

Full Esteem Ahead ?

Mindset-Oriented Business Training in Ethiopia

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Abstract

Is there a mindset gap holding women back in business? Can entrepreneurship training instill a set of attitudes, behaviors, and strategies that are thought to underpin success in business such as motivation, perseverance, and self-confidence? This study conducted two randomized controlled trials to evaluate the effect of mindset-oriented business trainings on the performance of women-owned micro and small enterprises in Ethiopia. The trainings were underpinned by psychology with a mission to foster self-esteem and entrepreneurial spirit. Despite a similar approach, however, the quality of delivery seemed to matter as impacts of the trainings on business performance were mixed. A key channel for an impact on profits is if the training can

actually effectuate the mindset change, with only one training transferring higher levels of entrepreneurial self-efficacy, personal initiative, and entrepreneurial locus of control to the women, relative to a control group. The study finds suggestive evidence that psychological skills and mindset are better inspired by a trainer who previously owned a business themselves and therefore may have a better understanding of the entrepreneurs' specific challenges. The study concludes that psychological skills are important for women's business success, and these skills can indeed be transferred using training, assuming a shared identity match between trainer and student. Service delivery appears to be critical for inculcating these important skills.

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1 Introduction

Our mindset is related to our beliefs about our ability, which create a whole mental world for us to live in and our entire perception of attainable opportunities. Simply put, if we do not believe we can do something, we are less likely to try it, and to do it well, regardless of our capabilities. In the context of entrepreneurship, women are found to underestimate their capabilities and possess a greater fear of failure than men (Kelley et al., 2017). While men are not exempt from doubting themselves, women frequently are responding to messages they received from the world around them about who is and is not supposed to lead and take risks. The natural result of lower self-confidence is inaction and as women navigate the business environment with fewer role models to imitate they may set internal limits on what they can achieve.

Mindset-oriented entrepreneurship trainings are gaining momentum that aim to change the mindset of entrepreneurs as a precondition to effect entrepreneurial behaviors and to achieve better economic results e.g. by becoming more innovative and differentiating their firms from competitors (Frese & Gielnik, 2014). A recent study in Togo showed that Personal Initiative (PI) training—a mindset-oriented training program that develops key behaviors associated with a proactive entrepreneurial mindset—delivered large and lasting improvements for both male and female business owners (Campos et al., 2017).

This paper offers a rigorous evaluation of three mindset-oriented entrepreneurship training curricula offered to women entrepreneurs in Ethiopia.² In the first experiment, the PI training, delivered through Technical and Vocational Education Training (TVET) colleges in Addis Ababa, Ethiopia is compared to a more traditional business training, called Basic Business Skills and Entrepreneurship Development (BSED), that focuses on teaching managerial skills with some psychological competencies. In a second experiment, we

² The sample of women entrepreneurs are part of the World Bank's Women Entrepreneurship Development Project (WEDP). The WEDP seeks to support growth-oriented women entrepreneurs owning micro- and small- businesses in Ethiopia by facilitating access to finance and entrepreneurial training and advocacy (World Bank, 2017).

evaluate an entrepreneurship training offered by the Digital Opportunity Trust (DOT), a social enterprise, to women entrepreneurs in Mekelle, Ethiopia.

Entrepreneurship trainings constitute a popular approach to support women entrepreneurs to increase their business success and catch up with male business owners (Coduras Martínez, Levie, Kelley, Saemundsson, & Schott, 2010; McKenzie & Woodruff, 2014). Traditionally, entrepreneurship trainings have focused on business knowledge transfer, often with a particular emphasis on the improvement of financial practices (Drexler, Fischer, & Schoar, 2014; Frese, Gielnik, & Mensmann, 2016). However, existing trainings are highly heterogeneous and evidence on whether entrepreneurship training positively affects women entrepreneurs' performance is limited (McKenzie & Woodruff, 2014). In addition, little is known about the conditions under which entrepreneurship training is effective and the specific mechanisms of different types of entrepreneurship training (Anderson-Macdonald, Chandy, & Zia, 2016).

Most likely, different types of entrepreneurship training lead to different kinds or degrees of training outcomes (McKenzie & Woodruff, 2014). Evidence shows that traditional business trainings increase business knowledge and practices (Cho & Honorati, 2014; McKenzie & Woodruff, 2014), whereas psychological training interventions promote entrepreneurial self-efficacy, goal intentions, action planning and knowledge, opportunity identification (Gielnik et al., 2015), and personal initiative (Glaub, Frese, Fischer, & Hoppe, 2014). Whereas business knowledge and practices rarely translate into higher profits and sales (Cho & Honorati, 2014; McKenzie & Woodruff, 2014), there is initial evidence that personal initiative, referring to self-starting, future-oriented and persistent behavior, increases entrepreneurs' economic performance (Campos et al., 2017; Glaub et al., 2014).

The PI training is an action-based entrepreneurship training that focuses on helping entrepreneurs develop their personal initiative by training them to actively approach their environment, to think about longer-term horizons, and to overcome barriers and deal with failure (Mensmann & Frese, 2017). Developed by psychologists, the action-oriented approach to entrepreneurship training relies on knowledge about the psychology of entrepreneurship, and ultimately aims to encourage entrepreneurs to show proactive

behavior. It starts with the development of an active mindset through action principles (Glaub et al., 2014), which is then refined and routinized with active practice and feedback during the training (Mensmann & Frese, 2017). The BSED training focuses on more traditional business skills but also seeks to develop a creative mindset. The entrepreneurship training programs offered by DOT are called StartUp! and ReachUp! and take an innovative approach to entrepreneurship development, with a mission to “help entrepreneurs learn basic technology and business skills, and to foster the self-esteem and entrepreneurial spirit needed to build sustainable livelihoods”. The DOT training focuses on building the life skills and mindset shift required of aspiring entrepreneurs to set and reach their goals.

The results from two randomized controlled trials (RCTs) that evaluate the effectiveness of these mindset-oriented trainings are mixed. The impact results reveal that only the DOT training in Mekelle achieved a positive statistically significant impact on monthly profits, measured one and two years after the training. For the PI and BSED trainings in Addis Ababa we find no evidence of an impact on profits or other measures of business performance, one and a half years after the training. The key channel of influence on profits in the DOT study seems to be through a mindset shift since we find evidence of higher average levels of entrepreneurial self-efficacy, personal initiative and entrepreneurial locus of control among the women who were trained one year post the training, relative to a control group. Entrepreneurial self-efficacy refers to one’s own belief in their entrepreneurial competences; and entrepreneurial locus of control refers to a sense of control over one’s business and the business environment in which they operate. We find no evidence of an impact on business practices such as improved book-keeping or marketing; or knowledge outcomes. In the PI and BSED trainings this mindset channel link is missing since we find no evidence of an average impact on the psychological outcomes included in the survey.

The lack of impact of the PI and BSED trainings in Ethiopia on psychology we hypothesize to be related to the implementation of the program. In Ethiopia existing skills development opportunities for entrepreneurs are offered mainly through government TVET colleges which provide classroom-based training on fixed schedules to large groups. The TVET system in Ethiopia is designed as a low-cost/high-

scale model. On closer inspection of the implementation features of the PI/BSED trainings in Ethiopia, we find suggestive evidence that the role of the trainer appears to be key.

Much of the education literature within economics on teacher characteristics focuses on the relationship between specific teacher attributes (such as experience or education) and student achievement and has few consistent findings (Hanushek 2006). From a synthesis of more than 800 meta-analyses, Hattie (2008) suggests that the individual competence of the teacher, in bringing the material to the students, is most important. For example: being able to explain well, encouraging the students to try things out, encouraging meta-cognition in the students, providing quick feedback, and other facets. All structural characteristics (like class size) or how well the subject knowledge of the teacher was (or how well-studied) were not as important. In this paper we use detailed trainer characteristics and data from the participants of the PI/BSED study to analyze a range of teacher attributes that may have mattered for the women entrepreneurs who took the training.³ We find a statistically significant positive association between student psychological constructs of empowerment, such as locus of control, self-efficacy, and personal initiative and the trainer having a history of entrepreneurship him- or herself. Since only 41% of the TVET trainers reported they ever owned a business we believe this mismatch between the trainers and entrepreneurs was critical for the lack of overall impact.

The TVET trainers' limited exposure to the world of entrepreneurship may be one of the major barriers to successfully train women entrepreneurs on these psychology-focused skills. Perhaps those trainers with their own exposure to entrepreneurship have a better understanding of the target group and are more likely to provide relevant practical examples. These trainers may also be perceived as those who have already circumvented some of the issues that these women entrepreneurs are facing and are therefore perceived as more inspiring and influential role models to them.⁴ Qualitative analyses of trainers' teaching behavior

³ The results section includes a discussion and tests to address possible concerns on the non-random allocation of students to trainers.

⁴ Since we did not collect data on the trainer characteristics of the DOT trainers we were not able to replicate this analysis for the DOT study. The DOT model operates as a social enterprise for youth and uses "interns" to deliver the trainings. The DOT trainers

provide some initial support for this line of reasoning. When it comes to imparting mindset changes and psychological skills to entrepreneurs, instructors with some personal exposure to entrepreneurship seem to be better equipped than others.

In addition, while the TVET college system boasts infrastructure to provide entrepreneurial trainings at scale and may be helpful for youth, unemployed and start-up entrepreneurs; growth-oriented women entrepreneurs, such as those targeted by the Women Entrepreneurship Development Project (WEDP)⁵ are less likely to be attracted to participate. The take-up of training for the PI/BSED trainings in Addis Ababa was 41% and for the DOT training in Mekelle it was 52%. Although, this is a fairly typical take-up rate found for other entrepreneurship trainings in comparable contexts (McKenzie & Woodruff, 2014), all three training programs in Ethiopia attracted the smallest and lowest performing businesses among those to whom the training was offered. While these classroom-based trainings present an opportunity for women to self-reflect on their own patterns of behavior, meet other business-owners to discuss challenges, and offer advice and encouragement to one another on how best to overcome problems, they may be missing out on the women entrepreneurs who have the higher growth prospects.

The paper is organized as follows. Section 2 outlines details of the trainings and section 3 describes our main data source and empirical strategies. Section 4 presents the results, including: characteristics of women who take up the trainings; a discussion of the relationship between psychology and economic success; impact of both the PI/BSED and DOT studies; and an analysis of the relationship between the characteristics of the trainer and student psychological outcomes. Section 5 concludes.

are graduated youth, not more than 25 years old, with any BA degree education background. The selection process of trainers is competitive and passed through intensive assessment; document review, interview, practical assessment and ICT skill. DOT may be accessing some of the best and brightest young teachers and therefore may prove good role models to encourage active behavior.

⁵ Launched in 2012, WEDP is a World Bank project that aims to increase the earnings and employment of micro and small enterprises fully or partly owned by female entrepreneurs in six selected cities. Women interested in participating in WEDP and fulfilling the criteria for project beneficiaries (not full time in school and being growth oriented) receive a WEDP membership card that entitles them to access WEDP services. The WEDP targets a specific group: growth-oriented female entrepreneurs, defined as female entrepreneurs with the ambition and potential to expand their micro-enterprises, innovate, and generate paid employment.

2 Psychological Training Types

In this paper, we compare the impact of three entrepreneurship trainings that incorporate psychological training elements to different degrees. Despite these training programs being offered in different cities and having varying curricula; there are significant overlaps. They all emphasize setting goals, developing plans to reach those goals and using innovative approaches; along with a strong focus on developing one's own approach as a firm owner rather than just emulating others.

Personal initiative (PI) training is an entrepreneurship training that focuses on changing the psychological mindset of the entrepreneur. It is based on action regulation theory (Frese & Zapf, 1994) and aims to promote personal initiative throughout the entrepreneurial process. Personal initiative refers to self-starting, future-oriented and persistent behavior (Frese & Fay, 2001) and has been shown to be an important predictor of entrepreneurial success (e.g. Campos et al., 2017; Glaub et al., 2014). The training starts with the development of a proactive mindset through evidence-based action principles which is then refined and routinized with active practice and feedback during the training (Mensmann & Frese, 2017). At the end of the training, participants develop a personal project that facilitates the transfer of the mindset and skills developed during the training to their own business (Frese et al., 2016).

Business Skills and Entrepreneurship Development (BSED) training was developed based on a training needs assessment with women entrepreneurs in Ethiopia. It is a holistic training that predominantly teaches traditional business skills but also uses psychological elements. Traditional business skills promoted by BSED training include financial literacy, marketing, production and workplace management, purchasing and bookkeeping, business plan development, and legal rights and regulations. On the psychological side, the training seeks to develop a creative mindset that helps to identify and develop innovative business opportunities. The training draws on experiential learning methods, role plays, and simulation games and exercises to transmit the training content. In addition, BSED training addresses gender-related challenges faced by women entrepreneurs and teaches corresponding coping mechanisms. To deliver the training, BSED trainers were provided with an extensive training manual but were free to choose the contents for

each group of participants. That implies that BSED training might have considerably differed from trainer to trainer and training to training.

The StartUp! and ReachUp! trainings, developed by the social enterprise Digital Opportunity Trust (DOT), seek to foster entrepreneurs' self-esteem and entrepreneurial spirit. They aim to encourage a lifelong learning process by facilitating an entrepreneurial learning cycle, starting with one's experience in the classroom, followed by its reflection, generalization, and application. DOT Ethiopia delivered both the StartUp! and ReachUp! entrepreneurship trainings to WEDP women entrepreneurs. Using a youth-led delivery model, DOT equips young university graduates – DOT interns - to serve as facilitators and coaches of DOT's entrepreneurship training. Upon recruitment, DOT interns are enrolled in a three-week Intern Learning Experience (ILE) training program to gain skills in ICT, entrepreneurship, facilitation, coaching, leadership and gender equality. Following the ILE, DOT interns are deployed to deliver DOT's empowerment and entrepreneurial training to youth and women in their communities. The interns guide participants through concept formulation, business planning, market assessment and testing. There is also an emphasis on the use of technology to operate and expand a business.

3 Data and Empirical Strategy

3.1 DATA

In this paper, the sample of women-owned enterprises were drawn from the registration database of the Women Entrepreneurship Development Project (WEDP). WEDP is the World Bank's International Development Association (IDA) funded program that provides loans and entrepreneurship training to growth-oriented female entrepreneurs in Ethiopia. The WEDP clients register their business at their nearest One Stop Shop, a local government branch created to support small businesses. The study entrepreneurs are a relatively homogeneous group of urban, growth-oriented women entrepreneurs. The average age of women business owners in our sample was mid-30s with 60% married and 70% having completed secondary school education or higher in Mekelle and 85% in Addis Ababa. The average age of the business was 6 years and retail was the main sector of business operation with approximately 50% of the sample in retail, 20% in café and restaurants and 7% in beauty salons.

3.1.1 DOT study

For the DOT training experiment, the impact evaluation team drew upon the WEDP registration database of clients in Mekelle only and randomly assigned 800 women entrepreneurs to either a treatment group (399) who were offered the DOT training immediately or a control group (400) who had to wait before being offered the training.⁶

The baseline data collection was conducted in October and November 2014 and the questionnaire contained a set of questions on household demographic characteristics, socioeconomic status, business sales, profits, costs, employees, entrepreneurial profile (e.g., age, place of birth, education level), and questions designed to elicit an entrepreneur's business knowledge and level of financial literacy. The DOT training was offered

⁶ The final sample size in the DOT study was 799 rather than 800 since one firm was incorrectly duplicated in the sampled list of firms.

from January 2015 in half-day sessions over a period of 15 to 20 days, so that entrepreneurs could complete the training while continuing to attend to their businesses.

From January to March 2016, approximately one year after the treatment group were offered the training, the research team resurveyed the 799 entrepreneurs. Follow-up I survey was conducted with 729 female entrepreneurs who were tracked out of the entrepreneurs already interviewed at baseline. An additional follow-up II survey for 726 entrepreneurs was administered in February-March 2017, approximately two years after the training. The panel of firms with data collected across the three survey rounds is 680 firms. The follow-up survey questionnaires elicited business performance, business practices plus additional entrepreneurial and psychological characteristics of the female business owners. The main results in this paper are an intention-to-treat (ITT) estimation, i.e. the impact of being offered training.

3.1.2 *PI/BSED study*

For the PI/BSED training experiment, the impact evaluation team drew upon the WEDP registration database of clients in Addis Ababa only and randomly assigned 2,001 women entrepreneurs to the different treatment arms. The research team randomly assigned WEDP clients into a treatment group who were offered the PI training (747), a treatment group who received BSED training (757) and a control group (497) who were not offered training for at least one year.⁷

From the registered WEDP clients in Addis Ababa the research team excluded all those who were already part of the overall WEDP program impact evaluation and those who had reported that they already received some form of business training in the registration database. The research team randomly selected the original 2,000 names from the WEDP registration database in Addis Ababa using Stata in November 2015 when the random sampling for the experiment was initiated.

⁷ Since the survey firm faced issues with locating all the women in the original WEDP registration list, the survey firm was provided with replacement names and instructed to survey until they reached a 750 PI, 750 BSED and 500 Control sample size.

The baseline data collection for the impact evaluation of the PI/BSED training experiment began in November 2015 and ended in April 2016 as interviews were done on a rolling basis before the entrepreneurs attended a training batch. As a first step, enumerators phoned each female entrepreneur in the list to establish the existence and location of the business since WEDP registration data were somewhat outdated. Baseline data were collected over a 6-month period to tie-in with the implementation of all the training rounds. For each training round approximately 50 women assigned to both the PI and BSED treatment groups were interviewed for the baseline survey and then once the interview was complete the enumerator told the respondent that they were to be offered a training based on the randomization result. Enumerators from the survey company pitched the benefits of the training to the WEDP clients who were invited to attend a training using fliers, a lottery, and successful case studies as examples to motivate take-up among the invited group of entrepreneurs. A baseline survey was administered to the control group concurrently with the treatment groups but when the interview was complete no training was offered.

The follow-up survey was conducted between May and September 2017, approximately one and a half years after the training was received. The timing of the interviews attempted to mimic the timing of the baseline surveys by visiting localities of respondents who were surveyed first during the baseline survey and then moving to localities in sequence. All rounds of data collection included questions on household demographic characteristics, socioeconomic status, business performance measures, business practices and extensive questions on a range of entrepreneurial and psychological characteristics.

3.1.3 Trainer Surveys

The trainer surveys targeted teachers of six TVET colleges and the TVET agency in Addis Ababa who had been trained as trainers for both PI and BSED training. The interviews were conducted by two trained enumerators between August and October 2015 before implementation began. The original trainer sample was 29 trainers but only 21 trainers (5 PI, 16 BSED) who remained throughout the rounds are included in

this study. Since BSED training was occasionally delivered by two trainers, in order to match one trainer per female entrepreneur, we decided to only include the characteristics of the trainer named first in the corresponding training lists. We consider this as a conservative approach, even if we were to think the weaker trainer was named first then this implies that any suggestive training effects would be underestimated in our analysis. Conversely, if we think the stronger trainer was named first in the list then we assume that the presence of one strong trainer in the classroom was sufficient even if the training was jointly delivered with a weaker trainer. Thus, the final sample includes 17 trainers (5 PI, 12 BSED).

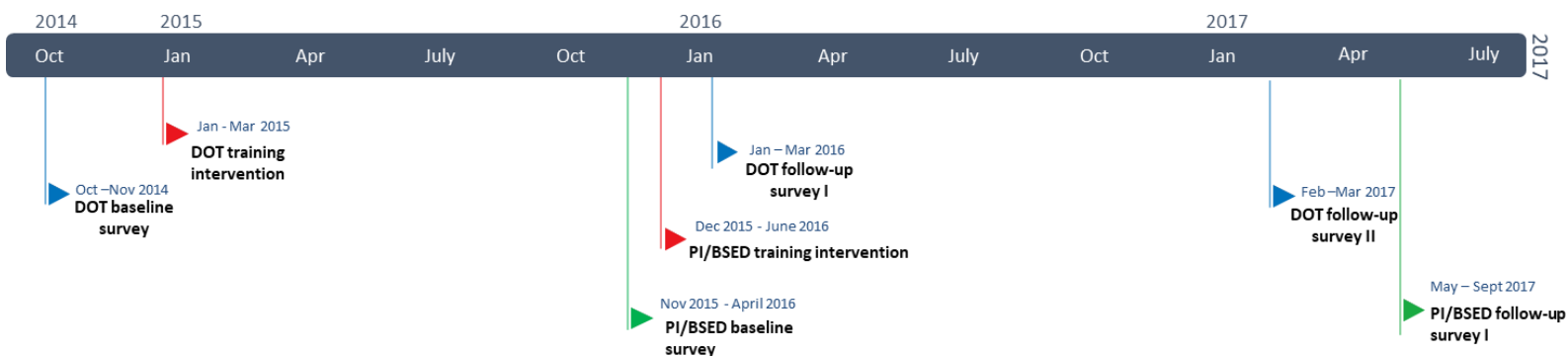


FIGURE 1: TIMELINE OF THE SURVEYS AND INTERVENTIONS

3.2 EMPIRICAL STRATEGY

The following section presents the strategy we will use to estimate treatment effects for each RCT study. For those outcomes in which the same question was asked in both the baseline survey and follow-up surveys, our main specification will be an ANCOVA specification (following McKenzie, 2012).

3.2.1 DOT study

Our primary specification is an intention-to-treat (ITT) analysis using the two follow-up rounds. For outcome Y we then estimate the following OLS equation for firm i at time t:

$$y_{it} = \alpha + \beta_1 DOT_{1i} + \beta_2 DOT_{2i} + \beta_3 y_{0i} + \gamma \text{time} + X'_{0i} \beta_4 + \varepsilon_{it} \quad (E1)$$

Where y_{it} is the outcome variable measured at both follow-up survey I and follow-up survey II. DOT_1 and DOT_2 are dummy variables taking the value of one if the firm was assigned to the DOT treatment group, at

follow-up I and follow-up II respectively. The coefficients β_1 and β_2 will measure the intent-to-treat effect of being assigned to the DOT treatment compared to the control group. y_{0i} is the baseline value of the outcome variable. X'_{0i} is a vector of baseline control variables. $time$ is a dummy variable taking the value of zero for the follow-up I period and one for the follow-up II period. In cases when a control variable is missing, its value is set to zero and a dummy variable is included for whether the variable is missing. ε_{it} is the error term.

3.2.2 PI/BSED study

The regression specification for the PI/BSED study is also an intention-to-treat (ITT) analysis using the one follow-up round of data and includes the lag of the dependent variable. For outcome Y we then estimate the following equation for firm i at time t :

$$y_{it} = \alpha + \beta_1 PI_i + \beta_2 BSED_i + \beta_3 y_{0i} + X'_{0i} \beta_4 + \varepsilon_{it} \quad (E2)$$

Where y_{it} is the outcome variable measured at follow-up I. PI_i and $BSED_i$ are dummy variables taking the value of one if the entrepreneur was assigned to the PI training or the BSED training treatment groups, respectively. The coefficients β_1 and β_2 will measure the intent-to-treat effect of being assigned to the PI or BSED training groups respectively, compared to the control group who did not receive training. y_{0i} is the baseline value of the outcome variable. X'_{0i} is a vector of control variables. In cases when a control variable is missing, its value is set to zero and a dummy variable is included for whether the variable is missing. ε_{it} is the error term.

E1 and E2 will provide the intent-to-treat (ITT) effect which is the effect of being offered to participate in the training among the experimental sample.⁸ For the outcomes for which we have follow-up data only we

⁸ In addition to intention-to-treat (ITT) analyses we ran a two-stage least squares (2SLS) estimation to estimate the local average treatment effect (LATE) where we instrument the actual participation in the training program with the random assignment to the treatment group. This measure of the treatment-on-the-treated (TOT) gives an estimate that controls for non-compliance with treatment assignment (i.e. for the lower than 100% take-up). LATE estimates are not presented in the regression tables since they did not offer any new information than that provided by the ITT estimates.

will use an ordinary least squares regression model (OLS) and otherwise ANCOVA where we have the outcome variable measured at baseline. All variables denominated in Ethiopian Birr are winsorized at the 99th percentile to deal with the possibility of sensitivity of the results to outliers.

3.2.3 Role of the trainer

The regression specifications for the analysis of trainer characteristics in the PI/BSED study take the form:

$$StudentPsych_{1i} = \alpha + \beta_1 TrainerChar_{0tr} + \beta_2 StudentPsych_{0i} + \varepsilon_{it} \quad (E3)$$

Where $StudentPsych_{1i}$ are psychological outcomes (e.g. personal initiative, self-efficacy, error competence, entrepreneurial identity and locus of control) of student i measured at follow-up I, 1.5 years after the training. $TrainerChar_{0tr}$ are a set of characteristics for trainer tr such as: age, gender, tenure, experience, cognitive and noncognitive skills and job satisfaction. The coefficients β_1 measure the correlation of the trainer characteristics with student psychology among those who participated in the PI or BSED trainings. $StudentPsych_{0i}$ is the baseline value of the student's psychology outcome variable. Standard errors are clustered at the classroom and training round level (the six TVET colleges where the trainings took place had multiple training rounds where the student could have attended a training). ε_{it} it is the error term.

Tables 1 and 2 provide a summary of the training interventions and details of the study.

TABLE 1: DETAILS OF THE TRAINING INTERVENTIONS

| Trainings: | DOT (1) | PI (2) | BSED (3) |
|--|---|---|--|
| Training development | Focus is on building the life skills and mindset shift required of aspiring entrepreneurs to set and reach their goals. | Theory-based (action-regulation theory) | Training needs analysis with women entrepreneurs in Ethiopia |
| Level of psychological mindset training | Medium | High | Low |
| Degree to which training targets mindset changes | Main focus on the development of self-confidence and an entrepreneurial mindset | Main focus on the development of a proactive mindset | Business skills training that seeks to create a creative mindset |
| Methods to initiate mindset changes | Entrepreneurial learning cycle (Experience à Reflect à Generalize à Apply) | Exercises and cases guided by Action Principles, emphasis on positive and negative feedback and learning from errors | Experiential learning |
| Training content | <p>Content:</p> <ol style="list-style-type: none"> 1) Identifying your strengths, skills and passions. 2) Envisioning your future, setting goals, planning a sustainable livelihood. 3) Improved ICT, business, and employability skills – problem solving, critical analysis, and self-confidence. 4) Connections to peers, local support networks, employers, and digital and financial services. 5) Group coaching to address common challenges and support the development of peer networks. 6) Developing a fundamental attitude shift that develops an individual's inner strengths and passions – resulting in increased self-esteem, self-reliance, and the self-confidence to look ahead positively. | <p>Content (all modules obligatory):</p> <ol style="list-style-type: none"> 1) Being self-starting 2) Opportunity identification and innovation 3) Goal setting 4) Financial and action planning 5) Feedback 6) Overcoming barriers | <p>Content selected by the trainer from the following modules:</p> <ol style="list-style-type: none"> 1) Getting Started: Appetizer and Energizers 2) Expectation and Commitment Building 3) Financial Literacy and Financial Transaction in Business: Cost and capital 4) Behavioural Skills in Entrepreneurship 5) Business Skills development 6) Challenges in Business – Performance improvement and Growth of the Business 7) Creativity and Product Development for Competitiveness 8) Sales and Marketing 9) Production and Workplace management 10) Purchasing 11) Book Keeping 12) Registration and Taxation in Business and Cooperatives 13) Gender Management in Business and Women Empowerment: Coping mechanisms and strategies 14) Action Plan |
| Trainees | Women owning or partly owning a business, having a business license, and being registered at WEDP | Women owning or partly owning a business, having a business license, and being registered at WEDP | Women owning or partly owning a business, having a business license, and being registered at WEDP |
| Training duration | Approx. 30-hour course offered in half-day sessions over a period of 15 to 20 days. ReachUp! Course is 120hours. | Approx. 40 h (10 half days) | Approx. 40 h (10 half days) |
| Training location | Mekelle, Ethiopia in Business Development Service (BDS) Centres | Addis Ababa, Ethiopia in six TVET colleges (Akaki, Entoto, G. Wingate, Misrak, Nefas Silk and Tegbareid) | Addis Ababa, Ethiopia in six TVET colleges (Akaki, Entoto, G. Wingate, Misrak, Nefas Silk and Tegbareid) |
| Trainers | Graduates employed as "interns" at DOT | Teachers of TVET Colleges in Addis Ababa | Teachers of TVET Colleges in Addis Ababa |
| Training cost | Free | Transport stipend only | Transport stipend only |

TABLE 2: STUDY DETAILS

| Trainings: | DOT | PI | BSED |
|--|----------------------------------|---|---|
| | (1) | (2) | (3) |
| Baseline survey date | October - November 2014 | November 2015 - April 2016 (rolling) | November 2015 - April 2016 (rolling) |
| Intervention start date | January 2015 | December 2015 - June 2016 (rolling) | December 2015 - June 2016 (rolling) |
| Panel data | Yes | Yes | Yes |
| Intervention end date | March 2015 | June 2016 (final batch) | June 2016 (final batch) |
| Unit of randomization | 800 female-owned firms | 2,001 female-owned firms | 2,001 female-owned firms |
| Follow-up I survey dates | January - March 2016 | May - September 2017 | May - September 2017 |
| Follow-up I survey sample size | 729 | 1,777 | 1,777 |
| Follow-up II survey dates | February - March 2017 | n/a | n/a |
| Follow-up II survey sample size | 726 | n/a | n/a |
| Panel response rate | 85% | 89% | 89% |
| Time between training and follow-up I | 12 months | 18 months | 18 months |
| Time between training and follow-up II | 24 months | n/a | n/a |
| Training take-up in treatment | 52% | 41% | 39% |
| Randomization process | Across firms | Across firms | Across firms |
| Treatment sample size | 400 DOT training; 400 control | 747 PI training; 757 BSED training; 497 Control | 747 PI training; 757 BSED training; 497 Control |
| Business closure rate, follow-up I | 13% | 16% | 16% |
| Business closure rate, follow-up II | 22% | n/a | n/a |

4 Results

Before presenting the impact results of the training, we first analyze characteristics of the women that took up training and examine the relationship between psychology and economic success.

4.1 WHO TAKES UP TRAINING?

The initial self-reported interest in business training was high (over 90% said they were interested in attending entrepreneurship training during the baseline surveys) but actual take-up was lower: 52% for DOT training in Mekelle and 41% for PI/BSED trainings in Addis Ababa. The take-up rates correspond to rates found for other entrepreneurship trainings in comparable contexts (cf. McKenzie & Woodruff, 2014). The most common reason given for why a business owner did not take-up training was because they were “not able to find the time”.

We find that women who take-up training are systematically and significantly different from those who were offered training but did not participate. Table 3 presents the t-test statistics for the differences in means among these groups for both studies (see columns (4) and (8)). The take-up rate for the DOT training among the treatment group was 52%. Table 3 Column (4) shows that those who select into entrepreneurship training in Mekelle seem to be the women entrepreneurs who have smaller and less profitable businesses (we find statistically significant lower monthly profits and capital stock at business start). The women who attended the DOT training also differed on a number of characteristics: they are slightly older with lower educational attainment and digit-span scores (proxy for memory recall) than those who do not attend. These women also had lower household asset wealth and were less likely to save in a bank at baseline.

Similarly, the average take-up rate for the PI/BSED study in Addis Ababa was 41%. Table 3 Column (8) presents a similar pattern to the DOT sample where those who attend the training seem to have smaller and less profitable businesses at baseline (we find statistically significant lower profits, sales, employees and starting capital stock). From Table 3 we can also see that the sample of WEDP businesses in Addis Ababa,

the capital of Ethiopia, are, on average, approximately double the size of the WEDP businesses studied in Mekelle.

The selection into the training suggests that women entrepreneurs who choose to take-up business training in Ethiopia are either those who believe they need more help with their business operations and/or those who have a lower opportunity cost of attending a 10/20-day classroom training program, since their businesses are smaller and less profitable.

TABLE 3: CHARACTERISTICS OF THE TRAINEES

| Test of differences of training participants and non-participants | DOT study | | | | PI/BSED study | | | |
|---|-------------------------------|------------------------------|---------------------------------|---------------------------|--------------------------|------------------------------|---------------------------------|---------------------------|
| | Mean for the DOT study sample | Participated in the training | Offered but did not participate | Diff. in Means (2)-(3) | Mean for PI/BSED sample | Participated in the training | Offered but did not participate | Diff. in Means (6)-(7) |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Age of Owner (years) | 33.22 (8.06) | 34.81 (8.29) | 32.62 (7.89) | 2.18*** (0.64) | 35.84 (8.92) | 36.53 (8.39) | 35.28 (9.53) | 1.24*** (0.48) |
| Digitspan score (0-7) | 2.27 (1.19) | 2.11 (1.14) | 2.34 (1.20) | -0.23** (0.10) | 2.82 (1.28) | 2.84 (1.28) | 2.77 (1.24) | 0.07 (0.07) |
| Education Secondary or Tertiary | 0.69 (0.46) | 0.59 (0.49) | 0.73 (0.45) | -0.13*** (0.04) | 0.86 (0.35) | 0.88 (0.32) | 0.85 (0.35) | 0.03 (0.02) |
| Number of hours worked per week | 74.70 (22.61) | 73.49 (22.07) | 75.16 (22.81) | -1.66 (1.80) | 49.37 (25.95) | 50.08 (26.08) | 49.17 (25.91) | 0.91 (1.36) |
| Log monthly profits | 7.13 (2.48) | 6.72 (2.54) | 7.29 (2.45) | -0.57*** (0.20) | 7.82 (2.90) | 7.70 (2.72) | 7.95 (2.93) | -0.25 (0.15) |
| Average monthly profits (Birr) | 4828.31 (8066.32) | 3536.41 (6850.48) | 5317.07 (8435.10) | -1780.66*** (646.13) | 11712.35 (18983.62) | 8892.91 (14064.04) | 13546.24 (21681.07) | -4653.33*** (1006.88) |
| Average monthly revenues (Birr) | 40479.77 (111616.49) | 31055.05 (101716.00) | 44053.52 (115031.66) | -12998.47 (8933.27) | 63460.81 (139363.11) | 47876.61 (105969.80) | 72259.66 (151643.19) | -24383.04*** (7178.31) |
| Revenues in a typical month (Birr) | 45457.03 (120781.41) | 41710.24 (124061.49) | 46876.86 (119595.08) | -5166.62 (9654.83) | 239071.81 (647762.50) | 188272.56 (554187.00) | 272355.81 (722679.19) | -84083.26** (35536.40) |
| Average monthly business costs (Birr) | 36685.54 (95958.52) | 29435.45 (91919.84) | 39388.74 (97360.30) | -9953.29 (7629.12) | 66297.74 (139552.83) | 54334.82 (118415.95) | 75856.45 (153679.20) | -21521.62*** (7344.93) |
| Number of employees | 1.40 (2.47) | 1.17 (2.19) | 1.49 (2.57) | -0.32 (0.20) | 4.40 (7.47) | 3.88 (6.02) | 4.99 (8.73) | -1.12*** (0.41) |
| Capital stock at business start (Birr) | 44907.83 (153288.52) | 22363.58 (53616.98) | 54296.85 (178360.81) | -31933.27** (13662.18) | 296180.59 (988730.38) | 271736.13 (1011316.44) | 342888.44 (1068306.00) | -71152.31 (54731.53) |
| Save in a bank | 0.62 (0.49) | 0.54 (0.50) | 0.64 (0.48) | -0.10** (0.04) | 0.63 (0.48) | 0.61 (0.49) | 0.62 (0.49) | -0.01 (0.03) |
| Household Asset Index (0-8) | 5.67 (1.35) | 5.47 (1.34) | 5.74 (1.35) | -0.27** (0.11) | 6.58 (1.20) | 6.46 (1.23) | 6.64 (1.20) | -0.17*** (0.06) |
| Joint test | | | | 0.01 | | | | 0.01 |
| Number of Observations | 799 | 208 | 191 | | 2,001 | 619 | 888 | |

4.2 ARE PSYCHOLOGICAL CONSTRUCTS RELATED TO ECONOMIC SUCCESS?

The main claim underpinning the use of mindset-oriented business trainings is that the psychological skills and mindset taught by the training are important for economic success. Table 4 validates this claim by

assessing the relationship between the psychology measures included in the baseline survey for business owners in the PI/BSED study with their business profits at baseline. We focus on the relationship between psychological variables and a business success indicator of above and below median profits at baseline.

The OLS regression specification for this relationship takes the form:

$$Psychology_{0i} = \alpha + \beta_1 BusinessProfit_{0i} + X'_{0i}\beta_2 + \varepsilon_{it} \quad (E4)$$

Where $Psychology_{0i}$ is a psychology outcome (e.g. personal initiative, self-efficacy, error competence, entrepreneurial identity, locus of control and attitude to risk) of entrepreneur i measured at baseline. The coefficient β_1 measures the correlation of the psychology outcome with the business success indicator variable $BusinessProfit_{0i}$ that takes the value 1 for profits above the median level at baseline and zero below the median at baseline. X'_{0i} is a vector of control variables where we include controls for other measures of success ascribed at the individual and household level by including an indicator for educational attainment above secondary school level and an index of household asset wealth in the regression in addition to other demographic variables e.g. age, marital status and loan status at baseline. ε_{it} is the error term.

Table 4 shows that those women who exhibit higher levels of profitability (above the median) do score more highly across the range of psychology variables at baseline. We believe that the directional link in a business context is that the psychology is driving the economic success as opposed to the economic success is positively impacting psychology (Campos et al., 2017). It may well be possible that a profit windfall might generate a temporary boost in psychological outcomes, but we believe the shift in psychology a priori is what is necessary to change behavior that leads to an improvement in profits and economic success.

Since the PI and BSED trainings mainly attracted the business owners who were towards the lower end of the profit distribution in Ethiopia, perhaps those women could potentially benefit more from a business training since they have a deficit in these skills. They perhaps have pent up demand for these socioemotional skills by having more hardship or difficulty in their life or lacked opportunities to obtain the skills (e.g. less exposure to tertiary education or social networks) and therefore could possess a lower stock of these skills.

TABLE 4: CORRELATION BETWEEN PSYCHOLOGICAL CONSTRUCTS AND ECONOMIC SUCCESS

| | Personal Initiative (1-5) | Error management (1-5) | Self Efficacy (1-5) | Entrepreneurial locus of control (1-5) | Entrepreneurial Identity (1-5) | Attitude to Risk (1-8 where a higher score is less risk averse) | Entrepreneurial Activity Planning (1-3) |
|--|------------------------------|---------------------------|------------------------|---|-----------------------------------|--|--|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Success: Business Profits above median at baseline (Yes=1; No=0) | 0.0993*** (0.0263) | 0.137*** (0.0267) | 0.202*** (0.0278) | 0.303*** (0.0354) | 0.155*** (0.0386) | 0.0496 (0.103) | 0.135*** (0.0198) |
| Mean for low profit businesses at baseline PI/BSED study | 4.342 (0.0708) | 4.210 (0.0719) | 4.049 (0.0750) | 3.556 (0.0954) | 4.236 (0.104) | 4.196 (0.278) | 2.076 (0.0535) |
| Observations | 2001 | 2001 | 2001 | 2001 | 2001 | 2001 | 2001 |

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

- (1) Controls include: household asset wealth, secondary school educational attainment, received WEDP loan at baseline, age of owner, and marital status at baseline.
- (2) OLS regression analysis includes all entrepreneurs who are part of the PI/BSED study sample and outcomes are measured at baseline.

4.3 IMPACT RESULTS

The following section presents the intention-to-treat estimates of the trainings on a number of business performance, psychological and business practices outcomes.

4.3.1 Impact on firm closure and business performance

Table 5 presents the impact of the DOT (panel A) and PI/BSED (panel B) trainings on business performance. In the DOT sample, 25% of the sample had closed their business operations two years after the training and we find no impact of DOT training on survival rates of firms. The closure rate was commensurate with reports of increased taxation law enforcement in 2017 that saw a number of businesses shutting down. We find a positive impact of the DOT training on profits with average monthly profits 30% higher for the treatment group versus the control group. Data are from the two follow-up survey rounds and Table 5 includes the average impact for the one- and two-years post-training. As can be seen in the table, we cannot reject the hypothesis that the impact of the DOT training on monthly profits is equal in the two follow-up rounds, one year and two years post the training, but the profit impacts do seem to attenuate over

time (which is why we present the two coefficients separately rather than pool them). The treatment effect on profits two years after the training is still positive but no longer statistically significant. Regressions include a time dummy (not shown) to indicate the survey wave and standard errors are in parentheses, clustered at the firm level.

In panel B we present the results for the PI and BSED trainings, where we find no evidence of any impact on business performance outcomes with no statistically significant differences between treatment and control groups.

TABLE 5: IMPACT OF TRAININGS ON BUSINESS PERFORMANCE

| | Business closure | Average Monthly Profits (ETB) | Log Monthly Profits | Average Yearly Profits (ETB) | Average Monthly Revenues (ETB) | Business Costs Monthly (ETB) | Number of Employees | Hours owner worked per week | Capital Value (Machinery) (ETB) |
|---|----------------------|-------------------------------|---------------------|------------------------------|--------------------------------|------------------------------|---------------------|-----------------------------|---------------------------------|
| | OLS | ANCOVA | ANCOVA | ANCOVA | ANCOVA | ANCOVA | ANCOVA | ANCOVA | ANCOVA |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Panel A: DOT study | | | | | | | | | |
| DOT_after one year | -0.0323 (0.0251) | 1155.2** (559.3) | 0.362** (0.182) | 5709.3 (6194.4) | 5466.2 (5831.0) | -9770.6 (7332.2) | -0.0898 (0.234) | -1.224 (2.348) | 5722.9 (16927.3) |
| DOT_after two years | -0.0142 (0.0318) | 964.7 (667.6) | 0.238 (0.162) | 8167.3 (6146.3) | -1825.9 (8289.2) | -8563.1 (9380.2) | -0.270 (0.221) | -2.861 (2.290) | 2474.5 (18500.2) |
| Observations | 1455 | 1119 | 1119 | 1065 | 1147 | 1184 | 1184 | 1177 | 1181 |
| Control Group Mean | 0.150 (0.0187) | 4693.3 (378.4) | 7.259 (0.138) | 56299.1 (5164.8) | 36569.7 (5066.4) | 42594.8 (5824.7) | 2.042 (0.241) | 64.39 (1.792) | 81381.99 (13971.95) |
| p_value: DOT_after one year = DOT_after two years | 0.553 | 0.800 | 0.578 | 0.766 | 0.381 | 0.913 | 0.394 | 0.571 | 0.880 |
| Panel B: PI/BSED | | | | | | | | | |
| Personal Initiative (PI) | -0.0312 (0.0226) | 143.3 (768.2) | 0.157 (0.129) | 637.7 (9,876) | -7,339 (8,004) | -1462.89 (5315.19) | -0.0495 (0.237) | 0.814 (1.642) | 18,714 (42,857) |
| Basic Skills (BSED) | -0.00599 (0.0225) | 895.5 (576.0) | 0.283 (0.268) | 2,566 (7,979) | -681.7 (10,249) | -3434.29 (6101.7) | -0.162 (0.203) | -1.338 (1.499) | -8,227 (44,689) |
| Observations | 1,777 | 1,701 | 1,701 | 1,612 | 1,676 | 1,777 | 1,777 | 1,771 | 1,748 |
| Control Group Mean | 0.171 (0.0180) | 12415.2 (1070.8) | 7.988 (0.143) | 116422.5 (10558.5) | 76230.0 (10239.8) | 72147.46 (8735.3) | 4.168 (0.369) | 48.94 (1.385) | 256993.3 (40320.5) |
| Controls used | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

(1) Controls include: received WEDP loan at baseline, age of owner, education more than secondary, number of children, number of workers and digitspan score at baseline.

(2) ANCOVA regressions are shown for businesses operational at follow-up

4.3.2 Impact on psychological constructs

Table 6 presents the impacts on psychological outcomes. We measure a change in business mindset by creating indices from a set of psychology statements that proxy for confidence and motivation. Panel A in

table 6 shows that the DOT training had an impact on the psychology of its trainees. Although the magnitude of changes in the measures of psychology are small, we find that entrepreneurs in the DOT treatment group, one year after the training, have statistically significant higher index levels of personal initiative and self-efficacy, relative to those in the control group. Entrepreneurs who are in the treatment group are more confident in their abilities with the trained entrepreneurs more likely to report that they can overcome problems they encounter and are more likely to feel that they are competent in managing their business well. In addition, the trained entrepreneurs appear to take more initiative, as a result of the training. They report that they do more than they are asked to, and that they are good at realizing ideas. Overall, the picture that emerges is that entrepreneurs who participate in the training benefit from an improved sense of confidence in their abilities and are more motivated to improve their businesses. The psychological outcomes for the DOT treatment group, when measured two years after the training, showed no significant differences to those of the control group.⁹ The time trend in the DOT study (not shown in the table) exhibits a fall over time in psychological outcomes for all business owners. We speculate that since the time frame of the study was between 2016 and 2017 this could be during a time of increased uncertainty in the business environment in Ethiopia, with the country in and out of a state of emergency during that period of time. The negative coefficient on entrepreneurial identity may be due to trainees being more critical about their own entrepreneurship two years after the training when impacts have faded perhaps making them question their own identity.

Panel B presents the results for the PI/BSED study where we find no evidence of an average impact on psychology among those who were offered the training. There is weak evidence of a boost in the error competence of BSED trainees. Without a more pronounced impact on psychological outcomes the channel for which profits can be influenced is missing.

⁹ As with profits, the personal initiative score at the two year follow up is not statistically different from the impacts at one year at conventional levels of significance. For self-efficacy, however, the 2-year coefficient is significantly lower than the one year impacts at a 10 percent level of significance.

TABLE 6: IMPACT OF TRAININGS ON PSYCHOLOGICAL OUTCOMES

| | Personal Initiative (1-5) | Self Efficacy (1-5) | Entrepreneurial Identity (1-5) | Entrepreneurial locus of control (1-5) | Error management (1- 5) | Attitude to Risk (0=risk averse; 1=risk loving) |
|--|------------------------------|------------------------|--------------------------------------|--|-------------------------------|---|
| | OLS | OLS | OLS | OLS | OLS | OLS |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| DOT study | | | | | | |
| DOT_after one year | 0.0848** (0.0371) | 0.0891** (0.0413) | -0.0177 (0.0491) | 0.0852 (0.0557) | 0.0273 (0.0371) | -0.0117 (0.0264) |
| DOT_after two years | -0.00284 (0.0575) | -0.0246 (0.0521) | -0.209** (0.0964) | -0.0463 (0.0746) | 0.0328 (0.0590) | 0.0213 (0.0277) |
| Observations | 1184 | 1184 | 1184 | 1184 | 1184 | 1184 |
| Control Group Mean at Follow-up I | 4.548 (0.0284) | 4.333 (0.0305) | 4.619 (0.0343) | 4.046 (0.0408) | 4.621 (0.0269) | 0.529 (0.0193) |
| p_value: DOT_after one year = DOT_after two years | 0.170 | 0.0601 | 0.0734 | 0.128 | 0.966 | 0.402 |
| PI/BSED | | | | | | |
| | ANCOVA | ANCOVA | ANCOVA | ANCOVA | ANCOVA | ANCOVA |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Personal Initiative (PI)_after 1.5 years | -0.0126 (0.0450) | -0.00302 (0.0502) | 0.0214 (0.0369) | 0.00501 (0.0447) | 0.00819 (0.0242) | 0.199 (0.159) |
| Basic Skills (BSED)_after 1.5 years | 0.0123 (0.0362) | -0.0139 (0.0402) | 0.0323 (0.0505) | 0.0189 (0.0463) | 0.0483* (0.0242) | 0.0378 (0.145) |
| Observations | 1,454 | 1,454 | 1,454 | 1,454 | 1,454 | 1,454 |
| Control Group Mean at baseline | 4.427 (0.0559) | 4.159 (0.0411) | 4.335 (0.0594) | 3.954 (0.0821) | 4.354 (0.0387) | 4.294 (0.118) |
| Controls used | Yes | Yes | Yes | Yes | Yes | Yes |

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

- (1) Controls include: received WEDP loan at baseline, age of owner, marital status, education, household size, number of children and digitspan score at baseline.
- (2) Analysis restricted to business owners who had businesses that were still operational at the time of the follow-up survey.

4.3.3 Impact on business practices

Table 7 presents the impact on indices of business practices that is created by taking an average of the practices that business has done in the last 12 months - record keeping, marketing, stock control and financial planning practices. This is by no means an exhaustive list of all the measured business practices in the surveys but highlights a few of the more common cited practices presented in business studies (McKenzie & Woodruff, 2017). Overall in Ethiopia, we do not observe changes to business practices or

business knowledge among the trainees, which could also be a channel of influence to achieve higher profits. We find no evidence, for example, that the trained entrepreneurs keep better financial records, improve their marketing, or exhibit higher financial literacy. The DOT trained firms were only more likely to report having analyzed the sales of the most important product over the last year. We find a higher likelihood that the BSED trained firms improve their record keeping, significant at the 10% level. However, we do not find evidence of an impact of the PI training on any of the measured business practices indices.

TABLE 7: IMPACT OF TRAININGS ON BUSINESS PRACTICES

| | Record Keeping Index (0-1) | Marketing Practices Index (0-1) | Stock Control Practices Index (0-1) | Financial Planning Practices Index (0-1) | Business Knowledge Index Score (0-7) | Detailed plans on any strategy to improve business (0-1) |
|--|----------------------------|---------------------------------|-------------------------------------|--|--------------------------------------|--|
| | OLS | OLS | OLS | OLS | OLS | OLS |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| DOT study | | | | | | |
| DOT_after one year | 0.0135 (0.0229) | 0.0420 (0.0283) | 0.0311 (0.0362) | 0.0245 (0.0261) | -0.0960 (0.0741) | 0.0186 (0.0381) |
| DOT_after two years | 0.00716 (0.0261) | -0.0258 (0.0299) | -0.00413 (0.0334) | -0.0487 (0.0296) | 0.00790 (0.103) | -0.0559 (0.0419) |
| Observations | 1184 | 1183 | 1183 | 1183 | 1184 | 1181 |
| Control Group Mean at Follow-up I | 0.359 (0.0166) | 0.477 (0.0205) | 0.685 (0.0264) | 0.606 (0.0187) | 4.772 (0.0538) | 0.630 (0.0274) |
| | Record Keeping Index (0-1) | Marketing Practices Index (0-1) | Stock Control Practices Index (0-1) | Financial Planning Practices Index (0-1) | Business Knowledge Index Score (0-7) | Detailed plans on any strategy to improve business (0-1) |
| | ANCOVA | ANCOVA | ANCOVA | ANCOVA | ANCOVA | ANCOVA |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| PI/BSED | | | | | | |
| Personal Initiative (PI)_after 1.5 years | 0.0136 (0.0192) | 0.0147 (0.0224) | 0.0120 (0.0261) | -0.0314 (0.0224) | -0.0688 (0.0595) | -0.000793 (0.0323) |
| Basic Skills (BSED)_after 1.5 years | 0.0336* (0.0192) | -0.00230 (0.0225) | -0.000625 (0.0261) | -0.0327 (0.0225) | -0.0839 (0.0591) | 0.0365 (0.0325) |
| Observations | 1,492 | 1,485 | 1,482 | 1,485 | 1,729 | 1,421 |
| Control Group Mean at Follow-up | 0.374 (0.0161) | 0.632 (0.0172) | 0.691 (0.0201) | 0.758 (0.0172) | 4.975 (0.0481) | 0.653 (0.0253) |

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

- (1) Controls include: received WEDP loan at baseline, age of owner, marital status, education, household size, number of children and digitspan score at baseline.
- (2) Record Keeping Index = Has a written business plan; Has a written annual budget; Keeps financial records
- (3) Marketing Practices Index = Visited at least one of its competitor's businesses to see what prices they are charging; Visited at least one of its competitor's businesses to see what products he or she offers; Asked existing customers whether there are products they would like you to offer; Asked a supplier about which products are selling well in this business' industry; looked for ways to improve your marketing and advertising strategies; Advertised in any form.
- (4) Stock Control Index = Negotiated with a supplier for a lower price on raw material; Compared the prices or quality offered by your supplier's product/service with other suppliers
- (5) Financial Planning Index = Analyzed if the sales of your most important product/services have increased, decreased or remained the same; looked for additional financial resources for your business; looked for new markets.

So far, we have looked at two channels by which the trainings could have changed profits. This section has shown that practices did not meaningfully move. However, the previous section showed that the psychological outcomes moved for participants in the DOT training but not at all for those in the PI and BSED trainings - both of which are aimed at psychology. We now turn to the likely main culprit for the lack of impact in the PI/BSED cohorts: the quality of the trainers.

4.3.4 Role of the trainer

Using detailed trainer characteristics and student data from the PI/BSED study we attempt to match which teacher attributes may have mattered for student outcomes.

The following analysis focuses on the sample of students who were trained (619 students; 17 primary trainers). The question we address: among the women entrepreneurs who participate in the trainings, what characteristics of the trainer are correlated with changes in their personal initiative, self-efficacy, error competence, entrepreneurial identity and locus of control scores, as measured at follow-up? The analysis incorporates various hypotheses by sequentially adding explanatory factors grouped into trainer attribute themes: demographic characteristics, business ownership, cognitive and noncognitive skills, job and career satisfaction and experience as a trainer. These themes were formulated based on various hypotheses by which we believe the trainer could influence the effectiveness of a training. For example, perhaps younger trainers are more dynamic and open towards a new training approach or those trainers with a higher error competence may be more likely to encourage entrepreneurs to act and learn from their errors and are therefore better trainers. The full set of hypotheses are discussed in more detail with the results presented below.

Table 8 first presents summary statistics of the 17 trainers included in the analysis. The average age of the trainers was 35 years which is similar to the average age of the WEDP entrepreneurs. There was an even split of female and male trainers and the likelihood that the trainer had ever been a business owner themselves was 41%. The average scores of the noncognitive skills measures for the trainers are relatively high compared to the scores among the entrepreneurs that chose to be trained.

TABLE 8: DESCRIPTIVE STATISTICS FOR TRAINER CHARACTERISTICS

| | <i>Trainer Characteristics</i> | | | |
|---|--------------------------------|----------|------|-----|
| | Mean | Std. Dev | Min | Max |
| <i>Demographics</i> | | | | |
| Age | 35.24 | 10.53 | 25 | 56 |
| Female teacher | .53 | .51 | 0 | 1 |
| Household members | 4.24 | 2.11 | 1 | 8 |
| Years at school | 18.71 | 2.71 | 15 | 25 |
| <i>Entrepreneurial experience</i> | | | | |
| Ever been a business owner | .41 | .51 | 0 | 1 |
| Years as business owner | .85 | 1.33 | 0 | 4.5 |
| Number of businesses started in life | .47 | .62 | 0 | 2 |
| Number of businesses running | .18 | .39 | 0 | 1 |
| HH members with business | .59 | 1.01 | 0 | 3 |
| <i>Cognitive abilities</i> | | | | |
| Digit-span score (forward + backward) | 9.29 | 2.52 | 6 | 17 |
| Raven test total | 9.12 | 2.42 | 3 | 12 |
| <i>Non-cognitive skills</i> | | | | |
| Personal Initiative (PI) | 4.55 | .44 | 3.43 | 5 |
| Error competence | 4.73 | .34 | 3.8 | 5 |
| Prosocial orientation | 4.82 | .43 | 3.5 | 5 |
| Learning motivation | 4.91 | .26 | 4 | 5 |
| <i>Job satisfaction and involvement</i> | | | | |
| How satisfied are you with your job? | 4.06 | .89 | 3 | 5 |
| Given a choice, I would still become a teacher | 3.94 | 1.29 | 1 | 5 |
| Career satisfaction | 4.35 | 1.06 | 2 | 5 |
| Job involvement | 3.98 | .87 | 2 | 5 |
| Organizational commitment | 4.10 | .83 | 2.44 | 5 |
| <i>Years at TVET College and perceived skills</i> | | | | |
| Years as teacher | 12.85 | 11.72 | .5 | 36 |
| Years at TVET College in general | 8.97 | 5.72 | .5 | 23 |
| Perceived entrepreneurial skills | 4.24 | .75 | 3 | 5 |
| Observations | 17 | | | |

Tables 9-13 report the results of the regressions of trainer characteristics on student psychology scores measured post training, among the sample of entrepreneurs who participated in the trainings. The regressions use ANCOVA estimation with standard errors clustered at the classroom level (the six TVET colleges had multiple training rounds where the student could have attended a training) and include the baseline measure of the dependent variable, i.e., the lagged psychology score is controlled for.

Column (5) in each table shows that there is a statistically significant positive association between students' psychology and the trainer having ever been a business owner themselves even after sequentially adding different sets of controls. Personal initiative, self-efficacy, locus of control and error competence measured 1.5 years after the training are all significantly higher among the students who had a trainer who had ever owned a business. These associations are stronger when the years as a teacher and years at TVET colleges are controlled for. The women entrepreneurs appear to benefit from having a shared identity with their trainer. The TVET trainers' limited exposure to the world of entrepreneurship may be one of the major barriers to successfully train women entrepreneurs on these socioemotional skills.

A supplemental qualitative analysis using videos of five trainers offering PI training sheds some light on how differences between trainers' attributes may manifest during the training (Wolf & Frese, 2019). The systematic comparison of training videos suggests that the PI trainer who has owned a business before differs from the remaining PI trainers with regard to his teaching behavior. First, according to the evaluation of three independent Ethiopian raters, the owner trainer is unanimously perceived as more competent, confident, and enthusiastic than his four non-owner trainer colleagues. Second, a qualitative content analysis of training video transcripts reveals that he has a more profound understanding of the training content than the non-owner trainers. They are more likely to communicate learning intentions, to make meaningful connections to students' daily life, and to provide informative feedback than his colleagues. It is conceivable, for example, that due to their own entrepreneurial past, the trainer finds it easier to relate the training content to students' daily experiences and challenges as entrepreneurs. Such teaching behaviors,

in turn, have been shown to be associated with student achievement by the education literature (Hattie, 2008, 2015) and are likely to promote the development of psychological skills and mindset.

Other things that matter across the variables are: the explanatory variable that asks the trainer, to which degree do you agree with the following statement: “if I had to choose again, I would still become a teacher” is negatively correlated with the psychological outcomes of the students. This contradicts what one might expect since choosing to be a teacher again perhaps should translate into more passion for teaching and therefore a greater likelihood to be able to shift the psychology of their students. However, one possible explanation for the negative correlation could be that those satisfied with being a teacher in a TVET college system are less open towards a training approach that somehow challenges the approach they have been using at TVET colleges for years.

The career satisfaction variable measured by the response of the trainer to “I am satisfied with the success I have achieved in my professional career” is positively correlated with the psychological outcomes of the students at follow-up. This is the directional relationship one would expect between trainer job satisfaction and trainer effectiveness since those trainers who are satisfied with their job are likely more enthusiastic and therefore stronger trainers.

In addition, since WEDP clients are all women they may have better identified with a female trainer where we find a positive association between a female trainer and a few of the student's psychology measures (PI and error competence scores). In terms of skills, the trainers' error competence score seems to positively correlate with some of the students' psychological outcomes (PI, self-efficacy and locus of control). Perhaps those trainers with a higher error competence are more likely to encourage entrepreneurs to act and learn from their errors and are therefore better trainers or that trainers only succeed in transmitting the training message (i.e. activating and increasing PI among students) if they show these behaviors themselves (i.e. if they are good role models).

Interestingly, we do not find evidence of years of schooling of the trainer or measures of cognitive ability correlating with the psychological outcomes of their students. This result is consistent with the education literature where teacher education and years on the job are found to not be consistently correlated with student learning.

The non-random allocation of students to classrooms may be a concern of bias in the estimates, if say, students choose a TVET college with a trainer they believe is more well-reputed. However, since the invitation of students to a specific TVET college was based on the locality of the business and the student would have not known the identity of the trainer before attending a session, we are confident that this selection is minimized. In addition, since we witnessed limited drop-outs (i.e. once an entrepreneur made it to the first session it was likely she remained for all 10 classes) it is unlikely the results are being driven by entrepreneurs who only stayed in a training if the trainer was perceived as strong by the student.

Since we do not have data on the trainer characteristics of the DOT trainers we are not able to replicate this analysis for the DOT study. Nonetheless, while the DOT evaluation shows the combination of improvements in psychological skills and increase in profits, this analysis shows us that there were some, small, set of trainers in the PI/BSED trainings who were able to effect change in their students' psychological outcomes.

TABLE 9: TRAINER CHARACTERISTICS ON STUDENT PSYCHOLOGY (PERSONAL INITIATIVE)

$y = \text{Personal Initiative score of students after training}$

| | | (1) | (2) | (3) | (4) | (5) | |
|-------------------------|---|--|---------------------------|---------------------------|---------------------------|---------------------------|-----------------------|
| | | Personal Initiative (1-5) | Personal Initiative (1-5) | Personal Initiative (1-5) | Personal Initiative (1-5) | Personal Initiative (1-5) | |
| Trainer Characteristics | Demographics | Age | -0.00495 (0.00326) | -0.00111 (0.00301) | 0.00190 (0.00811) | -0.0102 (0.0103) | -0.0282** (0.0124) |
| | | Female | 0.0918 (0.0833) | 0.0564 (0.0671) | 0.105 (0.113) | 0.0360 (0.114) | 0.498** (0.187) |
| | | Years at school | -0.0164 (0.0112) | -0.00438 (0.0116) | -0.0287 (0.0192) | 0.0000643 (0.0190) | -0.0227 (0.0207) |
| | Entrepreneur Role Model | Ever been a business owner | | 0.195*** (0.0561) | 0.151** (0.0562) | 0.149** (0.0563) | 0.339*** (0.0818) |
| | Cognitive and non-cognitive skills | Digitspan score | | | 0.0213 (0.0257) | -0.0258 (0.0353) | -0.0375 (0.0411) |
| | | Raven test score | | | -0.0278 (0.0192) | -0.00645 (0.0164) | -0.0529* (0.0307) |
| | | Personal initiative | | | -0.106 (0.136) | -0.270*** (0.0798) | -0.120 (0.189) |
| | | Error competence | | | 0.0868 (0.140) | 0.505** (0.204) | 0.356* (0.186) |
| | | Prosocial orientation | | | 0.151 (0.128) | -0.154 (0.157) | 0.567 (0.398) |
| | Job satisfaction | How satisfied are you with your job? | | | | 0.123** (0.0537) | 0.00919 (0.0573) |
| | | Given a choice, would still be a teacher | | | | -0.0632** (0.0291) | -0.0851** (0.0313) |
| | | Career satisfaction | | | | 0.109*** (0.0299) | 0.0805** (0.0328) |
| | Years at TVET college | Years as teacher | | | | | 0.0182 (0.0222) |
| | | Years at TVET Colleges | | | | | 0.0379* (0.0220) |
| | | Perceived entrepreneurial skills | | | | | -0.144 (0.0891) |
| | Average score for students at baseline | 4.477 (0.0248) | 4.477 (0.0248) | 4.477 (0.0248) | 4.477 (0.0248) | 4.477 (0.0248) | |
| | Observations | 565 | 565 | 565 | 565 | 565 | |

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

(1) OLS regressions sequentially add explanatory variables from columns (1) to (5)

TABLE 10: TRAINER CHARACTERISTICS ON STUDENT PSYCHOLOGY (SELF EFFICACY)

y = Self Efficacy score of students after training

| | | (1) | (2) | (3) | (4) | (5) | |
|-------------------------|---|--|-----------------------|-----------------------|------------------------|-----------------------|-----------------------|
| | | Self Efficacy (1-5) | Self Efficacy (1-5) | Self Efficacy (1-5) | Self Efficacy (1-5) | Self Efficacy (1-5) | |
| Trainer Characteristics | Demographics | Age | -0.00760 (0.00593) | 0.000388 (0.00512) | 0.00504 (0.0134) | -0.00435 (0.0158) | -0.0210 (0.0240) |
| | | Female | 0.0744 (0.129) | -0.000104 (0.111) | 0.0967 (0.227) | -0.0193 (0.238) | 0.356 (0.463) |
| | | Years at school | 0.0101 (0.0222) | 0.0359 (0.0232) | -0.0000659 (0.0329) | 0.0270 (0.0283) | 0.0656 (0.0404) |
| | Entrepreneur Role Model | Ever been a business owner | | 0.405*** (0.0975) | 0.330*** (0.119) | 0.366*** (0.0829) | 0.374** (0.150) |
| | Cognitive and non-cognitive skills | Digitspan score | | | 0.0217 (0.0480) | -0.0172 (0.0571) | -0.0964 (0.0861) |
| | | Raven test score | | | -0.0280 (0.0261) | 0.0175 (0.0297) | -0.0328 (0.0654) |
| | | Personal initiative | | | -0.334 (0.277) | -0.731*** (0.187) | -0.252 (0.495) |
| | | Error competence | | | 0.178 (0.218) | 0.722*** (0.218) | 0.916** (0.340) |
| | | Prosocial orientation | | | 0.381 (0.257) | 0.0263 (0.221) | 0.0754 (0.565) |
| | Job satisfaction | How satisfied are you with your job? | | | | 0.189** (0.0725) | 0.106 (0.129) |
| | | Given a choice, would still be a teacher | | | | -0.150*** (0.0303) | -0.130*** (0.0417) |
| | | Career satisfaction | | | | 0.180*** (0.0507) | 0.127* (0.0639) |
| | Years at TVET college | Years as teacher | | | | | 0.0389 (0.0421) |
| | | Years at TVET Colleges | | | | | -0.0114 (0.0322) |
| | | Perceived entrepreneurial skills | | | | | -0.115 (0.164) |
| | Average score for students at baseline | 4.215 (0.0264) | 4.215 (0.0264) | 4.215 (0.0264) | 4.215 (0.0264) | 4.215 (0.0264) | |
| | Observations | 559 | 559 | 559 | 559 | 559 | |

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

(1) OLS regressions sequentially add explanatory variables from columns (1) to (5)

TABLE 11: TRAINER CHARACTERISTICS ON STUDENT PSYCHOLOGY (ENTREPRENEURIAL IDENTITY)

$y = \text{Entrepreneurial Identity score of students after training}$

| | | (1) | (2) | (3) | (4) | (5) | |
|-------------------------|---|--|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-----------------------|
| | | Entrepreneurial Identity (1-5) | Entrepreneurial Identity (1-5) | Entrepreneurial Identity (1-5) | Entrepreneurial Identity (1-5) | Entrepreneurial Identity (1-5) | |
| Trainer Characteristics | Demographics | Age | -0.00729* (0.00376) | -0.000886 (0.00312) | 0.00360 (0.00550) | 0.0132 (0.00790) | 0.0167 (0.0155) |
| | | Female | 0.111 (0.0720) | 0.0522 (0.0521) | 0.176** (0.0681) | 0.112* (0.0622) | 0.162 (0.238) |
| | | Years at school | 0.0122 (0.0152) | 0.0326* (0.0168) | -0.000325 (0.0283) | -0.0130 (0.0230) | -0.00524 (0.0287) |
| | Entrepreneur Role Model | Ever been a business owner | | 0.325*** (0.0752) | 0.246*** (0.0857) | 0.334*** (0.0738) | 0.303*** (0.106) |
| | Cognitive and non-cognitive skills | Digitspan score | | | 0.0251 (0.0234) | 0.0571* (0.0291) | 0.0196 (0.0458) |
| | | Raven test score | | | -0.0392* (0.0204) | -0.00342 (0.0171) | 0.00683 (0.0402) |
| | | Personal initiative | | | -0.289* (0.169) | -0.574*** (0.126) | -0.433* (0.226) |
| | | Error competence | | | 0.0182 (0.175) | 0.0436 (0.160) | 0.272 (0.225) |
| | | Prosocial orientation | | | 0.377*** (0.131) | 0.392*** (0.137) | 0.107 (0.553) |
| | Job satisfaction | How satisfied are you with your job? | | | | 0.0379 (0.0549) | 0.0657 (0.0741) |
| | | Given a choice, would still be a teacher | | | | -0.128*** (0.0342) | -0.137*** (0.0407) |
| | | Career satisfaction | | | | 0.104*** (0.0354) | 0.0841* (0.0471) |
| | Years at TVET college | Years as teacher | | | | | 0.0312 (0.0246) |
| | | Years at TVET Colleges | | | | | -0.0199 (0.0289) |
| | | Perceived entrepreneurial skills | | | | | 0.0609 (0.145) |
| | Average score for students at baseline | 4.397 (0.0305) | 4.397 (0.0305) | 4.397 (0.0305) | 4.397 (0.0305) | 4.397 (0.0305) | |
| | Observations | 564 | 564 | 564 | 564 | 564 | |

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

(1) OLS regressions sequentially add explanatory variables from columns (1) to (5)

TABLE 12: TRAINER CHARACTERISTICS ON STUDENT PSYCHOLOGY (LOCUS OF CONTROL)

$y = \text{Locus of control (LOC) score of students after training}$

| | | (1) | (2) | (3) | (4) | (5) | |
|-------------------------|---|--|--|--|--|--|-----------------------|
| | | Entrepreneurial locus of control (1-5) | Entrepreneurial locus of control (1-5) | Entrepreneurial locus of control (1-5) | Entrepreneurial locus of control (1-5) | Entrepreneurial locus of control (1-5) | |
| Trainer Characteristics | Demographics | Age | -0.0111 (0.00717) | -0.00283 (0.00662) | -0.00562 (0.0114) | -0.0124 (0.0171) | -0.00378 (0.0304) |
| | | Female | 0.216 (0.137) | 0.137 (0.117) | 0.465** (0.186) | 0.329* (0.194) | 0.437 (0.474) |
| | | Years at school | -0.0117 (0.0262) | 0.0158 (0.0291) | -0.0142 (0.0412) | 0.00958 (0.0438) | 0.0114 (0.0453) |
| | Entrepreneur Role Model | Ever been a business owner | | 0.427*** (0.128) | 0.344** (0.133) | 0.421*** (0.102) | 0.392** (0.177) |
| | Cognitive and non-cognitive skills | Digitspan score | | | -0.00905 (0.0483) | -0.0397 (0.0684) | -0.105 (0.0873) |
| | | Raven test score | | | -0.0614** (0.0246) | -0.00855 (0.0268) | 0.0186 (0.0725) |
| | | Personal initiative | | | -0.397 (0.267) | -0.774*** (0.190) | -0.556 (0.494) |
| | | Error competence | | | 0.173 (0.243) | 0.666** (0.324) | 1.090*** (0.377) |
| | | Prosocial orientation | | | 0.695*** (0.240) | 0.341 (0.237) | -0.155 (0.636) |
| | Job satisfaction | How satisfied are you with your job? | | | | 0.150 (0.107) | 0.211 (0.137) |
| | | Given a choice, would still be a teacher | | | | -0.175*** (0.0458) | -0.208*** (0.0548) |
| | | Career satisfaction | | | | 0.230*** (0.0719) | 0.195** (0.0799) |
| | Years at TVET college | Years as teacher | | | | | 0.0631 (0.0375) |
| | | Years at TVET Colleges | | | | | -0.0333 (0.0400) |
| | | Perceived entrepreneurial skills | | | | | 0.137 (0.200) |
| | Average score for students at baseline | 3.987 (0.0455) | 3.987 (0.0455) | 3.987 (0.0455) | 3.987 (0.0455) | 3.987 (0.0455) | |
| | Observations | 557 | 557 | 557 | 557 | 557 | |

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

(1) OLS regressions sequentially add explanatory variables from columns (1) to (5)

TABLE 13: TRAINER CHARACTERISTICS ON STUDENT PSYCHOLOGY (ERROR COMPETENCE)

$y = \text{Error competence score of students after training}$

| | | (1) | (2) | (3) | (4) | (5) | |
|-------------------------|--|---|------------------------|------------------------|------------------------|------------------------|-----------------------|
| | | Error competence (1-5) | Error competence (1-5) | Error competence (1-5) | Error competence (1-5) | Error competence (1-5) | |
| Trainer Characteristics | Demographics | Age | -0.00540* (0.00300) | -0.00145 (0.00264) | -0.00150 (0.00710) | 0.00304 (0.0109) | -0.00229 (0.0127) |
| | | Female | 0.117* (0.0662) | 0.0805 (0.0586) | 0.183 (0.116) | 0.143 (0.124) | 0.431** (0.169) |
| | | Years at school | -0.0175 (0.0107) | -0.00515 (0.0131) | -0.0292 (0.0183) | -0.0346 (0.0215) | -0.0669** (0.0273) |
| | Entrepreneur Role Model | Ever been a business owner | | 0.200*** (0.0656) | 0.142** (0.0590) | 0.200*** (0.0630) | 0.341*** (0.0963) |
| | | Cognitive and non-cognitive skills | Digitspan score | | | 0.0137 (0.0245) | 0.0282 (0.0402) |
| | Raven test score | | | | -0.0434** (0.0183) | -0.0257 (0.0158) | -0.0348 (0.0271) |
| | Personal initiative | | | | -0.0935 (0.113) | -0.182* (0.0990) | -0.147 (0.181) |
| | Error competence | | | | 0.173 (0.134) | 0.166 (0.185) | 0.145 (0.166) |
| | Prosocial orientation | | | | 0.153 (0.113) | 0.146 (0.164) | 0.521 (0.379) |
| | Job satisfaction | How satisfied are you with your job? | | | | -0.0107 (0.0547) | -0.0490 (0.0525) |
| | | Given a choice, would still be a teacher | | | | -0.0629* (0.0328) | -0.101*** (0.0364) |
| | | Career satisfaction | | | | 0.0767** (0.0357) | 0.0583 (0.0367) |
| | Years at TVET college | Years as teacher | | | | | 0.0263 (0.0172) |
| | | Years at TVET Colleges | | | | | 0.0221 (0.0199) |
| | | Perceived entrepreneurial skills | | | | | -0.0212 (0.0850) |
| | Average score for students at baseline | 4.432 (0.0270) | 4.432 (0.0270) | 4.432 (0.0270) | 4.432 (0.0270) | 4.432 (0.0270) | |
| | Observations | 564 | 564 | 564 | 564 | 564 | |

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

(1) OLS regressions sequentially add explanatory variables from columns (1) to (5)

5 Conclusion

In the quest to support the growth of women-owned firms in emerging economies, the development of a replicable formula for effective business training is critical. New evidence is beginning to point to psychology or mindset-oriented approaches to business training as being more effective than traditional methods that focused on imparting practice-based business skills such as book-keeping, marketing, and business plan development (Campos et al., 2017).

This paper contributes to the evidence base on mindset-oriented approaches to business training. First, we show that this kind of training can be effective in the Ethiopian context. However, while we show that the mindset approach holds promise for increasing profits and business growth, how these skills are transferred requires more careful consideration. Psychology-oriented training approaches seem to require a greater personalization of the training content by instructors and seem more likely to be successful in instances where instructors can relate easily to students, perhaps by having been through similar experiences. Trainers who have been entrepreneurs themselves may have a better understanding of their students' specific challenges, can act as a role model and provide them with more practical examples.

Although business training interventions are beginning to evolve from traditional approaches focused on managerial practices to new approaches informed more heavily by psychology, further research on the best method of delivering these skills as well as the types of skills that might be appropriate is needed. The results for the successful DOT training suggest possible attenuation over time. If this is a real issue, additional booster sessions may be needed. Additionally, the finding that women who attend the training are among the lowest profitable businesses suggests that attracting some of the higher growth businesses may require alternative delivery mechanisms than just classroom-based training. For example, business networking events, coaching, or mentoring support may help reach a greater number of entrepreneurs.

The trainings in Ethiopia were significantly cheaper at around US\$30 per person than the Personal Initiative training in Togo, which was around US\$750 per person. Part of the increased cost in Togo was that trainers conducted monthly follow up visits for four months after the training to provide individual support to

entrepreneurs. Exploring lower-cost supplementary follow-up options in terms of mentoring or ongoing support deserves further exploration and research.

As economies grow and women are encouraged to enter business sectors where they may lack social support and have fewer identifiable role models, mindset-oriented business trainings can be used to support them to develop a mental attitude that will help them respond better to new and unfamiliar situations. Programs that enhance skills for women entrepreneurs, perhaps complemented by initiatives such as coaching and advising, can increase women's ability to take advantage of opportunities, and seemingly are best delivered by those who have trodden the beaten path before.

References

- [1] Anderson-Macdonald, S. J., Chandy, R., & Zia, B. (2016). *Pathways to profits: Identifying separate channels of small firm growth through business training* (World Bank Policy Research Working Paper No. 7774). Retrieved from: <http://documents.worldbank.org/curated/en/932291469740775507/pdf/WPS7774.pdf>
- [2] Birdi, K., Allan, C., & Warr, P. (1997). Correlates and perceived outcomes of 4 types of employee development activity. *Journal of Applied Psychology*, 82(6), 845–857. <https://doi.org/http://dx.doi.org/10.1037/0021-9010.82.6.845>
- [3] Campos, F., Frese, M., Goldstein, M., Iacovone, L., Johnson, H. C., McKenzie, D., & Mensmann, M. (2017). Teaching personal initiative beats traditional training in boosting small business in West Africa. *Science*, 357(6357), 1287–1290. <https://doi.org/10.1126/science.aan5329>
- [4] Cho, Y., & Honorati, M. (2014). Entrepreneurship programs in developing countries: A meta regression analysis. *Labour Economics*, 28, 110–130. <https://doi.org/10.1016/j.labeco.2014.03.011>
- [5] Coduras Martínez, A., Levie, J., Kelley, D. J., Saemundsson, R. J., & Schott, T. (2010). *Global entrepreneurship monitor special report: A global perspective on entrepreneurship education and training*. Retrieved from <https://www.gemconsortium.org/report/47119>
- [6] Drexler, A., Fischer, G., & Schoar, A. (2014). Keeping it simple: Financial literacy and rules of thumb. *American Economic Journal: Applied Economics*, 6(2), 1–31. <https://doi.org/10.1257/app.6.2.1>
- [7] Frese, M., & Fay, D. (2001). Personal initiative: An active performance concept for work in the 21st century. *Research in Organizational Behavior*, 23, 133–187. [https://doi.org/10.1016/S0191-3085\(01\)23005-6](https://doi.org/10.1016/S0191-3085(01)23005-6)
- [8] Frese, M., Fay, D., Hilburger, T., Leng, K., & Tag, A. (1997). The concept of personal initiative: Operationalization, reliability and validity in two German samples. *Journal of Occupational and Organizational Psychology*, 70(2), 139–161. https://doi.org/10.1207/S15327043HUP1401_06
- [9] Frese, M., & Gielnik, M. M. (2014). The psychology of entrepreneurship. *Annual Review of Organizational Psychology and Organizational Behavior*, 1, 413–438. <https://doi.org/10.1146/annurev-orgpsych-031413-091326>
- [10] Frese, M., Gielnik, M. M., & Mensmann, M. (2016). Psychological training for entrepreneurs to take action: Contributing to poverty reduction in developing countries. *Current Directions in Psychological Science*, 25(3), 196–202. <https://doi.org/10.1177/0963721416636957>
- [11] Frese, M., & Zapf, D. (1994). Action as the core of work psychology : A German approach. In H. C. Triandis, M. D. Dunnette, & L. M. Hough (Eds.), *Handbook of Industrial and Organizational*

Psychology (2nd ed., pp. 1–35). Palo Alto, CA: Consulting Psychologists Press.

- [12] Gielnik, M. M., Frese, M., Kahara-Kawuki, A., Katono, I. W., Kyejjusa, S., Munene, J., ... Dlugosch, T. J. (2015). Action and action-regulation in entrepreneurship: Evaluating a student training for promoting entrepreneurship. *Academy of Management Learning and Education*, 14(1), 69–94. <https://doi.org/10.5465/amle.2012.0107>
- [13] Glaub, M., Frese, M., Fischer, S., & Hoppe, M. (2014). Increasing personal initiative in small business managers or owners leads to entrepreneurial success: A theory-based controlled randomized field intervention for evidence-based management. *Academy of Management Learning and Education*, 13(3), 354–379. <https://doi.org/10.5465/amle.2013.0234>
- [14] Grant, A. M. (2008). Does intrinsic motivation fuel the prosocial fire? Motivational synergy in predicting persistence, performance, and productivity. *Journal of Applied Psychology*, 93(1), 48–58. <https://doi.org/http://dx.doi.org/10.1037/0021-9010.93.1.48>
- [15] Grant, A. M., & Berry, J. W. (2011). The necessity of others is the mother of invention. *Academy of Management Journal*, 54(1), 73–96. <https://doi.org/http://dx.doi.org/10.5465/AMJ.2011.59215085>
- [16] Grant, A. M., & Sumanth, J. J. (2009). Mission possible? The performance of prosocially motivated employees depends on manager trustworthiness. *Journal of Applied Psychology*, 94(4), 927–944. <https://doi.org/10.1037/a0014391>.
- [17] Hagger, M. S., & Chatzisarantis, N. L. D. (2006). Self-identity and the theory of planned behaviour: Between-and within-participants analyses. *British Journal of Social Psychology*, 45(4), 731–757. <https://doi.org/http://dx.doi.org/10.1348/014466605X85654>
- [18] Hanushek EA, Rivkin SG. (2006). Teacher quality. Handbook of the Economics of Education, Vol. 2, ed. EA Hanushek, F Welch, pp. 1051–78. Amsterdam: North Holland.
- [19] Hattie, J. (2008). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.
- [20] Hattie, J. (2015). The applicability of Visible Learning to higher education. *Scholarship of Teaching and Learning in Psychology*, 1, 79–91. <https://doi.org/10.1037/stl0000021>
- [21] Kanungo, R. N. (1982). Measurement of job and work involvement. *Journal of Applied Psychology*, 67(3), 341–349. <https://doi.org/10.1037/0021-9010.67.3.341>
- [22] Kelley, D. J., Baumer, B. S., Brush, C. G., Greene, P. G., Mahdavi, M., Majbouri, M., ... Global Entrepreneurship Research Association (GERA). (2017). *Global Entrepreneurship Monitor 2016/2017 Report on Women's Entrepreneurship*. Retrieved from: <http://www.gemconsortium.org/report/49860>
- [23] Krauss, S. I. (2003). *Psychological success factors of small and micro business owners in Southern*

Africa: A longitudinal approach. Universitätsbibliothek Giessen.

- [24] Levenson, H. (1974). Multidimensional locus of control in prison inmates. *Proceedings of the Division of Personality and Society Psychology*, 1(1), 354–356.
<https://doi.org/10.1177/0146167274001001119>
- [25] McKenzie, D. (2012). Beyond baseline and follow-up: The case for more T in experiments. *Journal of Development Economics*, 99(2), 210–221.
<https://doi.org/10.1016/j.jdeveco.2012.01.002>
- [26] McKenzie, D., & Woodruff, C. (2014). What are we learning from business training and entrepreneurship evaluations around the developing world? *World Bank Research Observer*, 29(1), 48–82. Retrieved from <https://openknowledge.worldbank.org/handle/10986/2212>
- [27] McKenzie, D., & Woodruff, C. (2017). "Business Practices in Small Firms in Developing Countries," *Management Science*, vol 63(9), pages 2967-2981.
- [28] Mensmann, M., & Frese, M. (2017). Proactive behavior training: Theory, design, and future directions. In S. K. Parker & U. K. Bindl (Eds.), *Proactivity at Work*. Routledge.
- [29] Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of organizational commitment. *Journal of Vocational Behavior*, 14(2), 224–247.
[https://doi.org/https://doi.org/10.1016/0001-8791\(79\)90072-1](https://doi.org/https://doi.org/10.1016/0001-8791(79)90072-1)
- [30] Noe, R. A., & Wilk, S. L. (1993). Investigation of the factors that influence employees' participation in development activities. *Journal of Applied Psychology*, 78(2), 291–302.
<https://doi.org/http://dx.doi.org/10.1037/0021-9010.78.2.291>
- [31] Rybowskiak, V., Garst, H., Frese, M., & Batinic, B. (1999). Error orientation questionnaire (EOQ): Reliability, validity, and different language equivalence. *Journal of Organizational Behavior*, 20(4), 527–547. <https://doi.org/http://dx.doi.org/10.1002>
- [32] Warr, P., & Bunce, D. (1995). Trainee characteristics and the outcomes of open learning. *Personnel Psychology*, 48(2), 347–375.
<https://doi.org/https://doi.org/10.1111/j.1744-6570.1995.tb01761.x>
- [33] Wolf, K., & Frese, M. (2019). Teaching women entrepreneurs to take action: Mind the trainer?

Appendix A: Measures for psychological constructs

Unless noted otherwise, all measures were introduced using the instructions below. The introductory sentence was slightly modified depending on the specific content of the scale. In the following, I will present you a set of statements which describe the behavior of people in various situations. Please indicate how much each statement describes you. For each statement, please tell me whether you: 1. Strongly disagree, 2. Rather disagree, 3. Neither disagree nor agree, 4. Rather agree, or 5. Strongly agree. Your answers refer to how you think you are and not how you would like to be in the future.

6.1 WOMEN ENTREPRENEURS

- *PERSONAL INITIATIVE*: Mean of responses to seven items

- Based on Frese, Fay, Hilburger, Leng, & Tag (1997)

- Scale reliability: Cronbach's alpha = .87 (PI/BSED); .86 (DOT)

PI1. I actively attack problems.

PI2. Whenever something goes wrong, I search for a solution immediately.

PI3. Whenever there is a chance to get actively involved, I take it.

PI4. I take initiative immediately even when others do not.

PI5. I use opportunities quickly in order to attain my goals.

PI6. Usually I do more than I am asked to do.

PI7. I am particularly good at realizing ideas.

- *ERROR COMPETENCE*: Mean of responses to four items

- Based on Rybowskiak, Garst, Frese, & Batinic (1999)

- Scale reliability: Cronbach's alpha = .80 (PI/BSED); .85 (DOT)

EC1. When I have made a mistake, I know immediately how to correct it.

EC2. When I do something wrong at work, I correct it immediately

EC3. If it is at all possible to correct a mistake, then I usually know how to go about it.

EC4. I don't let go of the goal, although I make mistakes.

- *ENTREPRENEURIAL SELF-EFFICACY*: Mean of responses to seven items

- Based on (Gielnik et al., 2015) & Krauss (2003)

- Scale reliability: Cronbach's alpha = .89 (PI/BSED); .79 (DOT)

SE1. I perceive business opportunities well.

SE2. I do the marketing of my business well.

SE3. I overcome problems when running a business.

SE4. I negotiate with other entrepreneurs well.

SE5. I keep an overview of my financial affairs well.

SE6. I am competent to manage my business well.

SE7. I am competent to find financial capital for my business.

- *ENTREPRENEURIAL LOCUS OF CONTROL*: Mean of responses to seven items

- Based on Levenson (1974)

- Scale reliability: Cronbach's alpha = .93 (PI/BSED); .84 (DOT)

LC1. I can pretty much determine the success of my business

LC2. I am certain that I can have a significant impact on the society with my business.

LC3. I am sure that I can impact sales of my business.

LC4. I can pretty much determine what happens in my environment.

LC5. I can change the community around me with my business.

LC6. When others start their own businesses, it is because they take me as an example of how to do it.

LC7. My example leads others to be better business people.

- *ENTREPRENEURIAL IDENTITY*: Mean of responses to two items

- Based on Hagger & Chatzisarantis (2006)

- Scale reliability: Cronbach's alpha = .76 (PI/BSED); .85 (DOT)

EI1. Entrepreneurship is an important part of who I am.

EI2. I think of myself as someone who generally thinks about entrepreneurship.

- *ATTITUDE TO RISK*: Ranging from 1 = risk-averse to 8 = risk-loving

- Instructions: Now, imagine you want to start a new business and you can choose from eight types of businesses. Each business profit depends on whether the business has a good or a bad month. The probability of a good or bad month is 50%. You can see the profit of each business in a good and a bad month for the 8 businesses below. Which business would you choose?

Business: Profits in a bad month / Profits in a good month

Business 1 15.000 Birr / 15.000 Birr

Business 2 13.500 Birr / 28.500 Birr

Business 3 12.000 Birr / 36.000 Birr

Business 4 10.500 Birr / 37.500 Birr

Business 5 9.000 Birr / 45.000 Birr

Business 6 6.000 Birr / 48.000 Birr

Business 7 3.000 Birr / 57.000 Birr

Business 8 0 Birr / 60.000 Birr

6.2 TRAINERS

- *PERSONAL INITIATIVE*: see section 6.1

- Scale reliability: Cronbach's alpha = .75

- *ERROR COMPETENCE*: see section 6.1 but without item EC4

- Scale reliability: Cronbach's alpha = .73

- *PROSOCIAL ORIENTATION*: Mean of responses to five items

- Based on Grant (2008), Grant & Berry (2011), and Grant & Sumanth (2009)

- Scale reliability: Cronbach's alpha = .67

PO1. I get energized by working on tasks that have the potential to benefit others.

PO2. It is important to me to have the opportunity to use my abilities to benefit others.

PO3. I prefer to work on tasks that allow me to have a positive impact on others.

PO4. I do my best when I'm working on a task that contributes to the well-being of others.

PO5. I like to work on tasks that have the potential to benefit others.

- *LEARNING MOTIVATION*: Mean of responses to two items

- Based on Birdi, Allan, & Warr (1997), Noe & Wilk (1993), and Warr & Bunce (1995)

- Scale reliability: Cronbach's alpha = .83

LM1. I always look for opportunities to improve my skills.

LM2. I am very enthusiastic about learning new things.

- *JOB INVOLVEMENT*: Mean of responses to six items

-Based on Kanungo (1982)

- Scale reliability: Cronbach's alpha = .79

J11. The most important things that happen to me involve my present job.

J12. To me, my job is only a small part of who I am. (reverse)

J13. I am very much personally involved in my job.

J14. I live, eat, and breathe my job.

J15. Most of my interests are centered around my job.

J16. I have very strong ties with my present job which would be very difficult to break.

- *ORGANIZATIONAL COMMITMENT*: Mean of responses to eight items

- Based on Mowday, Steers, & Porter (1979)

- Scale reliability: Cronbach's alpha = .84

OC1. I am willing to put in a great deal of effort beyond that normally expected in order to help my college to be successful.

OC2. I talk about this college to my friends as a great institution to work for.

OC3. I would accept almost any type of job assignment in order to keep working for this college.

OC4. I find that my values and the college's values are very similar.

OC5. I am proud to tell others that I am part of this college.

OC6. This college really inspires the very best in me in the way of job performance.

OC7. It would take very little change in my present circumstances to cause me to leave this college. (reverse)

OC8. For me this is the best of all possible institutions for which to work.