ECONOMICS

Teaching personal initiative beats traditional training in boosting small business in West Africa

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Standard business training programs aim to boost the incomes of the millions of self-employed business owners in developing countries by teaching basic financial and marketing practices, yet the impacts of such programs are mixed. We tested whether a psychology-based personal initiative training approach, which teaches a proactive mindset and focuses on entrepreneurial behaviors, could have more success. A randomized controlled trial in Togo assigned microenterprise owners to a control group (n = 500), a leading business training program (n = 500), or a personal initiative training program (n = 500). Four follow-up surveys tracked outcomes for firms over 2 years and showed that personal initiative training increased firm profits by 30%, compared with a statistically insignificant 11% for traditional training. The training is cost-effective, paying for itself within 1 year.

A large share of the labor force in most developing countries is engaged in small-scale entrepreneurship (*1*). However, most of these businesses are "too small and utterly undifferentiated from the many others around them" (*2*) to ever grow beyond subsistence size. What distinguishes those individuals who end up growing their businesses from the rest? There has been a long-running debate about whether such successful entrepreneurs are "born" or "made" (*3*). The "born" view argues that entrepreneurs differ from others in their innate personality traits and desire to succeed, whereas the "made" view argues that entrepreneurs can be created through education and experience.

The billions of dollars spent by governments, microfinance organizations, and nongovernmental organizations providing business training programs indicate a strong belief by many policymakers that entrepreneurship can be taught. Traditional business training programs such as those offered by the U.S. Small Business Administration, the International Labor Organization's Start and Improve Your Business program, the International Finance Corporation's Business Edge program, and Freedom from Hunger's programs for microfinance clients aim to teach small business owners to use better business practices—for example, record-keeping, stock control, and simple marketing. There is increasing evidence in economics that better management and improved business practices matter for productivity in both large (*4*) and small (*5*) firms. However, few evaluations of traditional business training programs offered to existing firms have found sustained impacts on profits, particularly for women-owned firms (*6*–*10*). In addition to methodological issues such as a lack of statistical power in many existing randomized controlled trials, two possible explanations for this lack of impact are (i) that traditional training does not result in a large enough change in the business practices that it aims to teach and (ii) that it is not teaching the right set of skills (*11*).

One promising approach to improving these outcomes has been to incorporate insights from other fields into the standard accounting and economics-based approach. Examples include a "rules of thumb"–based training program drawing from behavioral economics (*8*) and programs based on insights from marketing science (*12*). What characterizes these programs is that they aim to improve managerial knowledge. In contrast, the psychology literature has long noted predictors of entrepreneurial success that go beyond knowledge and standard economic variables (*13*). However, few attempts have been made to experimentally evaluate the success of teaching such attributes to owners of small-scale businesses in developing countries. Here we show how the use of a psychology-based training program that develops key behaviors associated with a proactive entrepreneurial mindset can deliver lasting improvements for small business owners.

Personal initiative is defined as a self-starting, future-oriented, and persistent proactive mindset (*14*, *15*). Such a mindset implies a readiness to act as a result of cognitive, affective, and motivational orientation and organization that is in tune with solving entrepreneurial challenges. The personal initiative mindset is key to entrepreneurial success, because it involves looking for ways to differentiate one's business from others, anticipate problems, better overcome setbacks, and foster better planning for opportunities and long-term preparation. A pilot experiment (*16*) with a sample of 109 Ugandan business owners suggested the potential for a short training course to instill a mindset of greater personal initiative, leading to business improvements within a year. Using a large sample and a more comprehensive training program, we conducted a randomized controlled trial that directly compares personal initiative training with traditional business training and demonstrates the greater effectiveness of the former approach. Our results provide a middle ground between the "born with an entrepreneurial personality" and "made by learning specific entrepreneurial practices" viewpoints by showing that training can teach people to develop a mindset with attributes such as proactiveness that are often assumed to be innate.

We worked with a sample of 1500 microenterprises in Lomé, Togo, selected from applicants to a government project financed by the World Bank. Applicants had to be in business for at least 12 months, have fewer than 50 employees, operate outside of agriculture, and not be a formally registered company. Section 1 of the supplementary materials provides full details of the selection process and a timeline (*17*). A baseline survey of these applicants was undertaken between October and December 2013. The business owners were almost equally split by gender (53% female), had an average age of 41 years, and had an average of 9 years of education (table S2). The sample contained a broad mix of industries (27% manufacturing, 48% commerce, and 25% services), with the businesses earning a mean of 94,512 CFA francs (US$199) and a median of 40,000 CFA francs (US$84) in monthly profits at baseline (*18*). Firms had a mean of three employees and a median of two.

The initial state of business practices in these firms suggested considerable scope for improvement. This was particularly true for record-keeping: Only 37% of firms kept accounts books, and only 4.7% had a written budget. We also measured marketing, operations management, information seeking, and human resource practices and found that only one-third of firms used advertising or publicity, 71% compared sales performance with objectives, and 66% visited competitors to compare prices or product offerings. Firms were using a mean of 16 out of the 29 different practices that we measured at baseline. Business owners started with a reasonably high mean personal initiative level—4.2 on a five-point Likert scale, with values ranging from 2.1 to 5.0—but still had room for improvement. Section 2 of the supplementary materials describes the scale and its construction in greater detail.

The 1500 firms were stratified by gender and sector, then grouped into triplets according to baseline profits. Within each triplet, firms were randomly assigned to a control group (n = 500), traditional business training treatment group (n = 500), and personal initiative training treatment group (n = 500). Table S2 shows the balance of baseline observables among the three groups.

The traditional business training treatment group was invited to receive the Business Edge training program, which is an internationally accredited program developed by the International Finance Corporation. The content of the training

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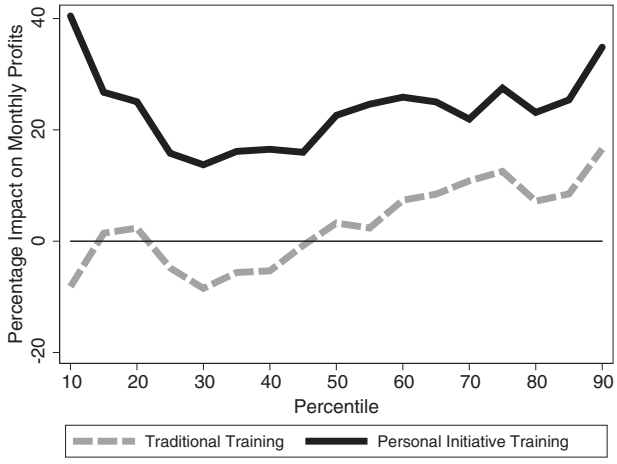

Fig. 1. Quantile treatment effects on monthly profits show greater gains from personal initiative training across the distribution. Plotted are estimates from quantile regression of the inverse hyperbolic sine transformation of profits, which behaves like the logarithmic transformation but allows for zeroes and negative values. The regression pools data across all four rounds of follow-up surveys, controlling for survey round effects and baseline profits. The difference between the two training programs is statistically significant at the 10% level or lower for all percentiles shown, except for the 15th (P = 0.13) and the 70th (P = 0.20). The P values for testing equality of these effects are shown in fig. S2.

Table 1. Impact of training programs on business survival, profitability, and sales. Data are from four rounds of surveys and show the average impacts over the 2.5 years after training. All regressions include randomization strata and survey wave dummies. Huber-White robust standard errors (in parentheses) are clustered at the firm level. Business survival is a binary indicator that takes the value 1 if the business survives. Sales are winsorized (capped) at the 99th percentile and profits at the 1st and 99th percentiles, reducing the influence of outliers. Sales and profits are expressed in terms of real CFA francs. The profits and sales index is the mean of the standardized z-scores of our various profits and sales measures. An F test was used to test equality of the impacts of the two training programs. *P < 0.1; **P < 0.05; ***P < 0.01.

	Business survival	Monthly sales	Monthly profits	Weekly profits	Profits and sales index
Traditional business training	−0.005	38,077	10,746	3086	0.029
	(0.008)	(57,812)	(6802)	(2050)	(0.030)
Personal initiative training	−0.003	114,733*	28,709***	6685***	0.100***
	(0.008)	(58,619)	(7110)	(1979)	(0.031)
Number of observations	5792	5642	5642	5633	5643
Number of firms	1499	1492	1492	1492	1492
P value from test of equality of treatments	0.813	0.171	0.014	0.091	0.025
Control group mean	0.960	680,807	96,089	30,417	0.000

focused on four core topics: accounting and financial management, marketing, human resource management, and formalization. Of those invited to training, 83.8% participated.

The other treatment group was offered a new personal initiative training program. The content of this program is very different from that of traditional business training programs, focusing on teaching a mindset of self-starting behavior, innovation, identifying and exploiting new opportunities, goal-setting, planning and feedback cycles, and overcoming obstacles. Of those invited, 84.4% participated.

Table S3 and section 2 of the supplementary materials provide detailed information on each program. Both training programs were implemented in three half-day sessions per week over 4 weeks in April 2014, for a total of 36 hours of classroom instruction. This was followed by a trainer visiting each business for 3 hours, once per month, for the next 4 months to answer any follow-up questions and assist with the implementation of the concepts learned during training. Entrepreneurs enrolled in the training were required to pay a highly subsidized fee of 5000 CFA francs (about US$10).

Four rounds of follow-up surveys were collected between September 2014 and September 2016, enabling us to track business outcomes for up to 2 years and 5 months after the trainings took place. Attrition rates were reasonably low, averaging 9%. Section 2 of the supplementary materials describes how the key outcome measures were constructed and details the estimation methodology, which was set out in advance in a registered preanalysis plan (https://www.socialscienceregistry.org/docs/analysisplan/329/document).

Our main hypothesis was that personal initiative training can be more successful than traditional business training in helping firms survive, sell more, and increase their profitability. We tested this hypothesis by assessing the intention-to-treat impacts of being assigned to either training program (Table 1). We pooled impacts over the four posttreatment waves to maximize statistical power, with the coefficients then representing the average impact over the 2.5 years after treatment (*19*). Figure S1 shows the trajectory of impacts on profits over time. Impacts were lower in the third round, during a period of post-election uncertainty, but we cannot reject that the round-by-round impacts of personal initiative training are equal to the pooled estimate (section 3 of the supplementary materials).

Ninety-three percent of control group entrepreneurs were still operating a business at the time of our last survey round, and neither training program had a significant impact on firm survival. Although the point estimates were positive, the impact of traditional business training was not significant for sales, profits, or an aggregated index of these measures. In contrast, we found larger and statistically significant impacts of personal initiative training on all of these measures. Monthly sales increased by 114,733 CFA francs (US$241), which is a 17% increase relative to the control mean, and monthly profits by 28,709 CFA francs (US$60), a 30% increase relative to the control mean. Personal initiative training had a significantly higher impact than traditional business training on monthly and weekly profits and on the aggregate index of sales and profits outcomes.

The resulting increase in firm profits occurred across the distribution (Fig. 1). Entrepreneurs who went through personal initiative training earned higher profits than those in the traditional training or control groups at every percentile. This result is robust to alternative transformations of sales and profits (table S7 and section 4 of the supplementary materials). We cannot reject that there was no differential effect of either training according to gender (table S8). Personal initiative training therefore helps female- as well as male-owned businesses to grow, in contrast to the documented outcomes of many traditional training programs.

How does personal initiative training enable businesses to grow by more than traditional training? We examined several key mechanisms (Table 2) and conducted further exploration (section 5 of the supplementary materials).

The first column of results in Table 2 shows the impact on the proportion of core business practices that firms used. Traditional business training led to a 6-percentage-point increase in the number of good business practices used, which is consistent with the impact of several International Labor Organization training programs (*5*). However, without explicitly focusing on teaching these practices, personal initiative training resulted in almost the same total increase in business practices. This occurred through changes in a wide range of practices (table S12), although traditional training improved record-keeping practices more. The second column looks at the measure of personal initiative exhibited in the business. Although traditional business training led to a

Table 2. Mechanisms through which training operates. Huber-White robust standard errors (in parentheses) are clustered at the firm level. *P < 0.1; **P < 0.05; ***P < 0.01.

	Business practices	Personal initiative	Capital and labor inputs	Innovation index	Diversified product line	Access to finance index
Traditional business training	0.060*** (0.008)	0.065*** (0.015)	0.032* (0.020)	0.117*** (0.050)	0.044** (0.018)	0.070** (0.033)
Personal initiative training	0.054*** (0.007)	0.124*** (0.015)	0.078*** (0.020)	0.309*** (0.070)	0.092*** (0.018)	0.147*** (0.040)
Number of observations	5646	5538	5655	5639	5632	4207
Number of firms	1492	1484	1492	1492	1492	1473
P value from test of equality of treatments	0.458	0.000	0.024	0.011	0.010	0.043
Control group mean	0.618	4.32	0.000	0.000	0.335	0.000

significant increase, the impact was almost twice as large from the personal initiative training. We view this as evidence of changing the psychological mindset (*20*), and in section 5 of the supplementary materials, we discuss how mindset differs from underlying personality traits, show robustness to alternative measures of personal initiative (table S9), and show that the impact is enduring, lasting through the final survey round (table S10).

The third column shows an aggregate index measure of different capital and labor inputs. Both training programs led to firms using more inputs, but the impact was significantly larger with personal initiative training. Examining the components of this index (table S13), we found that these firm owners used more labor and made more big investments but did not use more paid workers or have higher levels of inventories than those who received traditional training.

Personal initiative training led to a 0.31-standard-deviation increase in an aggregate index of innovation activities (fourth column of Table 2), which is significantly larger than the 0.12-standard-deviation increase from traditional training. In particular, firms that went through personal initiative training introduced more new products, and these new products were more likely to be their own idea and new for the neighborhood, rather than copied from others (table S14). A consequence is that these firms were more likely to diversify into a different product line (fifth column of Table 2). Personal initiative training led to a 0.15-standard-deviation increase in an aggregate index of access to finance (last column of Table 2), which is double the impact of the traditional business training. Firms were not more likely to receive a loan after training, but there was an increase in the amount that they thought they could borrow and an increase in the amount actually borrowed. The personal initiative training also had large and statistically significant impacts on the amount received from gifts, which was not the case for the traditional business training.

Using mediation analysis, we found that business practices, personal initiative, capital and labor inputs, the diversification of product lines, and access to finance jointly mediated the total effect of personal initiative training and its differential effect relative to traditional training (table S16).

The personal initiative training cost US$756 per invited participant (similar to the cost of the traditional training) and yielded a $60-per-month increase in monthly profits over the first 2 years. Thus, it was extremely cost-effective, paying back the cost within ~1 year. A lower bound on the return on investment (ROI) is 82%; using different assumptions on how quickly the benefits might disappear beyond our sample period, we estimate ROIs ranging from 140 to 393% over a 10-year period (section 6 of the supplementary materials).

Taken together, our results show how a psychological mindset training approach can lead to innovation and improved entrepreneurial success, thereby providing support for a middle ground between entrepreneurship being "born" versus "made." Moreover, the impacts on intermediate channels suggest that personal initiative training largely enables firm owners to still obtain the key benefits of traditional training in terms of improved business practices and some input changes. However, by helping the entrepreneur to become more proactive and constantly search for new opportunities, it also enables additional gains through encouraging owners to innovate, thereby differentiating themselves from other businesses and developing new areas for their business. The results therefore indicate the promise of psychology to better influence how small business training programs are taught and show the importance of not just learning the business practices of successful entrepreneurs, but developing an entrepreneurial mindset.

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SUPPLEMENTARY MATERIALS

www.sciencemag.org/content/357/6357/1287/suppl/DC1
Materials and Methods
Supplementary Text
Figs. S1 and S2
Tables S1 to S16
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Helping people and their businesses grow

Many lower-income people in developing countries do not receive a wage but instead are self-employed in small firms of fewer than five workers. Helping entrepreneurs to grow small businesses by teaching them formal business skills has yielded mixed results. Campos *et al.* show that teaching entrepreneurial skills to the self-employed works much better in terms of increasing both sales and profits. The entrepreneurial training relies on psychological mechanisms that enhance personal initiative.

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