education and Training.

Study	Peterman and Kennedy (2003)	Souitaris et al (2007)	Oosterbeek et al (2008)	von Graevenitz et al. (2009)	Karlan and Valdivia (2011)	Rosendahl Huber et al. (2014)	Fairlie et al. (2015)	Elert et al. (2015)
Sample	Grade 11 or 12, predominantly aged 16 in Australia.	Science and engineering students in London and Grenoble universities.	Bachelor students in administration, management, economics and law at two different locations in the Netherlands.	3rd semester Bachelor of Science students at LMU Munich, Germany.	Peruvian group lending program for poor female micro-entrepreneurs.	Children aged 11 or 12 from 63 primary schools (118 classes, 2,751 pupils) in the Netherlands.	Marketed to any individual interested in entrepreneurship in the U.S. Response: 19% self-employed and 39% on unem-ployment insurance.	Swedish high school students aged 17-19 from three cohorts 1994-96 across 278 high schools.
Program	Junior Achievement Company Program (JACP). Students sell stock, elect officers, produce and market products or services; keep records and conduct share-holders' meetings.	Compulsory or elective module within entrepreneurship program.	JACP.	Compulsory business planning course. Students work in teams coached by local entrepreneur.	General business skills and strategy training.	BizWorld. Taught by local entrepreneur and high-school teacher. Students sell stock, elect officers, produce and market products; keep records and conduct shareholders' meetings.	Growing America through Entrepreneurship (GATE) offered across seven cities 2003-2005. Free of charge. Classroom courses and one-on-one coaching.	JACP.
Control group	Students from the same schools and the same class who had declined to enrol.	Non-entrepreneurship program students.	Students at another close location of the same university where JACP was not offered.	No	Control groups met at the same frequency as treatment group but solely for making loan and savings payments.	Random assignment to treatment or control group takes place at the class level.	Random assignment to treatment or control group.	Propensity score matched control group using national registry data of all Swedes.

Sample size: treatment / control	109 / 111	124 / 126	104 / 146	196 / 0	Sum between 664 and 3,400 depending on measure.	1,729 / 684	2,094 / 2,103. Effective sample by 3rd wave survey 1,273 / 1,173.	9,731 / 9,731
Randomized treatment	No	No	No	No	Yes	Yes	Yes	No
Instrumented treatment	No	No	Yes, distance to school location from parents home.	No	No	No	No	No
Length of Treatment	5 months calendar time, teamwork, after school hours coaching by mentor.	One course or module.	One calendar year, teamwork, 5–10 h per week, lectures plus coaching by mentor. Students earn 10 ECTS.	One course: eight lectures plus rehearsals, teamwork.	30-60 minute weekly training sessions over a period of one to two years. Treatment exposure was heterogeneous.	5 days within a time span of 2 to 4 weeks. Teamwork.	15.6 h (13.8 h training, 1.8 h counseling). Cost per treated approx. $850-$1,300. Control group could seek training and did so for 6.9 hrs.	One calendar year, teamwork, 5–10 h per week, lectures plus coaching by mentor.
Outcome variable	Attitudes.	Attitudes, intentions, and actions.	Non-cognitive skills, entrepreneurial knowledge and intentions.	Attitudes, non-cognitive skills and intentions.	36 institutional, business, and household outcomes, 13 related to business knowledge and practices.	Non-cognitive skills, entrepreneurial knowledge and intentions.	Business plan writing, business start-up, employment, sales, household income, work satisfaction.	Probability of starting a firm, entrepreneurial income, firm survival.
Outcome measurement time	End of program.	Approximately at end of course.	One to three months after treatment.	End of course as part of course evaluation.	Up to two years.	One month after treatment.	Follow-up at 6, 18, and 60 months after treatment.	Up to 16 years after graduation.
Results	Positive effects on desirability and feasibility.	Positive effects on desirability and feasibility, zero effect on intentions and actions.	No effect on skills, sign. negative effect on intentions.	Little effect on skills, sign. negative effect on intentions.	Little or no evidence of changes in key outcomes such as business revenue, prof-	Significant positive effect on some non-cognitive skills, no effect on knowledge, sign	Treatment group 11-13 percentage points more likely to create business plan	Increases the probability of starting a firm and entrepreneurial income. No

					its, or employment. Improvements in business knowledge and client retention rates.	negative effect on intentions.	and 2-6 percentage points more likely to start a business. No effect beyond 6 months for any outcome.	effect on firm survival.

APPENDIX B. List of 22 entrepreneurial actions taken to commercialize a venture.

1. Do you have a concrete idea for a product or service that you would like to sell?
2. Have you already begun the preparation of a business plan for a new business? (Note that a business plan usually outlines the markets to be served, the products or services to be provided, the resources required – including money – and the expected growth and profit for the new business)
3. Have you already sent a formally written business plan to other people?
4. Have you tested a product or service that your new business will be selling with potential customers?
5. Have marketing or promotional efforts been started for the product or service that your new business will be selling?
6. Have you developed any proprietary technology, processes, or procedures that no other company can use?
7. Have you submitted an application for a patent, copyright, or trademark relevant to your new business?
8. Have any major items like equipment, facilities, or property been purchased, leased, or rented specifically for your new business?
9. Have you made an effort to talk with potential customers about the product or service of your new business?
10. Have you made an effort to collect information about the competitors of your new business?
11. Have you made an effort to define the market opportunities for your new business?
12. Have you developed financial projections, such as income or cash flow statements or break-even analyses?
13. Have you made an effort to determine the regulatory requirements for your new business, such as operating licenses, permits, or health and safety regulations?
14. Have you asked financial institutions or other people for funds for your new business?
15. Have you received the first outside funding from financial institutions or other people for your new business?
16. Did you hire any managers or employees, including exclusive subcontractors, now working for pay (not people who share ownership)?
17. Have you already opened a bank account to use exclusively for your new business?
18. Has your new business already received any money, income, or fees from the sale of goods or services?
19. Has monthly revenue ever exceeded monthly expenses for your new business?
20. Can potential customers contact your new business by phone, through e-mail or a website on the internet, or by both phone and through the internet?

21. For your new business, have any payments been made to the federal social security system?
22. Has a federal income tax return ever been filed for your new business, whether or not it reported a profit and tax payments?

APPENDIX C. List of 5 actions taken to become a social entrepreneur.

1. Have you acted as founding member in the development of a social business?
2. Have you written down the social mission of your business idea?
3. Have you developed a tool to measure and communicate the social impact of your business idea?
4. Do you have a concrete idea to solve a specific social or environmental problem?
5. Have you received an award for a social business idea?

Scale for Sustainable Behavior.

1. I have worked for a social or non-profit organization (WITH pay).
2. I have volunteered for a social or non-profit organization (WITHOUT pay).
3. I have donated money to charitable organizations.
4. I have actively supported social causes (activism).
5. I have convinced others to change their behavior towards a more sustainable lifestyle.
6. I have systematically recycled waste in my daily life.
7. I have used bicycle or public transportation instead of mine or someone's car.
8. I have bought local and/or fair-trade products to replace what I normally buy.
9. I have published an item to make people aware of today's global challenges (e.g., posted picture, wrote blog, published article).
10. I have systematically avoided products with too much packaging.
11. I have reduced consumption of animal products that stem from mass production.

Scales for Traditional Career Aspirations (items 1-6) and Social Career Aspirations (Items 7-10)

When you think about your first job or the next job that you would like to have, how important is the following for you? Please tick the appropriate number in the scale below.

1. Profitability of the company
2. Economic growth of the company
3. To have prestige
4. To have a high salary
5. Long term career perspective within the company
6. Corporate brand image/company reputation
7. To be dedicated to a cause or to feel that I am serving a greater good
8. To serve a social mission
9. To make a positive contribution to society
10. Social mission of the company

APPENDIX D. Schedule of social entrepreneurship program (bus trip).

	Phase 1: "Inspiration"			
Place	Paris August 26	Paris August 27	Paris August 28	Marseille August 29
Pedagogical objective for the day	Start the Tour and establish a group dynamic	Foster group dynamic and get a sense of social entrepreneurship	Be inspired and unlearn prejudices about social entrepreneurship	Gain an understanding of social entrepreneurial solutions
Morning events		**Team Building** *The three coaches facilitate several team building exercises, physical challenges, and role plays. Subsequently, the group defines its rules of the trip, formulates expectations and fears.*	**Site-immersion** *Visit of two different social entrepreneurs and exchange about their experiences*	**Treasure Map** *Participants meet 10 social entrepreneurs on 10 different themes. Brainstorming and other creative methods are employed to help those social entrepreneurs.*
Afternoon events	**First meeting among coaches and participants** *The three coaches of the 2014 edition present the program of the following days. Subsequently, one famous French entrepreneur and one politician discuss with the participants about social entrepreneurship in France.*	**France: needs and solutions** *Several invited speakers from different fields (finance, IT, politics, etc.) present societal challenges of the 21st century. Based on these interventions, participants define the general issue that they want to work on (e.g., education, pollution, etc.) based on different working methods and tools.*	**Meet social entrepreneurs** *Informal meetings with four different famous French social entrepreneurs*	
Evening events	**Launch reception** *Public event to present and celebrate the 50 participants. Several famous people give short speeches or their video messages are projected. (450 persons)*	**Forecast reception** *Creativity workshop on innovative solutions for a better society (facilitated by external party through a gamification approach)*	**Unlearning Reception** *Public event with invited speakers around the topics "unlearning" and "stereotypes" (200 persons)*	**Inspiration Reception** *Public event with invited speakers (social entrepreneurs) and first presentations from participants about their learnings. (200 persons)*

	Phase 2: "Introspection"		Phase 3: "Take Action"	
Place	Les Amanins August 30	Les Amanins August 31	Lyon September 1	Strasbourg September 2
Pedagogical objective for the day	Discover individual talents and passions	Clarify personal vision and project mission	Learn how to prototype ideas	Develop sustainable business models; demystify entrepreneurial failure
Morning events	**Discover agro-ecology** *Visit of an agriculture project that aims at inventing new solutions for agriculture but also in terms of life styles.*	**Searching for a personal project** *Workshops and individual coaching sessions, group exercises, and role plays to find own project idea.*	**Design Thinking** *Workshop to find innovative solutions to identified societal issues*	**Site-immersion** *Visit of a successful social entrepreneurial organization and reflection on sustainable business models*
Afternoon events	**Reflection** *The participants meet and discuss with people (one CEO, one philosopher, one teacher) who follow the philosophy "Change oneself to change the world"; afterwards, they work on their own personal aspirations*	**"My mission, my vision"** *Workshop about generated output from the morning session and feedback rounds.*	**Feedback session 1** *Collection of feedback from 25 local entrepreneurs and social entrepreneurs, and interviews with potential beneficiaries of project ideas*	**Workshop** *Participants learn about different business models and apply tools to further their own idea*
Evening events	**In search of meaning** *Participants watch a documentary and discuss with the producer about the film's idea and learnings*	**Formation of Groups** *Formation of groups to develop entrepreneurial projects*	**Feedback session 2** *Feedback from 50 young persons*	**Fail Night: demystifying failure** *Public event: Testimonials of entrepreneurs who failed and rebounded (300 persons)*

	Phase 3: "Take Action" (continued)			
Place	Lille September 3	Lille September 4	Paris September 5	Paris September 6
Pedagogical objective for the day	Learn about and experience financing and management issues	Learn about and experience leadership and communication	Improve presentation skills, create a network	Assess the Tour, feedback, and planning of the future
Morning events	**The hive of financing** *Three invited speaker teach participants about financing social entrepreneurial projects*	**Leadership Workshop** *Three experts on leadership work with participants on improving their personal leadership style*	**Pitch preparation** *Participants prepare their pitches based on feedback received*	***Assessment of the Tour*** *Collective feedback rounds and exchange of strengths and weaknesses (facilitated by three coaches)*

Afternoon events	**Communication workshop and pitches to investors** *Participants receive a workshop on communication and afterwards pitch their projects to potential investors (banks, impact investors, philanthropists, foundations) in a "speed dating" event*	**"Pitch your project" Workshop** *Participants work on project presentations with the help of professionals*	**Young entrepreneurs' pitches** *Public event where participants' present their projects to a jury of partners (300 persons)*	***Expectations for the future*** *Participants express their expectations for the follow-up program; milestones and future collaborations are defined*
Evening events	***Live* Reception** *Live concert and festival (400 persons)*	**Project presentations** *Participants pitch their project ideas to experts for the first time and receive feedback*	**Post-Tour Support Forum** *Exchanges between the partners and participants about future support* **Closing evening** *Celebration of the first edition of the program in presence of the Minister of Youth, partners, jury members, etc. (600 persons)*	***Closing of the program***

APPENDIX E. Application form for the social entrepreneurship program (extract).

A. General and Administrative Information

Last Name:

First Name:

Email address:

Phone number:

Sex:

Age:

Current city of residence:

What is your current situation? (Mark and respond on the corresponding line)

___ Student. Specify your school level:

___ Recent Graduate. Specify your diploma:

___ Employed. Specify our position, your employer and contract type:

___ Job Seeker.

___ Other. Specify:

How did you hear of [the program]? (Mark and respond on the corresponding line)

___ Social Network. Which one:

___ The [the program] website.

___ A partner site. Which one:

___ A friend or a parent.

___ Media. Which one:

___ A conference. Which one:

___ Other. Specify:

B. You and your motivation

As a reminder, here are the 4 criteria by which you will be selected: your ability to dream a more just society, your determination to push your boundaries, your leadership potential, and your ability to communicate your enthusiasm. All the questions in this section are mandatory.

We are looking for personalities, not CVs…so be you!

1. Who are you: tell us your story. (300 words max)

We want to know more about your journey, your stages in life and the most important experiences that have led you this far.

2. What are the 3 qualities that characterize you the most? Illustrate each in a concrete example. (200 words max)
3. What societal problem concerns you the most (discrimination, disabilities, exclusion, diseases, homelessness, environment, etc.)? Why? (200 words max)
4. Imagine a world where anything is possible. Propose to us an idea – even the craziest – to solve this problem. (200 words max)
5. In 20 years, what will the world look like as a result of this idea? Describe to us how this idea has helped change things. (200 words max)
6. Think of the last time you did something "crazy": out of your routine, explored the unknown, out of line, dared to swim against the current, etc. Describe to us this experience. (200 words max)
7. Tell us about a moment in your life when you showed tenacity and perseverance. (200 words max)

Arriving at this question is in itself a great achievement, but it's not enough. Don't give up!

8. Tell us an achievement, a project, or an initiative that you led. What role did you play? Did you mobilize other people around the project? (200 words max)
9. How is [the program] an adventure for you? Why do you insist on riding the train? What do you expect from this experience? (300 words max)
10. In three words, what does [the program] represent for you? (3 words, a bit of a break)
11. To what extent is it important for you to share with others what you will have learned and lived during the tour? (200 words max)
12. What skills, knowledge, and passions are you going to bring to the 49 other participants and to the [the program] team? (100 words max)
13. What would you like us to remember of you in 100 years? (200 words max)
14. If you want to add any other information that you think is useful to communicate to us, now is the time! (100 words max)

C. Bonus Questions: Creative project

Communicate to us your enthusiasm for the idea of participating in the [the program] adventure! Drawing, video, poem, painting, song, dance, viral buzz, model train of matches , ticket costume …Let loose, you can express yourself in any way you want! This question will give bonus points to those who answer it, but it will not be discriminatory for those who do not respond.

APPENDIX F. Judge's criteria and items.

Weighting	Construct	Items[22] (5-point Likert scale)
85 %	**Capacity to dream (big)**	*Item 1 (5.0 %): The candidate anticipates the needs of others, loves to help others, and is concerned about others.* *Item 2 (5.0 %): The candidate anticipates the needs of others, senses other's wishes, feels other's emotions. S/he is concerned about others and takes time out for others.*
		Item 3 (7.5 %): The candidate asks questions that nobody else does. The candidate has a vivid imagination.
		Item 4 (7.5 %): The candidate has a broad outlook on what is going on and has an excellent view of the world. The candidate has an exciting and optimist vision of the future.
	Willingness to change society	*Item 5 (7.5 %): The candidate has taken frequent stands in the face of strong opposition. S/he does not hesitate to express an unpopular opinion.* *Item 6 (7.5 %): The candidate loves dangerous situation. S/he takes risks and knows how to get around the rules.*
		Item 7 (5.0 %): The candidate works hard to turn plans into action. The candidate does more than what's expected of him/her and sets high standards for herself/himself. *Item 8 (5.0 %): The candidate does not quit a task before it is finished, is a goal-oriented person, and finishes things despite obstacles in the way.*
		Item 9 (5.0 %): The candidate likes to begin new things. S/he is, open to change. *Item 10 (5.0 %): The candidate loves excitement, loves action, and seeks adventure.* *Item 11 (5.0 %): The candidate does not care what others think. S/he sails his/her own course.* *Item 12 (5.0 %): The candidate knows that his/her ideas sometimes surprise people. S/he swims against the current.*
	Leadership potential	*Item 13 (7.5 %): The candidate takes charge and knows how to captivate people.* *Item 14 (7.5 %): The candidate feels comfortable around people. S/he does not mind being the center of attention.*
	Ability to communicate	*Item 15 (7.5 %): The candidate radiates joy, has a lot of fun, and amuses his/her friends.* *Item 16 (7.5 %): The candidate makes friends easily and is skilled in handling social situations, knows how to captivate people.*
15%	**Rater's individual impression of candidate outside of four criteria above**	*Four items developed by the organization.* *Item 17: Do you think that the candidate's path of life is unique and a reason to admire him/her?* *Item 18: In your view, does the candidate show qualities to be a change agent that s/he supports by convincing examples? Do you think that s/he is a mature candidate?* *Item 19: Do you think that the candidate will play a significant role among the 50 participants that will be selected?* *Item 20: Do you think that the candidate has an inspiring understanding of what life is about?*

[22] Items except 17-20 are sourced from the *International Personality Item Pool (IPIP)* (http://ipip.ori.org/).

APPENDIX G. Difference in Difference and Regression Tables with Sampling and Non-Response Weights

Table 4 *Diff-in-Diff Comparison Between Treatment and Control Sample with Balanced Measurement on Outcomes*

Measures	**Treatment**		**Diff**	**Control**		**Diff**
	(1)	(2)	(3)	(4)	(5)	(6)
	t=0	t=1	ΔyT	t=0	t=1	ΔyC
Leadership motivations and skills						
MTL affective identity	3.56 (0.08)	3.43 (0.09)	-0.13 (0.13)	3.56 (0.12)	3.42 (0.09)	-0.14 (0.16)
MTL non-calculative	4.07 (0.07)	4.02 (0.08)	-0.05 (0.11)	3.99 (0.15)	3.93 (0.15)	-0.06 (0.21)
MTL social-normative	3.33 (0.09)	3.22 (0.09)	-0.11 (0.13)	3.35 (0.13)	3.24 (0.10)	-0.11 (0.17)
PLS vision	4.11 (0.07)	3.91 (0.09)	-0.20 (0.11)	4.01 (0.09)	3.93 (0.08)	-0.08 (0.13)
PLS role model	3.79 (0.08)	3.85 (0.10)	0.06 (0.13)	3.72 (0.12)	3.76 (0.13)	0.04 (0.18)
PLS group goals	4.35 (0.08)	4.37 (0.08)	0.02 (0.11)	4.42 (0.10)	4.33 (0.12)	-0.09 (0.16)
Non-cognitive skills						
Emotional intelligence	4.16 (0.08)	4.09 (0.07)	-0.07 (0.11)	4.26 (0.10)	4.12 (0.11)	0.13 (0.15)
Persistence	3.88 (0.08)	3.67 (0.11)	-0.21 (0.14)	3.83 (0.11)	3.57 (0.11)	-0.25 (0.16)
Self-Efficacy	3.98 (0.07)	3.85 (0.07)	-0.13 (0.10)	4.02 (0.08)	3.83 (0.10)	-0.19 (0.13)
Creativity	4.07 (0.09)	4.07 (0.08)	0.00 (0.12)	4.10 (0.10)	3.97 (0.12)	-0.13 (0.16)
Social Entrepreneurship Aspirations and Intentions						
Traditional career aspirations	5.76 (0.24)	5.78 (0.27)	0.02 (0.37)	5.82 (0.29)	5.56 (0.36)	-0.26 (0.46)
Social career aspirations	5.19 (0.19)	5.17 (0.22)	-0.02 (0.29)	5.14 (0.24)	5.11 (0.29)	-0.03 (0.38)
Entrepreneurial intentions	8.12 (0.19)	8.07 (0.14)	-0.05 (0.24)	7.51 (0.38)	7.48 (0.29)	-0.03 (0.48)
Entrepreneurial actions						
Social Actions_cum	0.89 (0.14)	n.a.	n.a.	0.82 (0.21)	n.a.	n.a.
Social Actions_marg	n.a.	1.71 (0.25)	n.a.	n.a.	1.43 (0.32)	n.a.
Traditional Actions_cum	2.36 (0.53)	n.a.	n.a.	3.74 (0.96)	n.a.	n.a.
Traditional Actions_marg	n.a.	3.81 (0.78)	n.a.	n.a.	3.56 (0.93)	n.a.
Sustainable behavior	7.36 (0.38)	7.39 (0.38)	0.03 (0.54)	7.47 (0.46)	7.78 (0.46)	0.31 (0.65)
New Business	n.a.	0.50 (0.08)	n.a.	n.a.	0.52 (0.10)	n.a.
N	38	38		23	23	

Table 5A *Diff-in-Diff Treatment Effects with Lagged Outcomes and Sampling and Nonresponse Weights*

Measures	No controls		With controls, sampling and non-response weight		With controls and non-response weight	
	(1)	(2)	(3)	(4)	(5)	(6)
	δ	β	δ	β	δ	β
Leadership motivations and skills						
MTL affective identity	-0.15 (0.26)	-0.47 (0.15)**	0.19 (0.26)	-0.47 (0.14)***	0.20 (0.27)	-0.39 (0.14)**
MTL non-calculative	-0.22 (0.29)	-0.34 (0.13)*	-0.16 (0.29)	-0.35 (0.16)*	-0.02 (0.28)	-0.35 (0.14)*
MTL social-normative	-0.13 (0.23)	-0.60 (0.16)***	-0.23 (0.31)	-0.62 (0.18)***	-0.15 (0.30)	-0.61 (0.16)***
PLS vision	-0.11 (0.30)	-0.47 (0.13)***	0.22 (0.27)	-0.53 (0.11)***	0.14 (0.25)	-0.47 (0.12)***
PLS role model	-0.23 (0.32)	-0.36 (0.19)†	0.15 (0.28)	-0.48 (0.13)***	0.24 (0.28)	-0.48 (0.11)***
PLS group goals	-0.13 (0.27)	-0.43 (0.13)**	0.40 (0.27)	-0.53 (0.12)***	0.46 (0.29)	-0.51 (0.12)***
Non-cognitive skills						
Emotional intelligence	0.08 (0.29)	-0.40 (0.16)*	0.21 (0.25)	-0.40 (0.16)*	0.16 (0.27)	-0.37 (0.16)*
Persistence	0.01 (0.28)	-0.30 (0.14)*	0.23 (0.31)	-0.34 (0.15)*	0.24 (0.31)	-0.36 (0.13)**
Self-Efficacy	0.33 (0.31)	-0.21 (0.16)	0.32 (0.28)	-0.23 (0.16)	0.25 (0.29)	-0.26 (0.16)
Creativity	0.31 (0.31)	-0.44 (0.19)*	0.59 (0.29)*	-0.38 (0.17)*	0.55 (0.25)*	-0.35 (0.15)*
Social Entrepreneurship Aspirations and Intentions						
Traditional career aspirations	0.11 (0.23)	-0.56 (0.15)***	0.10 (0.30)	-0.56 (0.18)**	0.13 (0.29)	-0.48 (0.18)**
Social career aspirations	0.29 (0.19)	-0.75 (0.09)***	0.25 (0.24)	-0.84 (0.14)***	0.36 (0.21)†	-0.76 (0.15)***
Entrepreneurial intentions	0.05 (0.21)	-0.80 (0.12)***	0.35 (0.21)†	-0.52 (0.11)***	0.40 (0.23)†	-0.47 (0.12)***

Note. Note. *** <0.001, ** <0.01, * <0.05, † <0.10. Standard errors in parentheses. Variables standardized. Individual without repeated values at t=0 and t=1 removed. N=61 in all regressions. Estimates are from separate regressions for each row. Treatment effects reported in cols 1, 3 and 5. Lagged outcome reported in cols 2, 4 and 6. Controls include new business created, gender, elite school, business school, suitability score, student, father had different kinds of jobs and parental total income.

Table 5B *Diff-in-Diff Treatment Effects using Seemingly Unrelated Regression and Small-sample Correction*

Measures	**With controls, unweighted**				
	δ	β	Suitability score	F-stat	"R2"
Leadership motivations and skills					
MTL affective identity	0.18 (0.28)	-0.37 (0.10)***	-0.83 (0.65)	2.14*	0.23
MTL non-calculative	0.05 (0.26)	-0.52 (0.11)***	-1.69 (0.61)**	3.59***	0.32
MTL social-normative	-0.14 (0.25)	-0.52 (0.11)***	-1.04 (0.58) †	3.38***	0.38
PLS vision	0.02 (0.27)	-0.47 (0.09)***	-1.35 (0.61)*	3.66***	0.30
PLS role model	0.36 (0.25)	-0.71 (0.10)***	-1.06 (0.58) †	6.07***	0.38
PLS group goals	-0.41 (0.23)	-0.52 (0.09)***	-1.02 (0.53) †	5.48***	0.49
Non-cognitive skills					
Emotional intelligence	0.08 (0.26)	-0.51 (0.09)***	-0.51 (0.61)	4.07***	0.30
Persistence	0.20 (0.27)	-0.32 (0.08)***	-1.13 (0.63) †	2.41***	0.27
Self-Efficacy	0.06 (0.27)	-0.45 (0.07)***	-1.19 (0.63) †	5.34***	0.26
Creativity	0.41 (0.27)	-0.55 (0.09)***	-1.28 (0.62)*	5.02***	0.29
Social Entrepreneurship Aspirations and Intentions					
Traditional career aspirations	0.11 (0.30)	-0.63 (0.12)***	0.06 (0.68)	3.05***	0.14
Social career aspirations	0.41* (0.20)	-0.76 (0.09)***	-0.68 (0.45)	9.52***	0.63
Entrepreneurial intentions	0.31 (0.24)	-0.44 (0.10)***	-0.66 (0.57)	3.90***	0.42

Note. Note. *** <0.001, ** <0.01, * <0.05, † <0.10. Standard errors in parentheses. Variables standardized. Individual without repeated values at t=0 and t=1 removed. N=61 for each outcome. Number of parameters per outcome: 10. Significance based on t-statistic. Iterated ML estimation. As a divisor in computing the covariance matrix for the equation residuals we use a small-sample adjustment $\sqrt{((n - k\_i) * (n - k\_j))}$, where k_i and k_j are the number of parameters in equations i and j, respectively. Controls include new business created, gender, elite school, business school, suitability score, student, father had different kinds of jobs and parental total income.

Table 6A *Regression Results on Entrepreneurial Actions with Sampling and Nonresponse Weights*

Measures	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable : Traditional Actions_marg						
Treatment		0.20 (0.26)	0.43 (0.34)	0.31 (0.24)	0.18 (0.26)	0.73 (0.86)
Traditional Actions_cum		0.45 (0.15)**	0.43 (0.16)**	0.29 (0.15)	0.38 (0.19)	0.32 (0.15)*
New Business				-0.86 (0.31)**		-0.66 (0.34)
Treatment x Lagged Outcome					0.13 (0.28)	
Treatment x New Business						-0.29 (0.47)
Covariates	Yes	No	Yes	No	No	No
Adjusted R2	0.05	0.17	0.21	0.31	0.16	0.30
Dependent variable : Social Actions_marg						
Treatment		-0.03 (0.26)	0.19 (0.28)	0.18 (0.22)	-0.03 (0.27)	0.34 (0.77)
Social Actions_cum		0.26 (0.14)	0.19 (0.16)	0.17 (0.10)	0.25 (0.15)	0.18 (0.11)
New Business				-0.99 (0.23)***		-0.92 (0.30)**
Treatment x Lagged Outcome					0.02 (0.28)	
Treatment x New Business						-0.11 (0.45)
Covariates	Yes	No	Yes	No	No	No
Adjusted R2	0.07	0.06	0.08	0.31	0.04	0.29
Dependent variable : Sustainable Behavior						
Treatment		-0.13 (0.23)	0.03 (0.23)	-0.15 (0.22)	-0.11 (0.24)	-1.06 (0.66)
Lagged Outcome		0.52 (0.13)***	0.49 (0.14)***	0.53 (0.13)***	0.73 (0.15)***	0.54 (0.13)***
New Business				0.12 (0.24)		-0.28 (0.25)

Treatment x Lagged Outcome					-0.29 (0.22)	
Treatment x New Business						0.63 (0.41)
Covariates	Yes	No	Yes	No	No	No
Adjusted R2	0.05	0.21	0.22	0.21	0.22	0.22
Dependent variable : New Business						
Treatment		0.22 (0.14)	0.14 (0.15)			
Covariates	Yes	No	Yes			
Adjusted R2	0.06	0.03	0.06			

Note. *** <0.001, ** <0.01, * <0.05, † <0.10. Standard errors in parentheses. Variables standardized. Individual without repeated values at t=0 and t=1 have been removed. N=61 in all regressions. Covariates include gender, elite school, business school, suitability score, student, father had number of different kinds of jobs, parental total income.

Table 6B *Regression Results on Entrepreneurial Actions using Seemingly Unrelated Regression and Small-sample Correction*

Measures	(1)	(2)	(3)	(4)
Dependent variable	**Traditional Actions_marg**	**Social Actions_marg**	**Sustainable Behavior**	**New Business**
Treatment	0.20 (0.23)	0.17 (0.23)	-0.14 (0.22)	0.02 (0.13)
Lagged outcome	0.38 (0.09)***	0.31 (0.08)***	0.57 (0.11)***	
New Business	-0.56 (0.23)*	-0.74 (0.22)***	0.17 (0.22)	
Covariates	No	No	No	No
"R2"	0.26	0.29	0.33	<0.01

Note. *** <0.001, ** <0.01, * <0.05, † <0.10. Standard errors in parentheses. Variables standardized. Significance based on t-statistic. Iterated ML estimation. As a divisor in computing the covariance matrix for the equation residuals we use a small-sample adjustment $\sqrt{((n - k_i) * (n - k_j))}$, where k_i and k_j are the number of parameters in equations i and j, respectively. Individual without repeated values at t=0 and t=1 have been removed. N=61 in all regressions.