This article was downloaded by: [142.126.163.2] On: 30 March 2022, At: 13:32
Publisher: Institute for Operations Research and the Management Sciences (INFORMS)
INFORMS is located in Maryland, USA

Management Science

Publication details, including instructions for authors and subscription information:
http://pubsonline.informs.org

Social Skills Improve Business Performance: Evidence from a Randomized Control Trial with Entrepreneurs in Togo

Stefan Dimitriadis, Rembrand Koning

To cite this article:
Stefan Dimitriadis, Rembrand Koning (2022) Social Skills Improve Business Performance: Evidence from a Randomized Control Trial with Entrepreneurs in Togo. Management Science

Published online in Articles in Advance 08 Mar 2022

. https://doi.org/10.1287/mnsc.2022.4334

Full terms and conditions of use: https://pubsonline.informs.org/Publications/Librarians-Portal/PubsOnLine-Terms-and-Conditions

This article may be used only for the purposes of research, teaching, and/or private study. Commercial use or systematic downloading (by robots or other automatic processes) is prohibited without explicit Publisher approval, unless otherwise noted. For more information, contact permissions@informs.org.

The Publisher does not warrant or guarantee the article's accuracy, completeness, merchantability, fitness for a particular purpose, or non-infringement. Descriptions of, or references to, products or publications, or inclusion of an advertisement in this article, neither constitutes nor implies a guarantee, endorsement, or support of claims made of that product, publication, or service.

Copyright © 2022, INFORMS

Please scroll down for article—it is on subsequent pages

With 12,500 members from nearly 90 countries, INFORMS is the largest international association of operations research (O.R.) and analytics professionals and students. INFORMS provides unique networking and learning opportunities for individual professionals, and organizations of all types and sizes, to better understand and use O.R. and analytics tools and methods to transform strategic visions and achieve better outcomes.
For more information on INFORMS, its publications, membership, or meetings visit http://www.informs.org

http://pubsonline.informs.org/journal/mnsc

MANAGEMENT SCIENCE
Articles in Advance, pp. 1–23
ISSN 0025-1909 (print), ISSN 1526-5501 (online)

Social Skills Improve Business Performance: Evidence from a Randomized Control Trial with Entrepreneurs in Togo

Stefan Dimitriadis,[a,*] Rembrand Koning[b]

[a] Rotman School of Management, University of Toronto, Toronto, Ontario M5S 3E6, Canada; [b] Harvard Business School, Harvard University, Boston, Massachusetts 02163
* Corresponding author

Contact: stefan.dimitriadis@rotman.utoronto.ca, https://orcid.org/0000-0003-4699-4832 (SD); rem@hbs.edu, https://orcid.org/0000-0002-6453-0831 (RK)

Received: June 25, 2020
Revised: April 14, 2021; August 20, 2021
Accepted: September 29, 2021
Published Online in Articles in Advance: March 8, 2022

https://doi.org/10.1287/mnsc.2022.4334

Copyright: © 2022 INFORMS

Abstract. Recent field experiments demonstrate that advice, mentorship, and feedback from randomly assigned peers improve entrepreneurial performance. These results raise a natural question: what is preventing entrepreneurs and managers from forming these peer connections themselves? We argue that entrepreneurs may be under-networked because they lack the necessary social skills—the ability to communicate effectively and interact collaboratively with new acquaintances—that allow them to match efficiently with knowledgeable peers. We use a field experiment in the context of a business training program in Togo to test if a short social skills training module increases the number and complementarity of peers that participants choose to learn from. We find that social skills training led entrepreneurs to match with 50% more peers and that more of those matches were based on complementary managerial skill. Finally, the training also increased entrepreneurs' monthly profits by approximately 20%. Further analyses point to improvements in networking and advice as the drivers of performance improvements. Our findings suggest that social skills help entrepreneurs build relationships that create value for both themselves and their peers.

History: Accepted by Alfonso Gambardella, business strategy.
Funding: This work was supported by the Ewing Marion Kauffman Foundation [Dissertation Fellowship] and the Strategic Management Society [SRF Dissertation Fellowship].
Supplemental Material: The online appendix and data are available at https://doi.org/10.1287/mnsc.2022.4334.

Keywords: social skills • business performance • entrepreneurs • peer relationships • field experiment

1. Introduction

Strategy and entrepreneurship researchers have long studied differences in firm performance and growth. Recently, these researchers have turned to randomized control trials (RCTs) to rigorously test whether different strategies—such as adopting a scientific approach to decision making, making public political statements, or sharing performance information with employees—explain why some businesses succeed while others fail (Chatterji et al. 2016, Blader et al. 2020, Burbano 2020, Camuffo et al. 2020). A recurring theme from many RCTs is that who an entrepreneur talks to about their business matters for what she learns and how well her business does (Eesley and Wu 2019, Hasan and Koning 2019a, Quinn and Woodruff 2019, Vega-Redondo et al. 2020, Iacovone et al. 2022). In these field experiments, entrepreneurs who were randomized to have more peers, or peers who were more knowledgeable, performed substantially better than their counterparts, who relied only on their pre-existing relationships.

These field experiments suggest a puzzle. If researchers can exogenously introduce new peer relationships into entrepreneurs' networks, and if the returns to these interventions are significant, why do entrepreneurs not form these relationships themselves? The peer treatments deployed by researchers are simple: bringing entrepreneurs together for dinner (Cai and Szeidl 2018), a daylong work group (Sandvik et al. 2020), a weekend retreat (Chatterji et al. 2019), or even merely revealing how much nearby competitors charge for their services (Kim 2021). All these interventions are activities entrepreneurs could do for themselves. Yet, despite the significant impact of exogenously assigned peers on entrepreneurs' performance, there is consistent evidence that entrepreneurs fail to form what should be valuable peer relationships (Ingram and Morris 2007, Vissa 2012, Caria and Fafchamps 2020).

We argue that entrepreneurs fail to build valuable peer relationships because they lack the necessary *social skills* to effectively find, connect with, and learn from their peers. We take social skills to be entrepreneurs' ability to reach out to others, communicate effectively, and approach interactions with new acquaintances collaboratively. Such social skills have

been found to be valuable in jobs that involve teamwork and high levels of interaction (Deming 2017, Argote et al. 2018, Hoffman and Tadelis 2021), which suggests that they might also help business founders and owners. Despite their value, however, strategy research suggests that there is significant variation among entrepreneurs and managers in their social skills, which tend to be learned experientially (Zander and Kogut 1995, Hallen and Eisenhardt 2012, Blader et al. 2015, Argote and Fahrenkopf 2016).

Here we use a field experiment in Togo to test whether training entrepreneurs in social skills can improve relationship formation and firm performance. We worked with a business training program to develop a two-hour social skills training intervention as part of their two-day marketing training program. Crucially, we randomized which cohorts in the program received the social skills training module and which did not, holding constant the rest of the material taught. This experimental design allowed us to separate the impact of social skills from observed and unobserved differences in entrepreneurs' network composition and business ability. The 301 entrepreneurs who took part in the program were surveyed before the training, at the end of the program, six weeks after, six months after, and a year later.

Results from our analyses show that, even when limited to a brief introduction, teaching social skills leads to a cascade of changes in entrepreneurs' patterns of interaction and the relationships they form with coparticipants: conversations are twice as informative, interactions are more collaborative, networks 50% larger, ties are more complementary, and connections more ethnically diverse. Indeed, we find that the treatment leads to aggregate improvements across various dimensions of entrepreneurs' social interactions both with coparticipants and others outside the training program.

Alongside these social changes, we find that entrepreneurs in the treatment condition were 20% more profitable than those in the control during the year after the program. Using exploratory causal mediation analysis, we show that approximately 85% of this performance effect is mediated by changes in entrepreneurs' social interactions during and after the training program. Our findings suggest that training entrepreneurs in social skills results in more useful social interactions that in turn help entrepreneurs improve business performance.

Our findings make four primary contributions. First, we contribute to the literature on the social origins of competitive advantage. Prior work in this area has largely focused on structural forms of network advantage—occupying a brokerage position or being connected to a talented peer—that are inherently zero-sum, because only a handful of firms can be brokers or connected to superstars. Here we show that social skills enable entrepreneurs to overcome social barriers and form mutually beneficial matches with peers, which generates value in a positive-sum fashion.

Second, we add to the growing literature in strategy and entrepreneurship that uses field experiments to causally test the value of different managerial choices (Boudreau and Lakhani 2015, Chatterji and Toffel 2016, Gallus 2017, Boudreau and Marx 2019, Camuffo et al. 2020, Delecourt and Ng 2021, Guzman et al. 2020). Past RCTs in strategy have shown that entrepreneurs benefit from interventions that introduce new relationships into their networks, suggesting many entrepreneurs may be under-networked (Chatterji et al. 2019, Vega-Redondo et al. 2020). Rather than randomize ties, our RCT randomized exposure to the skills needed to build those ties.

Third, this study also contributes to the literature on the origins of interfirm business relationships. Existing research has primarily explained the formation of business relationships and networks using the characteristics of dyads and the pre-existing networks in which they are embedded (McFarland et al. 2014). Here we show that entrepreneurs' social skills influence the kinds of ties and networks that emerge.

Finally, this study also contributes to research on entrepreneur and management training programs in developing economies (McKenzie and Woodruff 2014). A rapidly growing literature on bootcamps, accelerators, and other training programs has found mixed results about their effectiveness (Cohen et al. 2019, McKenzie 2021). Our findings suggest that variation in the effectiveness of these programs, particularly those set in developing countries, might be related to whether they foster effective socialization and peer learning.

2. Entrepreneur Peer Relationships

Entrepreneurs rely on a variety of relationships to grow their businesses, and, among those relationships, peers are particularly influential. They often provide access to resources, information, and knowledge, which help entrepreneurs improve their businesses' performance (Stuart and Sorenson 2007). In particular, peers help entrepreneurs learn about the process of opportunity identification and how to launch a business (Nanda and Sørensen 2010, Lerner and Malmendier 2013, Vega-Redondo et al. 2020). They are sources of valuable information, including client referrals and opportunities for financing (Cai and Szeidl 2018). Their informal advice improves entrepreneurs' management practices (Chatterji et al. 2019), and peers who also happen to be executives can encourage entrepreneurs to adopt innovations (Fafchamps and

Quinn 2018, Giorcelli 2019). Finally, peers motivate business owners to continue improving their businesses despite challenging circumstances (Zuckerman and Sgourev 2006).

The strongest evidence about the value of peer relationships has emerged out of field experiments that exogenously introduce peers into entrepreneurs' networks through a variety of mechanisms including assignment to groups, training bootcamps, or mentoring programs (Blattman et al. 2016, Eesley and Wang 2017, Cai and Szeidl 2018, Chatterji et al. 2019, Iacovone et al. 2022). These interventions causally identify the impact of peer relationships on entrepreneurs' business performance (Quinn and Woodruff 2019). Although often overlooked, an important implication of this research is that most entrepreneurs may be under-networked and so operating far from the "social frontier."

3. Social Skills and the Formation of Peer Relationships

We argue that many entrepreneurs are under-networked, at least in part, because forming new relationships requires social skills. Qualitative research and practitioner publications have long documented the "people skills" that managers and entrepreneurs use to build relationships (Baron and Markman 2000, Edmondson 2012, Bensaou et al. 2013, Casciaro et al. 2016). These skills, which have also been called "interpersonal" or "soft," involve the ability to work well with others by communicating effectively and establishing a cooperative rapport (Heckman et al. 2013, Borghans et al. 2014, Deming 2017). This includes initiating interactions, engaging new acquaintances by asking questions, disclosing information about oneself, listening to others, and maintaining the conversations' focus (Riggio 1986, Buhrmester et al. 1988, Riggio and Reichard 2008, Pichler and Beenen 2014). In contrast to cognitive skills, which refer to individuals' technical abilities, social skills are about people's ability to engage with others.

At a high level, social skills lower the costs of forming valuable business relationships. The skills outlined previously should improve interactions, which reduces the time and effort required to discover new connections (Watts 2001, Jackson 2003, Boudreau et al. 2017). Social skills also reduce the cost of building new relationships by helping individuals coordinate on a common vocabulary, establish mutual understanding, and gain trust (Yamagishi et al. 1999, Weber and Camerer 2003, Lopes et al. 2004). Once formed, social skills also lower the cost of learning within relationships, thus increasing the benefit of those relationships (Baron and Markman 2000).

4. Introducing Entrepreneurs to Social Skills

Given that social skills reduce tie formation costs and increase the benefit of interpersonal interactions, why do some entrepreneurs lack them? Crucially, social skills in business are learned (Riggio 1986, Walker et al. 1997). Individuals who possess them often acquire them by accumulating experience interacting with others in professional settings (Casciaro et al. 2016, Kuwabara et al. 2018) or are taught them from mentors, managers, or instructors in professional programs (Hallen and Eisenhardt 2012, Bensaou et al. 2013).

In fact, field experiments in nonbusiness contexts show that augmenting existing educational programs with material focused on social and interpersonal skills leads to dramatic long-term improvements. For example, one field study of an early childhood education program found that teaching U.S. children personality skills, especially those rooted in conflict resolution and cooperation, likely caused large improvements in employment and earnings in adulthood (Heckman et al. 2013). Similarly, another RCT found that teaching interpersonal "win-win" negotiation skills to Zambian teenage girls meaningfully improved their educational outcomes (Ashraf et al. 2020). In both cases, social skills were both taught directly by the teachers *and* through role-play and practice with peers.

These studies suggest that including social skills training as part of an existing business training program might be an effective way to improve entrepreneurs' social interactions and subsequent business performance. Not only do business training programs provide a natural setting to teach entrepreneurs new practices, but the presence of peers allows participating entrepreneurs to immediately try out their new-found social skills. Furthermore, these within-program interactions are likely to be particularly useful as coparticipants, also trained in social skills, are likely to reciprocate with valuable knowledge and advice. Although we think social skills training is likely to "spill over" to interactions with outsiders, it should first and foremost impact the quality and quantity of peer-to-peer relationships within the program. Building on these arguments, in the next section we develop a set of five hypotheses focused on how teaching social skills to groups of entrepreneurs impacts interactions between coparticipants and the effect of these changes on business performance.

4.1. Social Interactions

We expect that teaching entrepreneurs social skills will have a series of cascading effects, beginning with their

perceptions of and engagement in interactions with other entrepreneurs who received the same training. If social skills improve entrepreneurs' ability to initiate interactions, focus those interactions on discussing business issues and involve showing interest in others' businesses, then entrepreneurs should be able to achieve meaningful conversations with new acquaintances more rapidly. Put differently, social skills reduce the cost of coordinating interactions, engaging others, and developing a mutual sense of understanding. This should make interactions feel easier and more collaborative. With an increased sense of collaboration and openness to others, these entrepreneurs should find more opportunities to give and receive advice (Hasan and Koning 2019b), thus increasing the amount of information exchanged in a given conversation. Hence, social skills should make interactions feel more collaborative and more informative.

Hypothesis 1. *Social skills training will lead entrepreneurs to perceive interactions as more collaborative and exchange more information during interactions.*

4.2. Relationship Formation

Beyond changes in how entrepreneurs approach conversations, we also expect social skills to impact who entrepreneurs choose to build relationships with. We have argued that social skills reduce the cost and effort of interactions. A simple consequence of reducing social costs is that entrepreneurs should then interact with more of their peers and so identify more peers worth keeping in touch with. These may be people that entrepreneurs felt like they hit it off with, whom they were able to infer were trustworthy, or whom they believed to possess information that is useful to them.

Hypothesis 2. *Social skills training will lead entrepreneurs to form more new relationships with other entrepreneurs from the training program after the program has ended.*

4.3. Skill Complementarity

An important concern with any intervention that increases entrepreneurs' number of relationships is that the intervention might lead to additional business ties but that that these new ties may not provide access to helpful information or new resources. We argue that, unlike mixers and other structural interventions (Ingram and Morris 2007, Carrell et al. 2013), improving entrepreneurs' social skills will result in entrepreneurs choosing to match with partners who provide value to them.

Entrepreneurs with better social skills face fewer costs in gaining information about their new acquaintances and so should be better able to evaluate the potential value of connecting with a peer. In particular, they are likelier to identify whether their peers' expertise or knowledge are redundant or complementary to their needs.

These arguments suggest that improved social skills should not just increase the number of relationships but also the quality of the match. A first-order concern for entrepreneurs is the acquisition of better management skills and practices (Bloom et al. 2013). We expect that entrepreneurs with better social skills will be more likely to connect with peers who have complementary managerial skills. Building on the concept of task complementarity of Vissa (2011), we define skill-complementary business relationships as those that connect an entrepreneur with another entrepreneur who possesses a management skill that the focal entrepreneur wants to learn.

Hypothesis 3. *Social skills training will lead entrepreneurs to form more skill-complementary relationships with other entrepreneurs from the training program after the program has ended.*

4.4. Ethnic Diversity of Relationships

If entrepreneurs are forming connections based on skill complementarity, then on what dimensions are they no longer building relationships? People often form relationships based on shared social characteristics—gender, ethnicity, or nationality— because these help coordinate communication and signal trustworthiness (Yamagishi et al. 1998, Dahlander and McFarland 2013). Social skills enable better communication and hence reduce entrepreneurs' need to rely on these kinds of social characteristics to assess the trustworthiness and usefulness of a prospective tie. In places that are ethnically diverse, a particularly important social characteristic that predicts the formation of relationships is comembership in an ethnic group (Yenkey 2015). Entrepreneurs with better social skills, however, are less likely to rely on ethnic group membership as a basis for relationship formation. Rather, they are more likely to assess the value of a prospective tie based on the skills and information to which they provide access. By contrast, entrepreneurs with fewer social skills are likely to form ties that are concentrated within their own ethnic group, because this a common—albeit noisy and often biased—way of inferring who is useful to talk to. As a result, we expect that entrepreneurs with better social skills will form new relationships that are less concentrated within any particular ethnic group.

Hypothesis 4. *Social skills training will lead entrepreneurs to form relationships with other entrepreneurs from the training program after the program has ended that are less concentrated in one ethnic group.*

4.5. Entrepreneurial Performance

In addition to changing the quantity and kinds of peer relationships that entrepreneurs form, we also expect socials skills to affect their performance. As described

earlier, entrepreneurs with larger and more knowledgeable sets of peer relationships tend to perform better in terms of their survival, financing, and profitability (Baum et al. 2000, Shane and Cable 2002, Chatterji et al. 2019). Peers improve entrepreneurs' performance by providing information about market opportunities, increasing the chances that an entrepreneur will come across a valuable new practice and by providing better access to funding and investments (Hochberg et al. 2007, Stuart and Sorenson 2007, Vega-Redondo et al. 2020). Given that entrepreneurs with better social skills are likely to form more new relationships, and especially relationships that are skill-complementary, they should have better access to sources of information, knowledge, and advice, which might lead them to learn a new managerial practice or to gain a customer referral. As a result, entrepreneurs with better social skills are not only likelier to have a larger number of peer relationships that are more diverse, they're also likelier to receive richer and more useful business advice.

Hypothesis 5. *Social skills training will lead entrepreneurs to earn more profits.*

5. Experimental Methods

5.1. Research Setting: "Marketing in Action" Business Training Program

To study the impact of social skills we worked with a business training program for entrepreneurs in Togo's capital, Lomé. The context of the program allowed us to exogenously change entrepreneurs' social skills by exposing a subset of participants to a social skills training module. The business training program was organized by the Association of Young Entrepreneurs of Togo (Association des Jeunes Entrepreneurs Togolais) in collaboration with the Energy Generation Academy. Both organizations are leading nonprofits in Togo that promote entrepreneurship and have been doing so in part by hosting training events for entrepreneurs since 2012. In the spring of 2017, they invited entrepreneurs to participate in a training program called "Marketing in Action," which taught entrepreneurs basic marketing practices for their businesses. In collaboration with the organizers, we created an experimental intervention to expose entrepreneurs to social skills. We randomly selected half of the participating cohorts of entrepreneurs into this "social skills" condition.[1]

Togo is a small, francophone country in West Africa that is representative of countries designated by the World Bank as low income. According to the World Bank's "Ease of Doing Business Index," which is a measure of the challenges involved in operating a business, Togo scored 54.9 out of 100 in 2018, which is close to the regional sub-Saharan average of 52.6 (World Bank 2019). Togo is similarly representative of African countries in terms of its social capital. The 2016/2018 Afrobarometer, a survey of 37 African countries, reported that 24.6% of Togolese respondents participate in voluntary associations or community groups, which is nearly identical to the African average of 24.2% (Afrobarometer 2019). In settings such as Togo, social relationships are central to most aspects of business because formal institutions are too weak to safeguard market transactions (Khanna and Palepu 2010). Togo was therefore a promising field site because entrepreneurs were likely to place value on social ties, but not have access to training on social skills.

To better develop our intervention and understand the context, we conducted interviews with entrepreneurs in Lomé before the launch or our experiment. Online Appendix A1 describes the qualitative methods used and illustrative quotes from entrepreneurs interviewed. The interviews revealed that entrepreneurs were largely aware of the value of peer relationships, but often struggled to connect with new acquaintances. For example, one entrepreneur said:

> "I find that the way we are educated here is that entrepreneurs have good ideas but they cannot implement them because they cannot approach other people to discuss them." (YE 13)

When trying to understand why these difficulties existed, entrepreneurs often turned to cultural narratives related to a lack of knowledge about how to build relationships in business. One entrepreneur expressed it like this:

> "I think this is something that one has to be trained in: building relationships.
>
> [Interviewer:] How come?
>
> There may be a cultural side that plays out in this, well, for example: we go to the market, the business and entrepreneurship that we have always known there is our moms selling things, that's essentially it. And it is the customers who come to them, they never really worked out a business strategy to call people or reach out to others, all of those things just don't really exist. Is that what explains it? Well, it may be precisely a lack of training on this aspect." (YE 6)

5.2. Participating Entrepreneurs and Randomization

The Marketing in Action program solicited participants from throughout Lomé. The program was advertised to local entrepreneurs through social media and a network of local nonprofit organizations. In addition to advertising, a team of three canvassers visited businesses door-to-door in all major commercial districts to

invite the owners to participate. The requirements for participation were that entrepreneurs' businesses had been in operation for at least one year and that they be based in the city of Lomé. In addition, participants were asked to pay a small participation fee (approximately 5 USD), which was reimbursed to them on successful completion of the training. All the entrepreneurs who participated in the training were both owners and founders of their businesses.

The recruitment process yielded 326 participants, whom we split into 14 groups, each with 20–25 entrepreneurs. Program dates were filled one after the other on a sequential basis as individuals registered. Once all the groups had been filled, 7 of the 14 groups were randomly selected into the social skills condition using a random number generator in Excel. Our sample size is larger than comparable field experimental studies on management and advice, which in one case randomized 100 entrepreneurs into 50 pairs and in another case randomized 11 manufacturing firms into 5 treatment and 6 control groups (Bloom et al. 2013, Chatterji et al. 2019).[2] The timeline and implementation of the field experiment are detailed in Online Appendix A1.

5.3. Business Training Content and Instructors

The training program curriculum was adapted from programs carried out by the International Labor Organization (ILO) in developing countries (for a review, see McKenzie and Woodruff (2014)). Typically, these programs bring together business owners for short courses on basic management practices. The Marketing in Action program used the ILO training course on marketing for small business owners, called the "Start and Improve Your Business Programme" (ILO 2014). The content covered eight basic marketing practices: finding out what competitors charge; their products and services; finding out what else clients would buy; researching former clients; researching suppliers; using promotions; advertising; evaluating the advertising. The training lasted for two days, from 8 a.m. to 6 p.m. each day, for an approximate total of 20 hours per cohort. Two new groups of entrepreneurs started each week: one on Monday and one on Wednesday.

The training program was taught by two instructors, who were local consultants. The instructors taught the classes together, following a strict schedule. There were catered coffee and lunch breaks each day. The program also included a networking event at the end of the two days. During this networking event, after all the teaching material had been covered, participants were randomly assigned three discussion partners from within the same class. Participants were then given space for private one-on-one conversations with each of their discussion partners. These conversations lasted approximately 30–45 minutes each. During the conversations, participants were given writing materials to take notes on their conversations.

5.4. Experimental Treatment

To test whether improving social skills shapes entrepreneurs' interactions, business relationships, and profitability, we randomly assigned cohorts of entrepreneurs in the Marketing in Action program into two conditions, a "social skills" treatment condition and a control condition. Participants in the treatment condition began the two-day training program with a two-hour training session on social skills. Prior field experimental research has used such training sessions and lectures as treatments to improve people's skills and practices (Paluck 2011, Cable et al. 2013, Ashraf et al. 2020). After the social skills training session, the treatment groups followed a series of interactive lectures during the remaining two days that covered marketing practices. The control group followed the exact same training program, except that they were not given the two-hour training module on social skills. Instead, the lectures on marketing practices were covered at a slightly slower pace to make up for the two hours that the treatment group spent on social skills.[3] As a result, both control and treatment groups spent exactly the same number of hours together.

Our treatment, the two-hour interactive training session, introduced entrepreneurs to social skills in business. The main objective of the training session on social skills was to equip entrepreneurs with a collaborative attitude toward interactions with peers who were previously unknown to them and to teach them how to communicate effectively about business issues.

Table 1 provides an overview of the structure of the session. During the first hour, the first 20 minutes were spent defining interpersonal interactions in business settings. This created a common baseline for all participants about what interactions entail, what steps are involved, and which interactions are about business and which are not. This gave instructors the opportunity to acknowledge that interactions with others can often be complex and difficult, especially when involving strangers. We then emphasized that entrepreneurs were part of a larger business community in Lomé, made up of other entrepreneurs, established businesses, associations, clients, and stakeholders in their businesses. As members of this community, they had a vested interest in the success of others. Providing this perspective broadened the group boundaries to which entrepreneurs' felt like they belonged and decreased their sense of social distance from "generalized others" in the business community.

Having established this common baseline and common community membership, the instructors spent minutes 20 to 40 discussing what collaborative interactions entail and why they are important. Entrepreneurs

Table 1. Structure of Social Skills Training Session

Step	Duration	Content
1	20 minutes	*Interactions in business*: Instructors bring attention to interpersonal interactions in business. They define interpersonal interactions and describe what they often involve. Emphasize that entrepreneurs are members of the local business community, which includes other entrepreneurs, and that they have a vested interest in others' success.
2	20 minutes	*Adopting a collaborative approach*: Having created a common starting point, instructors continue by teaching how entrepreneurs can use a collaborative approach in their interactions with others. This involves asking questions about others' businesses, identifying problems or struggles others may be facing, and trying to offer help based on their own experiences and knowledge.
3	20 minutes	*Communicating about business*: Having described what collaborative interactions look like, the instructors show entrepreneurs what interactions that focus on business topics look like. These interactions consist of discussing developments in their businesses, as well as challenges. Communicating directly and clearly about business topics is a focus of this section.
4	1 hour	*Case study and questions*: This section begins with a description of practical steps for interactions: how to talk to new acquaintances, reaching out, following up. An interactive case discussion and commentary follows. The session ends with time for questions and answers.

were taught that collaborative interactions involve learning about others by asking them questions about their businesses and using their own experiences and knowledge to give advice (Casciaro et al. 2016). The act of giving advice signals generosity and caring, which helps establish a collaborative atmosphere for the interaction. It was then explained to entrepreneurs that collaborative interactions are important because they themselves could also gain from those interactions. Instructors illustrated the impact of the other party's gains on one's own outcomes and how early collaborative interactions could lead to long-term cooperation.

In the last 20 minutes of the first hour the entrepreneurs were taught about effective communication with other entrepreneurs. Instructors emphasized the importance of keeping the communication focused on issues related to business. They emphasized the importance of being clear and direct when asking questions or offering a perspective. Effective communication practices also involved simple steps like making sure to ask for contact information, sending thank-you notes, and following up.

The final hour of the training session involved working through an example of two entrepreneurs interacting, which mimicked real situations that entrepreneurs might face. This case was meant to reinforce entrepreneurs' understanding of social skills in practice and to provide an opportunity for them to engage interactively with the content of the session. This was followed by time for questions and answers.

The instructors who taught the social skills training session also taught the other materials in the two-day training program. The two instructors cotaught all materials; as a result, they were both present in all classes. As well as being consultants, the instructors were graduates of the local university, and each had several years of experience teaching courses to entrepreneurs. One of the authors taught the two instructors the content of the social skills training session, provided detailed instructions for the delivery of the training session, and worked with the consultants to refine the presentation. Although the instructors were trained to deliver the social skills session, they were blind to the design of the field experiment and the authors' outcomes of interest. The PowerPoint slides developed with the instructors for this session can be found in Online Appendix A18.

6. Data

The data for this study come from six sources: (1) pretreatment survey; (2) digitized participant notes; (3) training program exit survey; (4) six-week posttreatment survey; (5) six-month posttreatment survey; and (6) one-year posttreatment survey. The pretreatment survey and the three posttreatment surveys (sources 1, 4, 5, and 6) collected information from all participant entrepreneurs about their management practices, expenditures, revenues, employees, and demographics. The three follow-up surveys conducted after the training program (sources 4, 5, and 6) contained additional questions on contact with coparticipants; these were used to measure relationship formation. The digitized participant notes (source 2) are handwritten notes that participants took of their discussions with peers during a structured networking event, which were electronically scanned. The exit survey (source 3) asked all participants questions about their interactions during the two days of the program and their perceptions of one another, as well as their comprehension of the material taught. The survey questions used to construct the variables for our analyses can be found in Online Appendix A19.

All surveys were administered by the same two instructors who taught the training program. During

registration for the program, the instructors explained to the entrepreneurs about the follow-up survey process and that they themselves would be visiting the participants later to survey them. This helped build a sense of commitment and trust between the instructors and the participants.

A total of 326 entrepreneurs signed up to participate in the training program. We have relational outcomes—collaborative perception, information exchange, ties formed, skill complementarity, ethnic concentration—for 301 participants. Our performance results include 278 entrepreneurs who reported their profits at baseline and in at least one follow-up survey. Online Appendix A2 provides further details that suggest that attrition is most likely random, shows that attrition is not correlated with treatment status or pretreatment characteristics, and that our results hold when we estimate treatment effects using Lee (2009) bounds to account for any differential attrition between the treatment and control groups.

6.1. Dependent Variables

6.1.1. Collaborative Perception of Interactions. Hypothesis 1 is that entrepreneurs will perceive interactions during the training program as more collaborative than competitive after they are introduced to social skills. To measure entrepreneurs' perception of interactions, we asked them to think about the interactions they had had during the two days of the training program. We then provided them with a sheet of paper with a grid of 24 words, of which half represented concepts related to collaboration (such as *help*, *trust*) and the other half represented concepts related to competition (such as *grow*, *dominate*), and asked them to circle five words that they believed best represented these interactions.[4] Using this information, we created a measure of *collaborative perception of interactions* for each entrepreneur, which is a count variable equal to the total number of collaborative words selected from the grid of 24 words.

6.1.2. Information Exchange. Hypothesis 1 also states that entrepreneurs will exchange more information after they've been trained in social skills. To measure information exchange between entrepreneurs, we used data from a structured networking event at the end of the training program, during which each entrepreneur was successively paired with three randomly selected discussion partners. All participants were given pen and paper, and at the end of the event, their notes from their discussions were scanned. The total number of words that each participant wrote during their three discussions is used as a measure of *information exchange* (Aral and Van Alstyne 2011).

6.1.3. Relationship Formation. To measure relationship formation (Hypothesis 2), we used data from the follow-up survey conducted six weeks after the training program. During the follow-up survey, all participants were asked whether they had spoken over the phone or met in person with any other participants from the same training group after the program had ended, and they were asked to name those individuals. Using these data, we calculate the *number of relationships formed* as the total number of people entrepreneurs had kept in touch with (Vissa 2011, Piezunka and Dahlander 2019).

6.1.4. Skill Complementarity. Hypothesis 3 relates to the proportion of relationships formed with entrepreneurs who possess complementary business skills. The measure for skill complementarity is adapted from the dyad-level measure used by Vissa (2011) for task complementarity and captures whether the focal entrepreneur formed a relationship with another training-class participant who had a skill that the focal entrepreneur expressed a desire to learn.

To construct this measure, we use survey responses in which participants were asked to describe one issue in their business that they felt was the most pressing and that they wished to address. They were asked to select which category this specific issue fell into: (1) firm financing; (2) marketing; (3) stock and inventory management; (4) accounting and record keeping; and (5) planning for the future. In parallel, based on responses to the pretreatment survey, we coded each participant according to whether they used best practices in those five categories using the list of business best practices (which cover all five areas of expertise) developed by the World Bank (McKenzie and Woodruff 2018).

Using these two data points (i.e., the skill that each participant most desired to learn and each participant's portfolio of skills), we created an indicator of skill complementarity between each pair of participants i and j that was equal to one if participant j showed evidence of expertise in the domain in which participant i indicated they wanted to improve. Then, to bring this measure from the dyadic level to the individual level, we summed the *number of relationships with skill complementarity* that each entrepreneur formed.

6.1.5. Ethnic Concentration. Hypothesis 4 states that better social skills will lead to the formation of more diverse relationships. *Ethnic concentration* of relationships represents the level of concentration of the newly formed relationships across ethnic groups. Using the pretreatment data regarding each entrepreneur's ethnicity, we calculated the ethnic concentration of the relationships formed using Herfindahl

indexes, a common approach for measuring diversity in egocentric portfolios of relationships (Uzzi 1996). The index ranges between a minimum of $1/N$, where N is the number of possible categories represented in the sample and 1. The minimum value indicates that all relationships were equally distributed among the ethnicities, and the maximum value (1) indicates that all relationships formed were concentrated in one ethnicity. There are five ethnic groups, making the minimum value of the index 0.20.

6.1.6. Performance. Finally, Hypothesis 5 is about the performance of entrepreneurs' businesses. The measure for business performance comes from four surveys: a pretreatment survey at the beginning of the training and three posttreatment surveys at six weeks, six months, and one year after the training. In each survey, we asked participants about their businesses' profits in the month previous to the survey. Self-reported monthly profit is a standard measure of performance for small businesses in developing economies, which is highly correlated with other measures of performance based on accounting books (De Mel et al. 2009, Atkin et al. 2017).

6.2. Independent Variables

6.2.1. Treatment Group. The main independent variable in the analyses was whether the individual participated in a group that received the social skills treatment. Accordingly, we created a dummy variable equal to one for having received the treatment and zero for being in the control group.

6.2.2. Control Variables. Although the research design randomizes exposure to social skills, we also account for variation in the characteristics of entrepreneurs and their businesses in the regression models to improve power and further rule out the chance that our randomization was imbalanced. We control for three entrepreneur-level variables including *Ewe ethnicity*, coded as one if the participant was Ewe (the majority ethnic group in Lomé) and zero otherwise, gender by including an indicator for *female* entrepreneurs, and whether participants had *completed primary school*, which was coded as one if the participant had completed at least primary school and zero otherwise.

Furthermore, three control variables were included to capture various aspects of participants' businesses. We controlled for the size of participants' businesses using the number of *employees*, measured by the total number of full-time employees working in the business, the *firm age*, measured by the number of years since the business started producing and selling goods or services, and the extent to which each participant used established best practices for management in their businesses. Using the management practices score for small businesses in developing economies created by McKenzie and Woodruff (2018), we collected data through a series of "yes or no" questions about whether participants used each of the best practices in a list of 27 practices.[5] The *management practices score* of a participant's business is the proportion of the 27 questions to which the entrepreneur answered "yes."

We also include a series of 10 dummy variables created to capture entrepreneurs' sector of economic activity. The 10 sectors were tailoring and shoemaking, sale of food or drink, jewelry-making and sales, information technology sales and services, cosmetic and health services, construction, food processing and production, carpentry and metal works, rug manufacturing and weaving, and multimedia services.

Finally, we controlled for the training *class size*, which is equal to the number of entrepreneurs in each training program cohort. This was included to control for the number of prospective connections each actor had available, which could have a positive effect on the total number of relationships formed, but a negative effect on the level of familiarity with those individuals.

We report the summary statistics and bivariate correlations in Table 2. Most participants (78%) were members of the Ewe ethnic group and had completed primary school (75%). Approximately 64% of entrepreneurs were male. Entrepreneurs' businesses had on average one or two employees and had been in existence for 11 years. In general, larger businesses tended to be more profitable. Finally, in terms of best practices, entrepreneurs' businesses on average used about 60% of the practices defined by the World Bank for small businesses. The higher use of best practices was positively associated with firm size and age. In Online Appendix A2, we report balance tests, which explore whether baseline characteristics predict being in the treatment group. We find no statistically significant evidence that any baseline characteristics of the entrepreneurs or their businesses predicts receiving the treatment.

6.3. Estimation

Our estimation strategy builds on a preregistration plan,[6] but takes into account several outcome variables and their longitudinal structure that had not been anticipated. All dependent variables are cross-sectional, except for the performance dependent variable—log profits last month—which is a panel time series with four periods.

To test Hypotheses 1–3, we used a negative binomial model, which is appropriate for models where the dependent variable is a count with nonnegative values (Cameron and Trivedi 2009). The dependent variables to test these hypotheses are collaborative words selected, words written, relationships formed, and skill complementary relationships formed which are count variables. We include an offset in the

Table 2. Summary Statistics and Bivariate Correlations

	Variable	Mean	Standard deviation	1	2	3	4	5	6	7	8	9	10	11	12	13
1	*Collaborative perception of interactions*	2.691	0.928													
2	*Information exchange*	30.872	23.929	0.004												
3	*Num. of relationships formed*	1.983	1.704	0.062	0.134											
4	*Skill complementarity*	0.425	0.919	0.033	0.105	0.337										
5	*Ethnic concentration*	0.833	0.256	−0.037	−0.134	−0.382	−0.180									
6	*Profits at baseline (log)*	10.938	1.141	−0.122	−0.0552	−0.141	0.057	0.027								
7	*Social skills training*	0.518	0.500	0.131	0.571	0.229	0.117	−0.170	−0.050							
8	*Ewe ethnicity*	0.781	0.414	−0.008	0.099	0.188	0.057	0.031	0.047	0.015						
9	*Female*	0.355	0.479	0.057	0.021	0.042	−0.142	−0.005	−0.097	0.059	−0.083					
10	*Completed primary school*	0.748	0.435	−0.076	−0.022	−0.001	−0.099	−0.108	0.020	−0.107	−0.112	0.006				
11	*Employees*	1.795	3.341	−0.002	−0.086	−0.074	−0.046	0.066	0.286	−0.086	−0.044	−0.058	0.009			
12	*Firm age*	10.590	7.649	0.002	0.070	0.095	0.099	0.096	0.088	0.113	0.234	0.019	−0.410	0.032		
13	*Management practices score*	0.577	0.266	0.004	0.040	0.065	0.103	0.023	0.257	0.033	0.077	0.017	−0.126	0.128	0.261	
14	*Class size*	23.465	2.777	0.084	0.297	0.123	−0.002	−0.035	−0.100	0.397	0.057	0.076	−0.013	−0.055	−0.001	−0.114

Notes. $N = 301$ except for profits at baseline, which has an N of 278. This is because 23 participants had not tallied revenue and costs before the baseline survey. The high correlation between the social skills training and class size is because of the small number of training groups; the association is not statistically significant as shown in the balance table in Online Appendix A2.

negative binomial model for skill complementary relationships that is equal to the inverse hyperbolic sine of the total relationships formed, which adjusts the treatment effect estimate for the number of opportunities entrepreneurs had to form a skill complementary relationship. To test Hypothesis 4, we used fractional logit regression, which is appropriate for models where the dependent variable is a fraction, as in the case of ethnic concentration (Hypothesis 4) (Papke and Wooldridge 2008).

To ensure that our results are not model dependent, we also estimated the regressions testing Hypotheses 1–4 using ordinary least squares (OLS). This has the added benefit of making the interpretation of the results simpler. The statistical significance of our results held unchanged using this regression approach, as did the interpretation of the magnitudes of the effects. For details on these robustness checks, see Online Appendix A6.

Finally, to test Hypothesis 5, we used two empirical specifications. We began with a straightforward specification assessing the effect of social skills training on profits:

$$y_{it} = \alpha + \beta SocialSkills_i + \gamma_i y_{i0} + \boldsymbol{\rho}\, Controls_{i0} + \delta_s + \tau_t + \varepsilon_{it}, \tag{1}$$

where y_{it} is our performance measure (log monthly profits), $SocialSkills_i$ is an indicator variable for whether the entrepreneur received the treatment, y_{i0} are log monthly profits at baseline, $Controls_{i0}$ is a vector of control variables measured at baseline, δ_s are business sector fixed effects, and τ_t are survey wave fixed effects. Because we control for baseline profits, we cannot include observations from the baseline period in the regressions. McKenzie (2012) and Atkin et al. (2017) argue that Equation (1) performs well in the context of developing economies because profit variables are often measured with noise.

Our second specification uses a difference-in-differences modeling approach:

$$y_{it} = \alpha + \beta(SocialSkills_i \times PostTreatment_t) + \theta_t PostTreatment_t + \lambda_i + \tau_t + \varepsilon_{it}, \tag{2}$$

where $PostTreatment_t$ is an indicator of posttreatment time periods, and λ_i are entrepreneur fixed effects. This approach complements Model (1) by controlling for time invariant unobservable entrepreneur characteristics through the entrepreneur fixed effects. In Equation (2), the coefficient of interest is β, the interaction between the treatment and posttreatment dummies, which captures the treatment effect.

Equation (1) includes only baseline values of control variables to avoid biasing our estimates of the treatment effect (Acharya et al. 2016). In studies where the treatment is randomized, conditioning on posttreatment covariates can unbalance the treatment and

control groups with respect to other possible confounders, thereby making treatment estimates biased and inconsistent (Montgomery et al. 2018). We follow experimental best practices and include only baseline measures of covariates in Equation (1) (Gerber and Green 2012). These time invariant controls drop out of Equation (2) because of the entrepreneur fixed effects.

Finally, in both Specifications (1) and (2), we clustered standard errors by entrepreneurs' cohort in the training program (i.e., we let observations be independent across training groups but not necessarily across the participants of the same training group).

7. Results

7.1. Collaborative Perception of Interactions and Information Exchange

Hypothesis 1 posits that entrepreneurs who have been introduced to social skills will perceive interactions with other entrepreneurs in their training program cohort as more collaborative and will exchange more information during those interactions. Table 3 presents regression results that test this hypothesis. All regressions in Table 3 are estimated using a negative binomial model because the outcomes are count variables.

In Models 1 and 2, the dependent variable is the number of collaborative words that entrepreneurs selected to describe their interactions during the training program. Model 1 estimates the effect of social skills training without any control variables, while Model 2 estimates it with control variables. In both models the coefficient estimate for social skills is positive and statistically significant at the 5% level. Using predictive margins and keeping all other variables at their means, being in the treatment group leads to selecting 0.25 more collaborative words, an increase equivalent to roughly one-quarter of a standard deviation. Entrepreneurs introduced to social skills perceived interactions as more collaborative.

Models 3 and 4 in Table 3 test whether entrepreneurs in the treatment condition exchanged more information during interactions. To measure information exchange we counted the number of words written during three discussions that each entrepreneur participated in during the structured networking event at the end of the second day of the training program. In both models the coefficient for social skills is positive and statistically significant at the 1% level. The predictive margins show that being in the treatment group increases the average number of words written by 27, which represents a doubling of the number of words written. Figure 1 plots of the kernel density function for the number of words written during the three discussions by participants in the treatment and control groups. The gray dashed line is the distribution for participants in the treatment condition, whereas the solid black line represents those in the control group. Figure 1 shows that the distribution for the treatment group is shifted significantly to the right of the distribution of the control group.

Furthermore, the increased amount of information exchanged is not mere filler. For example, an entrepreneur in the treatment group noted that he learned the following after a conversation with one of his peers:

> Try to register my business in a microfinance institution and try to make deposits regularly in order to be able to access credit. First, though, examine the price of the machine I want to buy to plan for the kinds of deposits I need to make to get the credit I will need. After obtaining the credit, go directly to the goal: pay for the machine. Very important: having acquired the loan, you have to intensify your efforts to honor the commitment to the microfinance institution, in order to have access to other loans in the future.

By way of comparison, an entrepreneur in the control group received advice on the same broad topic, securing capital to grow their business, but the advice they noted is less actionable, less detailed, and overall, less helpful:

> There are too many competitors in the market, I lack the financial means to buy basic products. In the future, I should restart activities with a large loan to earn a lot of profits.

This pair, along with other examples presented in Online Appendix A15, suggest that the number of words appears to be a useful, if crude, proxy for differences in the depth and usefulness of the participants conversations. Indeed, in Online Appendices A16 and A17, we apply more sophisticated text-analysis tools to show that treatment nearly quadrupled the number of distinct pieces of advice shared, increased the complexity of the advice, and increased the proportion of the advice focused on work (see Table A17-6 in Online Appendix A17 for regressions). Overall, these results lend support to Hypothesis 1 that entrepreneurs who received social skills training exchanged more information during interactions.

7.2. Relationship Formation

Hypothesis 2 states that exposure to social skills will lead to the formation of more new relationships between entrepreneurs after the training program. Figure 2 shows the plots of the kernel density functions for the number of new relationships formed by entrepreneurs in the treatment and control conditions, as measured six weeks after the end of the training program. The figure shows that the distribution for the treatment group is shifted to the right of the distribution for the control group, indicating that there is a higher frequency of larger numbers of relationships formed.

Table 3. Negative Binomial Regressions Show Social Skills Increase Entrepreneurs' Collaborative Perceptions and the Amount of Information Exchanged

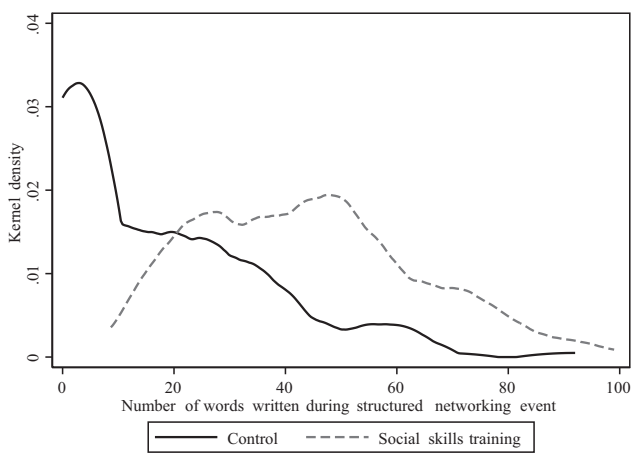
	Collaborative perception		Information exchange	
	(1)	(2)	(3)	(4)
Social skills training	0.106**	0.098*	0.994**	1.000**
	(0.039)	(0.044)	(0.213)	(0.248)
N	301	301	301	301
Sector fixed effects	No	Yes	No	Yes
Control variables	No	Yes	No	Yes

Notes. All models estimated using negative binomial regression. The outcome variable in Models 1 and 2 is the number of collaborative words selected by each participant to describe interactions. The outcome variable in Models 3 and 4 is the number of words written by individual participants during the networking session, during which they spoke to three randomly selected peer entrepreneurs. Control variables include ewe ethnicity, female, completed primary school, number of employees, firm age, management practices score, and training class size. Robust standard errors clustered at the training-class group level in parentheses.

$^{+}p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$.

The regressions in Table 4 confirm this difference between the two conditions. Specifically, Models 1 and 2 of Table 4 estimate the effect of social skills training on the number of new relationships formed after the training program. The treatment variable is positive and statistically significant, with the predicted count of ties for participants in the control group being 1.5 compared with 2.25 in the treatment group. Given that the median participant in the control group formed approximately two ties, the addition of (about) one more tie through the treatment represents a large increase in the outcomes from the treatment. Model 2, which includes control variables, yields nearly identical results, providing further support for the prediction that entrepreneurs that have received social skills training will form more relationships with other entrepreneurs.

Figure 1. Social Skills Increase Information Exchange



Notes. The kernel density plots compare the number of words written by entrepreneurs in the control and treatment groups. For entrepreneurs in the control group (black solid line), the density is much higher at lower numbers of words, indicating that most entrepreneurs wrote fewer than 20 words when describing their exchanges with peers. By comparison, the density plot for entrepreneurs in the treatment group (gray dashed line) is shifted to the right, with a median near 50 words, indicating that in general these entrepreneurs had more to describe after interactions with peers.

To further validate this result, we estimated the same models using an alternative outcome variable. Specifically, we adapted a measure from Vissa (2011), who uses the receipt of a business card to measure intention to form a relationship. To create this measure, we provided all entrepreneurs with personalized business cards with their name and phone number printed on them, and we told them they could use them as they wished. At the end of the two days, we asked the participants to show us the cards they had received from others and we took note of each card received. Following the same model specification as in Table 3, but changing the outcome variable to be the number of cards received, we replicated the result for number of relationships formed from Table 3. This helps verify that our outcome measure was accurately capturing the dynamics that better social skills lead to more new relationships. For details on these results, see Online Appendix A6.

7.3. Skill Complementarity

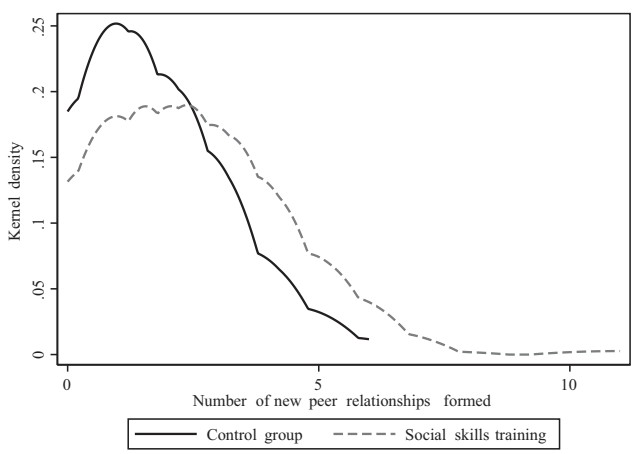
We further hypothesized that entrepreneurs exposed to social skills training would form a greater proportion of relationships that exhibit skill complementarity (i.e., the target of the tie possesses a skill that the focal entrepreneur wishes to improve). The regression analyses in Models 3 and 4 of Table 4 support Hypothesis 3: the coefficient for social skills training is positive and statistically significant at the 5% level. Based on the predictive margins for these models, the predicted count of new ties that exhibit skill complementarity for treated entrepreneurs is 0.5, while the predicted count for control group entrepreneurs is 0.2. Hence, the treatment, on average, leads to the formation of more than twice as many skill complementary ties. Model 4 includes control variables and again we see nearly identical results providing further support for Hypothesis 3.

A potential concern with these skill complementarity results is that perhaps entrepreneurs were not seeking out others with the managerial skills they needed, but rather by simply making more relationships they accidentally ended up with more good matches. To confirm that the observed differences in skill complementarity were not simply the result of network growth, we ran a series of simulations where the number of new relationships that each entrepreneur formed was held at the observed value, but the targets of those relationships were randomly selected from among other participants in their training group. We then counted, for each entrepreneur, the number of skill-complementary relationships and scaled this by the total number of relationships formed. We then calculated the difference between the treatment and control groups in the proportion of skill complementary ties and repeated this for 2,000 simulations. In Online Appendix A4, we plot the simulated differences between the groups. The actual difference between skill complementarity in the treatment and control groups is extremely unlikely to happen by chance (less than one-tenth of a percent probability). These simulations show that forming more ties at random does not result in more useful connections.

7.4. Ethnic Diversity

Hypothesis 4 states that social skills will lead to the formation of more ethnically diverse relationships. This is tested using a measure of the concentration of new relationships formed within ethnic groups. Because this measure ranges from 0.2 to one, Models 5 and 6 in Table 4 use a fractional logit model. In both models the coefficient for the treatment variable is negative and statistically significant at the 1% level, indicating that being in the treatment group decreases the ethnic concentration of new relationships formed. The effect is meaningful, with the marginal effect being –0.11, which is nearly half of a standard deviation. Model 6 also includes control variables and yet again the results are unchanged. We also find support for Hypothesis 4.[7]

Figure 2. Social Skills Increase Relationship Formation



Notes. The kernel density plots compare the number of relationships formed by entrepreneurs in the control group and treatment group. Relationships are measured six weeks after the completion of the training program. The density plot for entrepreneurs in the control group (black solid line) is skewed to the left and peaks at about one relationship formed, whereas the plot for those in the treatment group (gray dashed line) is shifted to the right of control group and peaks at about two relationships formed, indicating that entrepreneurs in the treatment formed more new relationships.

7.5. Business Performance

The final hypothesis, Hypothesis 5, posited that introducing entrepreneurs to social skills will increase their monthly profits. Table 5 shows the results from regressions testing the significance and magnitude of this effect. Models 1 and 2 in Table 5 estimate Equation (1), whereas Model 3 estimates Equation (2).

In all models of Table 5, the effect of social skills training on profits is statistically significant at the 5% level. According to the results in Models 1 and 2, social skills training increased monthly profits in the posttreatment period by 19%. Model 2 includes controls for ethnic group, primary school education, gender, and training class size, as well as baseline values of number of employees and management practices score. Including these pretreatment controls does not substantively affect the statistical significance or magnitude of the treatment effect. In Model 3, which includes entrepreneur fixed effects, the social skills training was associated with an approximately 27% increase in monthly profits in the posttreatment period. The difference in magnitudes between the two estimation approaches is not statistically significant as both estimates are well within each other's 95% confidence interval.[8]

These performance effects also hold using alternative performance measures. Models 1–4 in Table A9-1 replace log monthly profits with a "performance index," which is the average of nine standardized performance variables, including log and winsorized weekly and monthly sales and profits. Models 4–6 in Table A9-1 replace log monthly reported profits with the log of the difference between monthly sales and expenses. Results from Table A9-1 show that the treatment effect is positive, statistically significant, and similar in magnitude to those estimated in Table 5. See Online Appendix A9 for additional details on alternative performance measures.

To ensure that these results were robust to potential cohort and recruitment effects, we also estimated Models 1 and 2 in Table 5 with cohort fixed effects and controls for source of recruitment. Cohort fixed effects alleviate concerns that differences in the composition of cohorts might be driving the effects. As

Table 4. Social Skills Increase the Number of Relationships Formed, Increase the Number of Relationships Formed That Are Skill Complementary, and Reduce the Level of Ethnic Concentration in Relationships Formed

	Relationships formed		Skill complementarity		Ethnic concentration	
	(1)	(2)	(3)	(4)	(5)	(6)
Social skills training	0.388**	0.360**	0.659**	0.814**	−0.660*	−0.870**
	(0.143)	(0.109)	(0.225)	(0.280)	(0.283)	(0.178)
N	301	301	301	301	301	301
Sector fixed effects	No	Yes	No	Yes	No	Yes
Control variables	No	Yes	No	Yes	No	Yes

Notes. Models 1, 2, 3 and 4 are estimated using negative binomial regressions. Models 3 and 4 include the inverse hyperbolic sine of the number of relationships formed as an offset. The outcome variable in Models 1 and 2 is the number of peer relationships to other participants from the same class that each entrepreneur formed six weeks after the training program. The outcome variable in Models 3 and 4 is the number of relationships formed that exhibit skill complementarity. Models 5 and 6 were estimated using fractional logit regressions and the outcome variable is the Herfindahl index of concentration of the relationships formed within ethnic groups. Control variables include ewe ethnicity, female, completed primary school, number of employees, firm age, management practices score, and training class size. Robust standard errors, clustered at the training group level in parentheses.

$^{+}p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$.

results in Online Appendix A12 show, cohort fixed effects do not substantively change the treatment effect. Online Appendix A12 also shows that controlling for the three primary ways in which entrepreneurs were recruited (in-person canvassing, referrals from entrepreneur associations, and advertising on social media) does not change our results.

Using coefficient estimates from Model 3 in Table 5, Figure 3 plots the average predicted values for log monthly profits by treatment and control group for each time period, with 95% confidence intervals. The gray dashed line represents the average predicted monthly profits for entrepreneurs in the treatment condition, which shows an increasing trend after the training program. The solid black line represents average predicted profits for the control condition. For entrepreneurs in this condition average profits did not change until one year after the training program, at which time there was a statistically significant, but modest in magnitude, increase in profits. This late increase in control groups' profits may be because of learning and implementing marketing practices.[9] Although Figure 3 shows a partial convergence between treatment and control group performance one year after the training program, the treatment effect remains positive and large, representing an increase of approximately 15%. However, our power calculations, described in Online Appendix 10, suggest that our study is underpowered for detecting effects of this size. Online Appendix A8 contains plots of median and mean log monthly profits by survey wave and treatment condition, which show that treated entrepreneurs' profits are always above the control group's profits in the posttreatment periods.

These results in Table 5 and Figure 3 represent the average effect of social skills training, which do not make clear whether the effect is driven by uniformly increasing performance, only improving performance for firms that are among the bottom of performers or by strengthening the performance of top firms. To test how our treatment impacts the distribution of performance outcomes we estimated quantile treatment effects for each 5th percentile of performance between the 5th and 95th quantiles (Online Appendix A7 provides further details). Figure 4(a) plots the estimates of the treatment effect from the quantile regressions and shows that it is remarkably consistent across the performance distribution. Figure 4(b) plots the p values for the quantile treatment estimates in Figure 4(a) and shows that the treatment effect is statistically significant between the 15th and 75th quantiles. Corroborating evidence is also provided by the kernel density plots of profits by treatment condition (Online Appendix A7), which suggest that social skills shift the

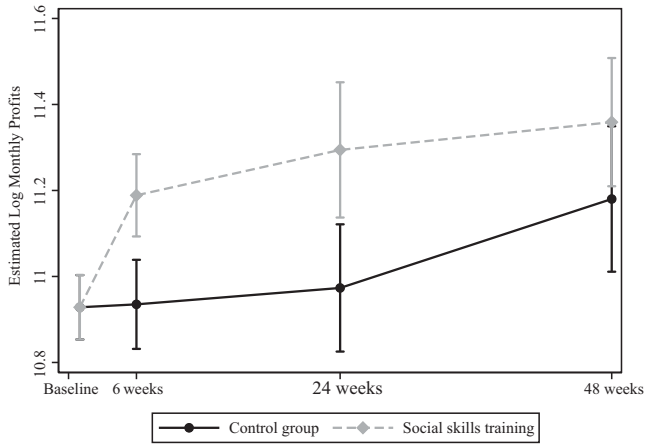
Table 5. Social Skills Increase Monthly Profits

	Monthly profits (log)		
	(1)	(2)	(3)
Social skills training	0.170*	0.171*	
	(0.058)	(0.062)	
Social skills training × Posttreatment			0.251*
			(0.103)
Posttreatment			0.008
			(0.073)
N	768	768	1046
Entrepreneurs	278	278	278
Survey wave fixed effects	Yes	Yes	Yes
Baseline profits	Yes	Yes	No
Sector fixed effects	No	Yes	No
Control variables	No	Yes	No
Entrepreneur fixed effects	No	No	Yes

Notes. The outcome is log monthly profits. Models 1 and 2 pool the posttreatment periods and include sector and survey wave fixed effects controlling for baseline profits, ewe ethnicity, female, completed primary school, number of employees, firm age, management practices score, and training class size. Model 3 uses a diff-in-diff specification with entrepreneur fixed effects. Robust standard errors clustered by training group in all models.

$^{+}p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$.

Figure 3. Social Skills Increase Profits



Notes. The plots compare the average predicted log monthly profits, based on the estimates in Model 3 of Table 5, for entrepreneurs in the control group and in the social skills treatment group. Bars represent 95% confidence intervals. The profits for entrepreneurs in the control group (black solid line) do not significantly shift between baseline and 24 weeks after the training program. Profits for those in the treatment group (gray dashed line) increase soon after the program and remain above the control group in all periods. The predictions include entrepreneur fixed effects and therefore account for baseline performance differences.

distribution of realized profits to the right and do not just lift up laggards or lead to outsized gains for top performances.

To contextualize our performance results, the median firm in our sample had revenues of approximately 300 USD per month and profits of approximately 100 USD per month in the baseline period. Our regression results suggest that the social skills training increased their profits, on average, by approximately 20 USD per month in the posttraining period. Given that most entrepreneurs in our sample operated on slim profit margins, these increases in performance could be related to such events as gaining a new client, finding a cheaper supplier, or improving a managerial practice, all of which could be driven by access to better advice from a larger and more diverse portfolio of peer relationships.

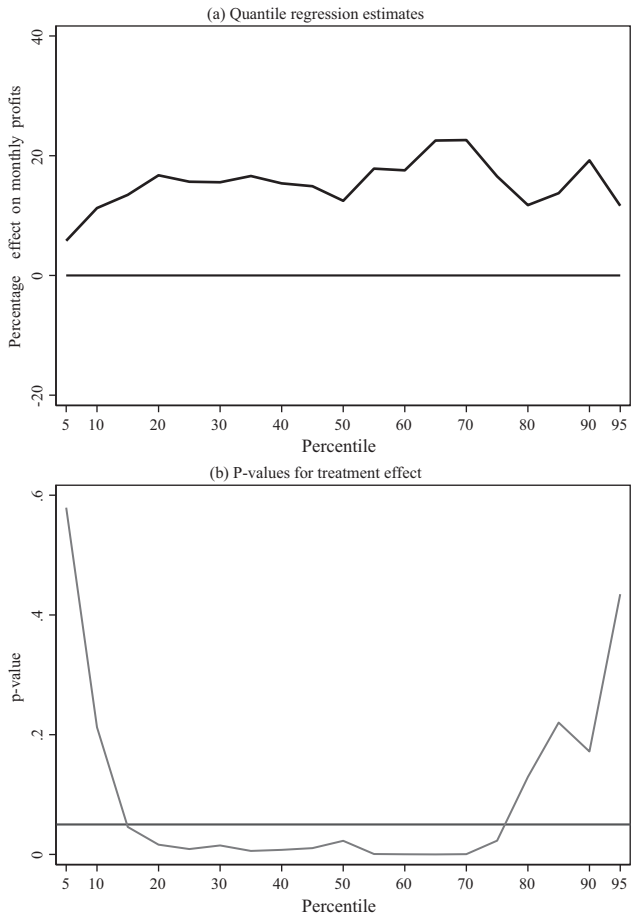
Furthermore, these performance effects are within range of effects reported in several other experimental interventions with entrepreneurs in developing economies. Although a number of RCTs involving general managerial practices have found null effects (McKenzie and Woodruff 2014), more targeted treatments have often reported effects on profits in the range of 10%–50%. Drexler et al. (2014) found that teaching entrepreneurs in the Dominican Republic accounting rules of thumb increased profits by approximately 10%. A field experiment in Tanzania found that their entrepreneurship training program led to increases in profits of about 50% (Berge et al. 2014). Another field experiment in Togo found that a personal-initiative training led to an increase of 30% in profits for entrepreneurs (Campos et al. 2017). Finally, an RCT in Indonesia found that giving entrepreneurs a handbook of local best practices increased profits by 35% (Dalton et al. 2020). A review of field experiments involving peer and mentorship feedback finds that the effects for these interventions range from 8% to 22% (McKenzie 2021), suggesting that our results are at the higher end of this range. That being said, our ex post power calculations suggest that we are powered to detect effect sizes of 15% or higher (see Online Appendix 10 for more details).

8. How Do Social Skills Improve Business Performance?

Our results show that entrepreneurs who received social skills training increased their monthly profits by roughly 20% in the year after the program compared with entrepreneurs in the control condition. According to our theory, social skills increase performance because previously "under-networked" entrepreneurs become better at discovering valuable information and advice from peers. Indeed, the results in Tables 3 and 4 show that improvements in social interactions occur along many dimensions: conversations are more informative, interactions more collaborative, networks grow larger, new ties are more complementary, and connections more diverse. Prior research suggests that each of these social mechanisms can in-and-of-itself improve performance (Powell et al. 1999, Baum et al. 2000, Vissa and Chacar 2009).

To account for all these diverse pathways, we construct a "social interaction index" that combines many measures of networking and advice into a unidimensional variable. This measure lets us quantify aggregate improvements in entrepreneurs' social interactions and

Figure 4. Quantile Regression Estimates and p Values



Notes. (a) Estimates of the treatment effect at each fifth quantile from the quantile regressions. According to the plot, social skills training improved performance uniformly across the distribution of profits. (b) The p values from the quantile regressions, testing whether the effect of social skills training is statistically indistinguishable from zero at each quantile. The figure shows that we reject the null that the treatment effect is zero at every quantile between the 15th and approximately the 75th.

so test if the bundle of social mechanisms we propose mediates the treatment effect. Table 6 presents the 17 measures we include in the index that are also described in full detail in Online Appendix A17. These measures reflect differences in the size and complementarity of an entrepreneur's network (i.e., who they talk to) along with differences in the kinds of advice they receive (i.e., how they talk to others). Although the variables from our analyses in Tables 3 and 4, which focus on networking and advice between coparticipants, are included in the index, we also include measures from our posttreatment surveys that capture interactions between participants and others who did *not* attend the program (e.g., "14. Reaching out to new acquaintances outside the program").

The index also includes more sophisticated text-based measures of advice derived from the entrepreneurs' handwritten notes (Online Appendix A16). These additional measures allow us to account for subtle characteristics of interactions that might be too noisy to analyze individually. In this regard, our index is similar in spirit to indices of management practices, which aggregate many related but distinct practices to shed light on overall management quality (Bloom et al. 2012, McKenzie and Woodruff 2018).

In Table 7, Model 1, we show that the social skills index is 0.83 (p = 0.000) standard deviations greater for treated than control entrepreneurs. Furthermore, in Table A17-1, we show that this increase is broad based. The social skills treatment increases each subcomponent of our index. This reflects improvements in networking both between participants in the training program (Model 1) and between entrepreneurs and others outside of the program (Model 3). It also improves advice giving and receiving, again both between participants (Model 2) and with program outsiders (Model 4).

Does this increase mediate our performance effect? In Table 8, we use contemporary causal mediation analysis methods to estimate the average causal mediation effect (ACME) for our index (Imai et al. 2011). This approach relies on the sequential ignorability assumption,[10] but allows us to consistently and unbiasedly estimate the percent of the randomized treatment that flows through any given mediator. Indeed, we see in Model 1 that the ACME for our index is 0.137 and that this accounts for 85.8% of the overall treatment effect. Notably the coefficient on the remaining indirect effect of the treatment is 0.039 and statistically insignificant. Furthermore, as we discuss in A17, the findings in Model 1 are relatively robust to deviations in the sequential ignorability assumption, which suggests that some alternative omitted mechanism is unlikely to instead be responsible. Last, in Table A17-2 in Online Appendix A17, we show that each subcomponent of our index appears to mediate at least some of the treatment effect. About two-thirds of the effect is attributable to better networking and advice between coparticipants and about one-third because the treatment improves interactions between participants and outsiders. Overall, we find strong evidence that social skills improve performance through a multitude of underlying social mechanisms.

Although our social interaction index strongly mediates performance, our final set of analyses also show that alternative, nonsocial mechanisms do not. For example, perhaps the social skills training improved enthusiasm and affect for treated entrepreneurs, motivating them to work harder at their businesses. Indeed, in Model 2 of Table 7, we show that treated entrepreneurs' advice notes are 37 percentage points more likely to exhibit positive sentiment than the control participants' notes. We use a natural

Table 6. Constructing the Social Interactions Index

Type of interaction	Description	Component variables
Networking between training program coparticipants (Variables 1–7)	Measures the number of interactions and the quality of matches made during the training program.	1. Cooperative words 2. Number of participants entrepreneurs exchanged contact information with; 3. Number of participants entrepreneurs received advice from; 4. Number of participants entrepreneurs formed relationships with 5. Average profits (log) of participants with whom they formed ties; 6. Average skill complementarity of the participants with whom they formed ties. 7. Ethnic concentration × (−1) of participants with whom they formed ties.
Advice received during the training program (Variables 8–12)	Measures the relevance, complexity, and quantity of advice transmitted during networking event.	8. Total number of words written; 9. Proportion of words that were related to work; 10. Proportion of six-letter words; 11. Words per sentence; 12. Number of pieces of advice.
Networking with others outside the training program (Variables 13–16)	Measures networking behavior after the training camp and the size of entrepreneurs' relationship portfolio.	13. Engaging in referrals; 14. Reaching out to new acquaintances outside the program; 15. Participating in an event with other entrepreneurs; 16. Number of advice contacts.
Advice received from others outside the training program (Variable 17)	Measures the extent to which entrepreneurs activated existing ties to peer entrepreneurs to seek advice.	17. Number of peer advice relations outside the program that entrepreneurs reached out to for help.

language processing algorithm, "BERT," which is trained on data from a corpus of billions of French documents by Google (Le et al. 2019, Martin et al. 2019) to assign each note a probability of expressing a positive sentiment.[11] Perhaps this gain in affect and enthusiasm drives improvements in motivation and hence performance. However, in Model 2 of Table 8, we find no evidence that our positive affect measure mediates performance, with an ACME of 0.022.

Relatedly, our treatment might have increased engagement with the marketing training, leading to improved use of marketing practices that in turn increased performance. In Model 3 of Table 8, we find no evidence that marketing practices differ between the treated and control groups.[12] Consistent with this null effect, in Model 3 of Table 8, we again find no evidence that marketing practices mediate performance outcomes with an ACME of −0.000. Online Appendix A14 further rules out these channels using additional measures and analysis strategies. Overall, we find little evidence that nonsocial mechanisms matter. Instead, our evidence suggests social mechanisms as the causes of improved business performance.

9. Discussion and Conclusion

We find that teaching small business entrepreneurs in Togo social skills results in a cascade of changes. These entrepreneurs perceive conversations as more collaborative, they learn more form their peers, and they build larger networks with more complementary

Table 7. First Stage of Mediation for Social Interaction Index and Alternative Mechanisms

	Social interactions index (1)	BERT positive affect score (2)	Marketing practices index (3)
Social skills training	0.829**	0.375**	0.014
	(0.150)	(0.050)	(0.091)
N	257	257	278
Entrepreneurs	257	257	278
Sector fixed effects	Yes	Yes	Yes

Notes. The outcomes in Models 1 and 2 were measured during the training program, while the outcome in Model 3 is an average across all posttreatment periods. Hence all models are cross sections. The sample size in Models 1 and 2 is 257 because we could not obtain scanned networking notes for one training cohort. All regressions include sector fixed effects. Robust standard errors clustered by training group in parentheses.

$^{+}p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$.

Table 8. Second Stage of Mediation for Social Interaction Index and Alternative Mechanisms

	Monthly profits (log)		
	(1)	(2)	(3)
Social skills training	0.039	0.173*	0.170*
	(0.060)	(0.079)	(0.058)
Social interactions index	0.158**		
	(0.027)		
BERT positive affect score		0.009	
		(0.118)	
Marketing practices index			0.039
			(0.075)
Survey wave fixed effects	Yes	Yes	Yes
Sector fixed effects	Yes	Yes	Yes
N	710	710	768
Entrepreneurs	257	257	278
ACME	0.137	0.022	−0.000
	[0.082, 0.199]	[−0.071, 0.113]	[−0.010, 0.008]
Percent of Total Effect Mediated	0.858	0.137	−0.003
	[0.478, 3.060]	[0.076, 0.527]	[−0.010, −0.002]
ρ at which ACME = 0	0.162	0.016	0.019

Notes. Data are from three posttreatment survey rounds and show average impact over the posttraining period. All regressions include sector and survey wave fixed effects, and control for baseline profits (log). The number of entrepreneurs in Models 1 and 2 is 257 because scanned networking notes for one training cohort were missing. Robust standard errors clustered by training group in parentheses.

$^{+}p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$.

and diverse peers. Indeed, aggregating these shifts into a single index shows that the treatment substantially improves social interactions and our mediation analyses suggest that these improved interactions are associated with stronger business performance in the year after treatment. Taken together, these results indicate that entrepreneurs are likely under-networked but that teaching social skills can help them unlock the value inherent in learning from peers. That said, there are important boundary conditions and thus opportunities for future research, to which we now turn.

9.1. Boundary Conditions and Future Research Directions

To ensure that the social skills intervention would shift behaviors we administered it to groups of entrepreneurs, simultaneously, within the context of a two-day business training program where the participants would have ample time to get to know one another. It is unclear how the results would change if the social skills training had been given instead to only randomly selected individuals before they joined the training program. The results from our mediation analyses provide suggestive evidence that social skills enabled entrepreneurs to gain more advice from their contacts outside the training program, which in turn improved performance (see Table A17-2 in Online Appendix A17). However, the impact on performance of this nonprogram advice is about half that from within the program. This suggests that improvements in social skills can improve access to advice even when only one party in the interaction possesses them but that the effect is substantially weaker. Future studies should explore if there are complementarities between being part of a training group and social skills, if longer training can increase the impact in interactions with people with fewer social skills, and whether individual training is effective.

Another limitation of our experimental design is that we did not have a control group that was simply left alone and we do not have evidence from training programs that taught topics other than marketing. In the absence of a third "left alone" arm, we are unable to evaluate the causal impact of the marketing content on performance. However, we do find that both the control and treatment conditions used more marketing practices posttreatment and that control entrepreneurs increase their profits over time (Figure 3 and Table A14-1). Similarly, as our intervention was embedded in a marketing training program it is difficult to say if the treatment would have been more or less effective if it had been embedded in a program teaching different business skills. We do, however, expect social skills training to be effective regardless of the setting, because the social skills training content does not depend on particular technical managerial knowledge, and our qualitative data suggest advice covered both marketing and nonmarketing topics (Online Appendix A15).

Similarly, our experimental design included a relatively short intervention. Rather than teach an entire course on social skills, we limited our treatment to a two-hour introduction. Although this approach led to rapid and large improvements in entrepreneur performance,

proving that social skills can be taught and do matter for entrepreneurial performance, Figure 3 suggests that in the long run there is a partial convergence between treatment and control groups. This could mean that our intervention was not extensive enough to create permanent improvements in performance. Hence, it may be that entrepreneurs need to reinvest in their social skills over time to maintain their performance advantage. We hope that future studies will explore this by conducting RCTs where the intervention is an entire course on social skills rather than a two-hour session.

The composition of our sample also presents limitations. First, by focusing on marketing practices, we likely attracted business owners who were particularly keen to grow their businesses. It is less clear whether teaching social skills to less ambitious business owners would have as large an effect, because participants in our program selected into it out of a desire to grow their firms. Second, our experimental design restricted participation to entrepreneurs with businesses in operation for at least a year to improve power and reduce attrition. However, we expect that entrepreneurs at other stages, such as the "prelaunch" phase, will also likely benefit from social skills training, because much of their work revolves around getting feedback on business ideas and networking to secure funding (Bennett and Chatterji 2019). Third, entrepreneurs paid a participation fee and although it was refunded to them at the end of the program, it may have prevented some less successful or struggling entrepreneurs from participating. Although our quantile analyses suggest that the social skills training had similar impacts across different levels of performance, our experimental sample might not be fully representative of entrepreneurs in very precarious financial conditions. Future work will have to assess the impact of social skills training on these kinds of entrepreneurs and how that effect may depend on their level of motivation.

Finally, in the context of strategy and entrepreneurship research the most salient boundary condition is the larger context: Togo. We selected Togo because there remains a dearth of development-focused research in strategy and because it was a setting where we believed entrepreneurs would be receptive to the social skills training (George et al. 2016, Assenova and Sorenson 2017, Dimitriadis 2021). Our qualitative data suggest Togo is a context in which many entrepreneurs recognize the value of peer relationships but face high costs in forming new ties. Research suggests these relational concerns likely extend to other developing economies where generalized trust is often low and there are institutional voids (Khanna 2018). Thus, at a minimum, our results suggest that social skills might be an important driver of entrepreneurial success in the developing world.

That said, we think the social mechanisms at the heart of our paper are likely universal. Forming new business relationships and learning more from others is costly and challenging for entrepreneurs be they in Lomé, London, or Los Angeles. This is echoed by the fact that courses on social skills at top business schools are particularly popular among MBA students (Baron and Markman 2000, Bedwell et al. 2014, Poets and Quants 2021) and that employers in developed economies increasingly seek to hire people with strong social skills (Deming 2017, Börner et al. 2018). Of course, the pre-existing emphasis on building social skills among knowledge workers, managers, and entrepreneurs might well mean that additional "social skills trainings" would have less of an effect because the "control group" may already have been "treated" in ecosystems like Silicon Valley. Moreover, cultural norms that determine levels of generalized trust can also affect how people evaluate others' trustworthiness and their baseline propensity to form new business relationships, hence the effect of social skills training may be diminished in cultures with higher levels of generalized trust (Yamagishi et al. 1999, Baldassarri 2020). Although well beyond the scope of our study, our findings suggest that future work should explore if variation in "social skills" helps explain why some ecosystems are more successful than others and whether there is still room to improve social interactions for entrepreneurs in places like Silicon Valley (Saxenian 1994). We hope future studies will unpack how these cultural, institutional, and economic forces drive variation in where teaching social skills might have the largest impact.

9.2. Contributions

This study demonstrates the strategic value of social skills for entrepreneurs. The majority of existing research on social skills has focused on the demand for those skills in established firms and the returns to them in labor markets (Deming 2017, Börner et al. 2018). Recent studies have begun to explore the effect of managers' social skills on firm productivity (Hoffman and Tadelis 2021), but these have largely focused on the impact of social skills in the context of a single firm. Here we show that social skills cause differences in between-firm performance, a central concern of strategy researchers.

Moreover, the benefits of social skills are positive sum, separating them from many other forms of socially derived competitive advantage that are nearly always zero sum. Unlike other forms of network advantage, such as occupying a brokerage position, being randomly assigned to a section with experienced business school peers, or partnering with superstar collaborators, the benefits of social skills scale (Ryall and Sorenson 2007, Azoulay et al. 2010, Lerner

and Malmendier 2013). This is because social skills appear to help entrepreneurs discover who is the best match for their particular needs, thus enabling them to form relationships that create value for both parties as against trying to compete to partner with whomever is (perceived) as most successful or similar (Azoulay et al. 2017).

This study also contributes to research on business and entrepreneurship training (McKenzie 2021). This research ranges from tests of whether management consulting improves manufacturing productivity (Bloom et al. 2013) to whether high-technology incubators and accelerators kickstart startup growth (Yu 2020) to evaluating whether a scientific approach to early-stage entrepreneurship is especially effective (Camuffo et al. 2020). Although these studies help explain the efficacy of different management training programs and incubator structures, they have largely overlooked training entrepreneurs in "softer" social skills. This study shows that training programs can also effectively teach soft skills and that these skills pay off. Put differently, our study raises the possibility that much of the value created by these training programs may be less in the materials and frameworks they teach, and more in the culture they build and the connections they enable.

Much of the early research on social skills was done by scholars in psychology and organizational behavior, who developed a wide range of measures of social skills (Klein et al. 2006). Although most of these social skills measures are based on studies of college students, the majority of them emphasize communication and collaborative relationship building (Hayes 2002), both of which are part of our theoretical framework. Our study builds on these core psychological assumptions about social skills by extending them to the context of entrepreneurship and causally identifying their performance implications at the business level.

The idea of social skills also opens up new avenues for the study of business relationships. Existing research has primarily explained the formation of business relationships and networks using the characteristics of dyads and the pre-existing networks they are embedded in. This work has emphasized homophily (McPherson et al. 2001), proximity (Hasan and Bagde 2015), mutual ties (McFarland et al. 2014), and common organizational membership (Small 2009) as drivers of business relationships. Yet, when scholars have tried to use these social forces to engineer new and improved social connections the results backfire (Carrell et al. 2013, Hasan and Koning 2019b). Trying to directly build a new connection in the network, be it through colocation or shared team membership, fails because managers and entrepreneurs exert agency in who they choose to connect with (Hasan and Koning 2020). Instead, we argue that policymakers and executives can move to the "social frontier" by teaching managers and entrepreneurs how to search, discover, and build effective relationships themselves. This suggests that future work should explore whether there is strategic value in shaping individuals' incentives and beliefs about the social matching process in and between organizations.

Acknowledgments

The authors thank Julie Battilana, Ronnie Chatterji, Laura Doering, Soléne Délécourt, Anita McGahan, Sharique Hasan, Peter Marsden, Mary-Hunter McDonnell, Will Mitchell, Aruna Ranganathan, Metin Sengul, and Ned Smith for helpful feedback and suggestions, and Alaye Abalo, Essenam Agblevo, Ayite Eklu, Matt Thibek, and Nyaku Yao for excellent research assistance.

Endnotes

[1] The surveys, intervention, and randomization were approved by the authors' institutional review board (Protocol IRB17-0319).

[2] Given operational and funding constraints we could not determine the exact sample size before launching the experiment. Ex post power calculations based on our study's sample of 301 observations reveals that our minimum detectable effect size at conventional power levels is a 13% increase in business profits. See Online Appendix A10 for more details.

[3] To introduce the two-hour training session into the program, we chose to condense the amount of time spent on marketing practices rather than add an additional two hours for the treatment condition because this would have represented an approximate increase of 10% in the total time that entrepreneurs in the treatment condition spent together. We chose to avoid this increase in total time spent together because it could have confounded the effects of the social skills intervention on our outcomes of interest related to relationship formation. Notably, test scores for comprehension of the marketing practices showed no difference between the control and social skills conditions (see Online Appendix A14 for regression results).

[4] Other collaborative words included *friendship*, *sharing*, and *alliance*, whereas other competitive words included *adversarial*, *beat*, and *dominate*. For the full list of words, see Online Appendix A19.

[5] These best practices include, for example, recording every purchase and sale, using advertising, and having a monthly budget of expenses. See McKenzie and Woodruff (2018) for a complete list and details.

[6] We preregistered our field experimental design and our expected outcomes with the Open Science Foundation (OSF). Our preregistration document refers to social skills as "cultural frames of cooperation and helping" and explicitly outlines our first three hypotheses. The OSF included one prediction—that the treatment should increase "social knowledge"—for which we did not end up collecting data to test. We did not register our final two hypotheses. We did not initially think we could measure firm performance but ended up having funds for surveys after the program. For ethnic diversity, we did not realize that the prediction followed from our model until discussing our findings with colleagues. Our preregistered analyses use OLS and hold as shown in Online Appendix A6. (OSF preregistration: https://osf.io/qpydj/?view_only=a5b0a0d59f534f32930b31874ca87ee5)

[7] In addition to ethnic diversity, gender diversity is also an important dimension of entrepreneurs' portfolios of relationships. However, after conducting exploratory analyses, we find no effects of the treatment on the gender composition of entrepreneurs' peer relationships. For these analyses, see Online Appendix A5.

[8] Online Appendix A11 shows our predicted effects remain significant when we adjust for the fact that we are testing multiple hypotheses.

[9] In the absence of a pure control group that did not receive marketing practices training it is impossible to know why the control group's performance increased one year after the training. However, exploratory regressions in Online Appendix A14 show that control group entrepreneurs learned new marketing practices and the timing of the performance increase is consistent with results reported in Anderson et al. (2018).

[10] The sequential ignorability assumption in causal mediation analysis bears resemblance to the exclusion restriction in instrumental variables analysis. In both cases there are no objective criteria or standards for satisfying the condition, rather doing so depends on the specific empirical context and the data at hand. Given this we have followed best practices by conducting sensitivity analyses for our mediation models, reported in Online Appendix A17.

[11] This approach to assessing sentiment in texts may potentially be limited by the fact that the algorithm was trained on language in a context that was relatively different from the one to which it was applied. To ensure this did not fundamentally shape our results, we also replicated these results using the French edition of Linguistic Inquiry and Word Count (LIWC) software, which has been more widely validated (Piolat et al. 2011). For more detail, please refer to Online Appendix A16.

[12] We do find, however, that entrepreneurs in both the treatment and control conditions learned and used the marketing practices taught. There was simply no difference in learning between the two conditions. See Online Appendix A14 for details about learning of marketing practices.

References

Acharya A, Blackwell M, Sen M (2016) Explaining causal findings without bias: Detecting and assessing direct effects. *Amer. Polit. Sci. Rev.* 110(3):512–529.

Afrobarometer (2019) Togo round 7 2016/2018. Retrieved April 8, 2021, http://www.afrobarometer.org.

Anderson SJ, Chandy R, Zia B (2018) Pathways to profits: The impact of marketing vs. Finance skills on business performance. *Management Sci.* 64(12):5559–5583.

Aral S, Van Alstyne M (2011) The diversity-bandwidth trade-off. *Amer. J. Sociol.* 117(1):90–171.

Argote L, Fahrenkopf E (2016) Knowledge transfer in organizations: The roles of members, tasks, tools, and networks. *Organ. Behav. Human Decision* 136:146–159.

Argote L, Aven BL, Kush J (2018) The effects of communication networks and turnover on transactive memory and group performance. *Organ. Sci.* 29(2):191–206.

Ashraf N, Bau N, Low C, McGinn K (2020) Negotiating a better future: How interpersonal skills facilitate intergenerational investment. *Quart. J. Econom.* 135(2):1095–1151.

Assenova VA, Sorenson O (2017) Legitimacy and the benefits of firm formalization. *Organ. Sci.* 28(5):804–818.

Atkin D, Khandelwal AK, Osman A (2017) Exporting and firm performance: Evidence from a randomized experiment. *Quart. J. Econom.* 132(2):551–615.

Azoulay P, Graff Zivin JS, Wang J (2010) Superstar extinction. *Quart. J. Econom.* 125(2):549–589.

Azoulay P, Liu CC, Stuart TE (2017) Social influence given (partially) deliberate matching: Career imprints in the creation of academic entrepreneurs. *Amer. J. Sociol.* 122(4):1223–1271.

Baldassarri D (2020) Market integration accounts for local variation in generalized altruism in a nationwide lost-letter experiment. *Proc. National Acad. Sci. USA* 117(6):2858–2863.

Baron R, Markman G (2000) Beyond social capital: The role of social competence in entrepreneurisl's success. *Acad. Management Executive* 14(1):106–116.

Baum JA, Calabrese T, Silverman BS (2000) Don't go it alone: Alliance network composition and startups' performance in canadian biotechnology. *Strategic Management J.* 21(3):267–294.

Bedwell WL, Fiore SM, Salas E (2014) Developing the future workforce: An approach for integrating interpersonal skills into the MBA classroom. *Acad. Management Learn. Edu.* 13(2):171–186.

Bennett VM, Chatterji AK (2019) The entrepreneurial process: Evidence from a nationally representative survey. *Strategic Management J.* https://doi.org/10.1002/smj.3077.

Bensaou BM, Galunic C, Jonczyk-Sédès C (2013) Players and purists: Networking strategies and agency of service professionals. *Organ. Sci.* 25(1):29–56.

Berge LIO, Bjorvatn K, Tungodden B (2014) Human and financial capital for microenterprise development: Evidence from a field and laboratory experiment. *Management Sci.* 61(4):707–722.

Blader S, Gartenberg C, Prat A (2020) The contingent effect of management practices. *Rev. Econom. Stud.* 87(2):721–749.

Blader S, Gartenberg C, Henderson R, Prat A (2015) The real effects of relational contracts. *Amer. Econom. Rev.* 105(5):452–456.

Blattman C, Green EP, Jamison J, Lehmann MC, Annan J (2016) The returns to microenterprise support among the ultrapoor: A field experiment in postwar uganda. *Amer. Econom. J. Appl. Econom.* 8(2):35–64.

Bloom N, Genakos C, Sadun R, Van Reenen J (2012) Management practices across firms and countries. *Acad. Management Perspective* 26(1):12–33.

Bloom N, Eifert B, Mahajan A, McKenzie D, Roberts J (2013) Does management matter? Evidence from india. *Quart. J. Econom.* 128(1):1–51.

Borghans L, Ter Weel B, Weinberg BA (2014) People skills and the labor-market outcomes of underrepresented groups. *Industry Labor Related Rev.* 67(2):287–334.

Börner K, Scrivner O, Gallant M, Ma S, Liu X, Chewning K, Wu L, Evans JA (2018) Skill discrepancies between research, education, and jobs reveal the critical need to supply soft skills for the data economy. *Proc. National Acad. Sci. USA* 115(50):12630–12637.

Boudreau KJ, Lakhani KR (2015) "Open" disclosure of innovations, incentives and follow-on reuse: Theory on processes of cumulative innovation and a field experiment in computational biology. *Res. Policy* 44(1):4–19.

Boudreau K, Marx M (2019) From theory to practice: Field experimental evidence on early exposure of engineering majors to professional work. Preprint, submitted June 21, http://dx.doi.org/10.2139/ssrn.3271144.

Boudreau KJ, Brady T, Ganguli I, Gaule P, Guinan E, Hollenberg A, Lakhani KR (2017) A field experiment on search costs and the formation of scientific collaborations. *Rev. Econom. Statist.* 99(4):565–576.

Buhrmester D, Furman W, Wittenberg MT, Reis HT (1988) Five domains of interpersonal competence in peer relationships. *J. Personality Soc. Psych.* 55(6):991.

Burbano VC (2020) The demotivating effects of communicating a social-political stance: Field experimental evidence from an online labor market platform. *Management Sci.* 67(2):1004–1025.

Cable DM, Gino F, Staats BR (2013) Breaking them in or eliciting their best? Reframing socialization around newcomers' authentic self-expression. *Admin. Sci. Quart.* 58(1):1–36.

Cai J, Szeidl A (2018) Interfirm relationships and business performance. *Quart. J. Econom.* 133(3):1229–1282.

Cameron AC, Trivedi PK (2009) *Microeconometrics with Stata* (StataCorp LP, College Station, TX).

Campos F, Frese M, Goldstein M, Iacovone L, Johnson HC, McKenzie D, Mensmann M (2017) Teaching personal initiative beats traditional training in boosting small business in west africa. *Science* 357(6357):1287–1290.

Camuffo A, Cordova A, Gambardella A, Spina C (2020) A scientific approach to entrepreneurial decision-making: Evidence from a randomized control trial. *Management Sci.* 66(2):564–586.

Caria AS, Fafchamps M (2020) Can people form links to efficiently access information? *Econom. J. (London)* 130(631):1966–1994.

Carrell SE, Sacerdote BI, West JE (2013) From natural variation to optimal policy? The importance of endogenous peer group formation. *Econometrica* 81(3):855–882.

Casciaro T, Gino F, Kouchaki M (2016) Learn to love networking. *Harvard Bus. Rev.* 94(5):104–107.

Chatterji AK, Toffel MW (2016) Do ceo activists make a difference? Evidence from a field experiment. Working paper, Harvard Business School, Boston, MA.

Chatterji A, Delecourt S, Hasan S, Koning RM (2019) When does advice impact startup performance? *Strategic Management J.* 40(3):331–356.

Chatterji AK, Findley M, Jensen NM, Meier S, Nielson D (2016) Field experiments in strategy research. *Strategic Management J.* 37(1):116–132.

Cohen S, Fehder DC, Hochberg YV, Murray F (2019) The design of startup accelerators. *Res. Policy* 48(7):1781–1797.

Dahlander L, McFarland DA (2013) Ties that last: Tie formation and persistence in research collaborations over time. *Admin. Sci. Quart.* 58(1):69–110.

Dalton P, Rüschenpöhler J, Uras B, Zia B (2020) Curating local knowledge: Experimental evidence from small retailers in indonesia. *J. Eur. Econom. Assoc.* 19(5):2622–2657.

Delecourt S, Ng O (2021) (2021) Does gender matter for small business performance? Experimental evidence from India. Preprint, submitted April 21, http://dx.doi.org/10.2139/ssrn.3830935.

De Mel S, McKenzie DJ, Woodruff C (2009) Measuring microenterprise profits: Must we ask how the sausage is made? *J. Development Econom.* 88(1):19–31.

Deming DJ (2017) The growing importance of social skills in the labor market. *Quart. J. Econom.* 132(4):1593–1640.

Dimitriadis S (2021) Social capital and entrepreneur resilience: Entrepreneur performance during violent protests in togo. *Strategic Management J.* 42(11):1993–2019.

Drexler A, Fischer G, Schoar A (2014) Keeping it simple: Financial literacy and rules of thumb. *Amer. Econom. J. Appl. Econom.* 6(2):1–31.

Edmondson AC (2012) Teamwork on the fly. *Harvard Bus. Rev.* 90(4):72–80.

Eesley C, Wang Y (2017) Social influence in career choice: Evidence from a randomized field experiment on entrepreneurial mentorship. *Res. Policy* 46(3):636–650.

Eesley CE, Wu L (2019) For startups, adaptability and mentor network diversity can be pivotal: Evidence from a randomized experiment on a mooc platform. *Management Inform. Systems Quart.* 44(2):661–697.

Fafchamps M, Quinn S (2018) Networks and manufacturing firms in africa: Results from a randomized field experiment. *World Bank Econom. Rev.* 32(3):656–675.

Gallus J (2017) Fostering public good contributions with symbolic awards: A large-scale natural field experiment at wikipedia. *Management Sci.* 63(12):3999–4015.

George G, Corbishley C, Khayesi JN, Haas MR, Tihanyi L (2016) Bringing africa in: Promising directions for management research. *Acad. Management J.* 59(2):377–393.

Gerber AS, Green DP (2012) *Field Experiments: Design, Analysis, and Interpretation* (W. W. Norton & Company, New York).

Giorcelli M (2019) The long-term effects of management and technology transfers. *Amer. Econom. Rev.* 109(1):121–152.

Guzman J, Oh JJ, Sen A (2020) What motivates innovative entrepreneurs? Evidence from a global field experiment. *Management Sci.* 66(10):4808–4819.

Hallen BL, Eisenhardt KM (2012) Catalyzing strategies and efficient tie formation: How entrepreneurial firms obtain investment ties. *Acad. Management J.* 55(1):35–70.

Hasan S, Bagde S (2015) Peers and network growth: Evidence from a natural experiment. *Management Sci.* 61(10):2536–2547.

Hasan S, Koning R (2019a) Conversations and idea generation: Evidence from a field experiment. *Res. Policy* 48(9):103811.

Hasan S, Koning R (2019b) Prior ties and the limits of peer effects on startup team performance. *Strategic Management J.* 40(9): 1394–1416.

Hasan S, Koning R (2020) Designing social networks: Joint tasks and the formation and endurance of network ties. *J. Organ. Design* 9(1):1–19.

Hayes J (2002) *Interpersonal Skills at Work* (Routledge, New York).

Heckman J, Pinto R, Savelyev P (2013) Understanding the mechanisms through which an influential early childhood program boosted adult outcomes. *Amer. Econom. Rev.* 103(6):2052–2086.

Hochberg YV, Ljungqvist A, Lu Y (2007) Whom you know matters: Venture capital networks and investment performance. *J. Finance* 62(1):251–301.

Hoffman M, Tadelis S (2021) People management skills, employee attrition, and manager rewards: An empirical analysis. *J. Political Econom.* 129(1):243–285.

Iacovone L, Maloney W, McKenzie D (2022) Improving management with individual and group-based consulting: Results from a randomized experiment in colombia. *Rev. Econom. Stud.* 89(1):346–371.

ILO (2014) *Start and improve your business: Implementation guide*. International Labour Organization: Enterprises Department, Genera, Switzerland.

Imai K, Keele L, Tingley D, Yamamoto T (2011) Unpacking the black box of causality: Learning about causal mechanisms from experimental and observational studies. *Amer. Political Sci. Rev.* 105(4):765–789.

Ingram P, Morris MW (2007) Do people mix at mixers? Structure, homophily, and the "life of the party". *Admin. Sci. Quart.* 52(4):558–585.

Jackson MO (2003) A survey of models of network formation: Stability and efficiency Social Science Working Paper 1161, California Institute of Technology, Pasadena).

Khanna T (2018) *Trust: Creating the Foundation for Entrepreneurship in Developing Countries* (Berrett-Koehler Publishers, Oakland, CA).

Khanna T, Palepu KG (2010) *Winning in Emerging Markets: A Road Map for Strategy and Execution* (Harvard Business School Press, Cambridge, MA).

Kim H (2021) The value of competitor information: Evidence from a field experiment. Preprint, submitted October 1, https://papers.kimhyunjin.com/Kim_JMP.pdf.

Klein C, DeRouin RE, Salas E (2006) *Uncovering Workplace Interpersonal Skills: A Review, Framework, and Research Agenda* (Wiley Publishing, Chichester, UK).

Kuwabara K, Hildebrand CA, Zou X (2018) Lay theories of networking: How laypeople's beliefs about networks affect their attitudes toward and engagement in instrumental networking. *Acad. Management Rev.* 43(1):50–64.

Le H, Vial L, Frej J, Segonne V, Coavoux M, Lecouteux B, Allauzen A, et al. (2019) Flaubert: Unsupervised language model pretraining for french. Preprint, submitted December 11, https://arxiv.org/abs/1912.05372.

Lee DS (2009) Training, wages, and sample selection: Estimating sharp bounds on treatment effects. *Rev. Econom. Stud.* 76(3):1071–1102.

Lerner J, Malmendier U (2013) With a little help from my (random) friends: Success and failure in post-business school entrepreneurship. *Rev. Financial Stud.* 26(10):2411–2452.

Lopes PN, Brackett MA, Nezlek JB, Schütz A, Sellin I, Salovey P (2004) Emotional intelligence and social interaction. *Personality Soc. Psych. Bull.* 30(8):1018–1034.

Martin L, Muller B, Suárez PJO, Dupont Y, Romary L, de la Clergerie ÉV, Seddah D, et al. (2019) Camembert: A tasty french language model. Preprint, submitted November 10, https://arxiv.org/abs/1911.03894.

McFarland DA, Moody J, Diehl D, Smith JA, Thomas RJ (2014) Network ecology and adolescent social structure. *Amer. Sociol. Rev.* 79(6):1088–1121.

McKenzie D (2012) Beyond baseline and follow-up: The case for more t in experiments. *J. Developmental Econom.* 99(2):210–221.

McKenzie D (2021) Small business training to improve management practices in developing countries: Re-assessing the evidence for 'training doesn't work'. *Oxford Rev. Econom. Policy* 37(2):276–301.

McKenzie D, Woodruff C (2014) What are we learning from business training and entrepreneurship evaluations around the developing world? *World Bank Res. Observations* 29(1):48–82.

McKenzie D, Woodruff C (2018) Business practices in small firms in developing countries. *Management Sci.* 63(9):2967–2981.

McPherson M, Smith-Lovin L, Cook JM (2001) Birds of a feather: Homophily in social networks. *Annu. Rev. Sociol.* 27(1):415–444.

Montgomery JMNyhan B, Torres M (2010) How conditioning on posttreatment variables can ruin your experiment and what to do about it. *Amer. J. Political. Sci.* 62(3):760–775.

Nanda R, Sørensen JB (2010) Workplace peers and entrepreneurship. *Management Sci.* 56(7):1116–1126.

Paluck EL (2011) Peer pressure against prejudice: A high school field experiment examining social network change. *J. Experiment. Soc. Psych.* 47(2):350–358.

Papke LE, Wooldridge JM (2008) Panel data methods for fractional response variables with an application to test pass rates. *J. Econometrics* 145(1-2):121–133.

Pichler S, Beenen G (2014) *Toward the Development of a Model and a Measure of Managerial Interpersonal Skills* (Routledge, New York).

Piezunka H, Dahlander L (2019) Idea rejected, tie formed: Organizations' feedback on crowdsourced ideas. *Acad. Management J.* 62(2):503–530.

Piolat A, Booth RJ, Chung CK, Davids M, Pennebaker JW (2011) La version française du dictionnaire pour le LIWC: Modalités de construction et exemples d'utilisation. *Psychologie Française* 56(3):145–159.

Poets & Quants (2021) Lifting the curtain on 'touchy feely,' Stanford's—and the world's—most iconic MBA course. Retrieved April 8, 2021, https://poetsandquants.com/2021/02/08/lifting-the-curtain-on-touchy-feely-stanfords-and-the-worlds-most-iconic-mba-course/2/.

Powell WW, Koput KW, Smith-Doerr L, Owen-Smith J (1999) Network position and firm performance: Organizational returns to collaboration in the biotechnology industry. *Res. Sociol. Organ.* 16(1):129–159.

Quinn S, Woodruff C (2019) Experiments and entrepreneurship in developing countries. *Annu. Rev. Econom.* 11:225–248.

Riggio RE (1986) Assessment of basic social skills. *J. Personality Soc. Psych.* 51(3):649.

Riggio RE, Reichard RJ (2008) The emotional and social intelligences of effective leadership: An emotional and social skill approach. *J. Management Psych.* 23(2):169–185.

Ryall MD, Sorenson O (2007) Brokers and competitive advantage. *Management Sci.* 53(4):566–583.

Sandvik J, Saouma R, Seegert N, Stanton C (2020) Workplace knowledge flows. *Quart. J. Econom.* 153(3):1635–1680.

Saxenian A (1994) *Regional Advantage: Culture and Competition in Silicon Valley and Route 128* (Harvard University Press, Cambridge, MA).

Shane S, Cable D (2002) Network ties, reputation, and the financing of new ventures. *Management Sci.* 48(3):364–381.

Small ML (2009) *Unanticipated Gains: Origins of Network Inequality in Everyday Life* (Oxford University Press, Oxford, UK).

Stuart TE, Sorenson O (2007) Strategic networks and entrepreneurial ventures. *Strategic Entrepreneurial J.* 1(4):211–227.

Uzzi B (1996) The sources and consequences of embeddedness for the economic performance of organizations: The network effect. *Amer. Sociol. Rev.* 61(4):674–698.

Vega-Redondo F, Pin P, Ubfal D, Benedetti-Fasil C, Brummitt C, Rubera G, Hovy D, et al. (2020) Peer networks and entrepreneurship: A pan-African RCT. Preprint, submitted January 6, https://dx.doi.org/10.2139/ssrn.3513690.

Vissa B (2011) A matching theory of entrepreneurs' tie formation intentions and initiation of economic exchange. *Acad. Management J.* 54(1):137–158.

Vissa B (2012) Agency in action: Entrepreneurs' networking style and initiation of economic exchange. *Organ. Sci.* 23(2):492–510.

Vissa B, Chacar AS (2009) Leveraging ties: The contingent value of entrepreneurial teams' external advice networks on indian software venture performance. *Strategic Management J.* 30(11):1179–1191.

Walker G, Kogut B, Shan W (1997) Social capital, structural holes and the formation of an industry network. *Organ. Sci.* 8(2):109–125.

Watts A (2001) A dynamic model of network formation. *Games Econom. Behav.* 34(2):331–341.

Weber RA, Camerer CF (2003) Cultural conflict and merger failure: An experimental approach. *Management Sci.* 49(4):400–415.

World Bank (2019) *Togo: Future Sources of Growth* (Finance Competitiveness and Innovation Africa Region, Washington, DC).

Yamagishi T, Cook KS, Watabe M (1998) Uncertainty, trust, and commitment formation in the United States and Japan. *Amer. J. Sociol.* 104(1):165–194.

Yamagishi T, Kikuchi M, Kosugi M (1999) Trust, gullibility, and social intelligence. *Asian J. Soc. Psych.* 2(1):145–161.

Yenkey CB (2015) Mobilizing a market: Ethnic segmentation and investor recruitment into the nairobi securities exchange. *Admin. Sci. Quart.* 60(4):561–595.

Yu S (2020) How do accelerators impact the performance of high-technology ventures? *Management Sci.* 66(2):530–552.

Zander U, Kogut B (1995) Knowledge and the speed of the transfer and imitation of organizational capabilities: An empirical test. *Organ. Sci.* 6(1):76–92.

Zuckerman EW, Sgourev SV (2006) Peer capitalism: Parallel relationships in the US economy. *Amer. J. Sociol.* 111(5):1327–1366.