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Do ambitious entrepreneurs benefit more from training?

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Do Ambitious Entrepreneurs Benefit More from Training?

Research Summary

Does growth training help entrepreneurs scale-up new ventures? Our field experiment answers this question using data from 181 Singapore-based, early-growth entrepreneurs drawn from a broad range of industry sectors. Treatment content focused on three growth-catalyst tools relevant for formulating and executing innovation-led growth: business-model design, leveraging external networks, building internal teams. Treatment format comprised interactive lecture sessions and workshops on these tools supplemented by personalized coaching in applying the tools to entrepreneurs' specific challenges. We find that ventures led by entrepreneurs that received training experienced sales growth of 72.5% compared to 30.3% for those in the control condition. Furthermore, ventures led by entrepreneurs with more ambitious growth expectations experienced sales growth of about 100% compared to 10% for those in the control condition.

Managerial Summary

We study how training in growth-catalyst tools help entrepreneurs scale-up new ventures. We focused on three tools relevant for formulating and executing innovation-led growth: business-model design, leveraging external networks, building internal teams. The training format comprised lecture-workshops and personalized coaching in applying the tools. Our quantitative findings confirm that entrepreneurs who attended the training increased their venture's sales revenue, and the more ambitious entrepreneurs increased their venture's sales revenue to a much greater degree. Illustrative interviews suggest these tools help entrepreneurs to reimagine their business, successfully access influential resource-holders such as potential investors or customers and persuade them by representing their business in a credible and succinct fashion. Our findings inform policy-makers designing entrepreneurial training interventions on how participants' ambitions shapes intervention success.

INTRODUCTION

Fast-growing new ventures founded by opportunity-seeking entrepreneurs benefit society because they are key sources of jobs (Davis, Haltiwanger & Schuh, 1998) and innovation (Schumpeter, 1934) that boost economic prosperity. Even micro- and small enterprises founded by necessity-driven entrepreneurs (endemic in emerging economies) (Acs, Desai & Hessels, 2008; Kelly, Bosma & Amoros, 2011) serve as important sources of income and employment for vulnerable populations. Given the societal importance of entrepreneurship (Baumol, 1990) and because some aspects of entrepreneurship can be learned (Timmons & Spinelli, 2004), policymakers in both mature and emerging economies (Armanios et al., 2017; Audretsch, 2004)

have allocated significant resources to entrepreneurship training, using the rationale that one way to support entrepreneurs who launch and grow private enterprises is to provide relevant knowledge through such training.

A large body of research in economics as well as management has since examined whether and how entrepreneurship training influences the performance of participating ventures (cf. McKenzie & Woodruff, 2014; Valerio et al., 2014 for a comprehensive review). Surprisingly, the evidence is mixed. McKenzie and Woodruff's (2014) meta-analysis reveals that training does not significantly impact the sales or profits of participating ventures. Three studies in their meta-analyses did report a small positive effect, but the remaining twelve reported no effects. One explanation for the lack of evidence of the beneficial effects of training is that participants had low-growth expectations. This interpretation is plausible because the training programs in the meta-analysis were delivered in emerging economies mainly to necessity-driven entrepreneurs, for whom business growth is rarely a key concern. The implication is that the beneficial effects of entrepreneurship training are more likely in settings where opportunity-seeking entrepreneurs launching new ventures are also at the appropriate stage of the entrepreneurship process (Bhidé, 2000) when the training content is relevant and useful.

Some recent research on entrepreneurship training seems consistent with this explanation. For example, Chatterji et al. (2018) report evidence that Indian VC-backed entrepreneurs benefit from knowledge on people management and organization design skills delivered by relevant peers in a structured format. Chatterji et al.'s (2018) sample consists of fast-growing software ventures in the thriving technology sector of an emerging economy. Camuffo et al. (2020), on the other hand, examine the impact of training on entrepreneurs from Italy, a mature market economy. They obtain evidence that training nascent entrepreneurs (i.e., entrepreneurs at the idea evaluation stage)

on a "scientific" approach to business-idea testing enabled these entrepreneurs to accurately validate their initial ideas, either by correctly pivoting or even terminating their attempts to convert their business ideas into startups with some revenue.

We build on Chatterji et al. (2018) and Camuffo et al. (2020) in three ways. First, we study the effects of structured entrepreneurship training using strategy and organization science tools relevant for early-growth entrepreneurs in a mature market economy, in which entrepreneurship involves the pursuit of opportunity-driven business ideas. Specifically, we examine whether Singapore-based entrepreneurs operating early-growth ventures from a broad range of sectors benefit from structured training. We study early-growth entrepreneurs because prior research shows that crossing the chasm from a nascent startup with barely any revenue to an early-growth stage venture with greater stability of cash flows is a daunting challenge (Aldrich, 1999; Buffart et al., 2020). Our focus on the early-growth stage of the entrepreneurship process thus complements Camuffo et al. (2020) whose study focused on the prior stage (the idea evaluation stage). Likewise, we complement Chatterji et al. (2018) by examining non-VC-backed entrepreneurs from a broad range of industry sectors in a mature economy.

Second, we extend the training content to examine three tools useful for formulating and executing innovation-led growth strategies relevant for opportunity-driven entrepreneurship. These strategy and organization science tools include (i) the business model canvas (Osterwalder & Pigneur, 2010), a structured way to formulate innovation strategies, and frameworks for (ii) structuring internal teams (Burton et al., 2019), and (iii) leveraging external networks (Baker, 2000) that are essential for executing strategy. Broadening the training content represents a contribution to the literature, since much existing research considers curriculum that covers mainly finance or marketing content, rather than strategy and organization science frameworks. Third, we

explore whether early-growth entrepreneurs with more ambitious growth goals were particularly likely to benefit from our training intervention. Providing evidence on whether heterogeneity in entrepreneurs' growth goal moderates the effect of training on new venture's financial performance would help reconcile the mixed evidence on the beneficial effects of training.

Our data consists of Singapore-based entrepreneurs running new ventures who were trained during 2017-2018 in the three tools of business model innovation, team structuring, and effective networking, using a randomized control trial (RCT). The treatment consisted of interactive lecture sessions and workshops on these tools supplemented by personalized coaching in applying the tools to each entrepreneur's specific challenges. We randomly assigned 103 entrepreneurs to the treatment condition; the 78 entrepreneurs in the control condition group received the exact same treatment one year later. Our findings suggest these training inputs delivered to entrepreneurs have a causal effect on their new ventures' growth (measured by sales revenues). In addition, our results suggest entrepreneurs having a more ambitious growth goal benefit more from training.

THEORY AND HYPOTHESIS

Opportunity driven entrepreneurship is distinguished from necessity-based entrepreneurship mostly prevalent in developing countries, i.e., circumstances forcing an individual to enter entrepreneurship (George et al., 2016) or effectuation-based entrepreneurship, i.e., relying on what you have and who you know to construct new opportunities (Sarasvathy, 2001). In opportunity driven entrepreneurship, an entrepreneur first selects or constructs an opportunity (Shane & Venkataraman, 2001) to create value based on conjectures that her ideas fit the needs of targeted customers or users. She subsequently mobilizes resources (Clough, Fang, Vissa & Wu, 2019) to pursue the opportunity. Because of uncertainty, the entrepreneur may

continually change the strategic direction of her fledgling venture's specific opportunity as well as the mobilization of relevant resources. Innovation methodologies—under the rubric of the "lean startup" (Blank, 2013; Ries, 2011) and "business model canvas" movements — specify methods of developing and testing novel business models as a part of a venture's business strategy.

In addition to business model innovation, scholars and practitioners stress the importance of entrepreneurs' social capital for successfully *executing* strategies. Possessing a personal network (an entrepreneur's set of interpersonal relationships) that is rich in social capital improves the chance of finding relevant others who can help mobilize resources by making introductions, sharing useful information and knowledge, providing mentorship, and so forth (Kotha & George, 2012; Vissa & Chacar, 2009; Vissa, 2012). Practitioner tools and self-help guides (e.g.: Baker, 2000) on improving social capital stress the importance of effective personal networks. Research confirms that better-connected entrepreneurs are able to raise resources (Nai et al., 2021) and achieve superior performance (see Hallen, Davis & Murray, 2020 and Hoang & Yi, 2015 for recent comprehensive reviews of the entrepreneurial networks literature).

Finally, practitioners believe that building a strong management team fosters business expansion (Drucker, 1985). Specifying how to identify and recruit skilled executives and how to motivate them to work together as a new venture team is daunting. Research shows influential resource holders, such as key customers, alliance partners and investors, place great importance in a new venture's management team (Dimov & Shepherd, 2005; Wasserman, 2012).

Our core argument is that training in these methods increases the salience of business model innovation, networking and team structuring for entrepreneurs. In addition, personalizing this training helps them apply these tools to their specific challenges. In short, training improves a founder's ability and willingness to build a venture. The more entrepreneurs correctly apply these

growth-catalyst tools, the more likely their ventures' growth-impediments are reduced. More formally:

H1: Entrepreneurs who undergo training in the three domains (innovation, teams, and networks) experience greater venture growth than entrepreneurs in the control condition.

Ambitious Entrepreneurs' with Higher Growth Goals as a Moderator

We explore how the heterogeneity in entrepreneurs' ambitions for their business, i.e., *ex-ante* growth goal drives training outcomes. Growth goals are related to the size of the venture that the entrepreneur expects to achieve. Growth goals combine the aspirations of the entrepreneur (what the entrepreneur desires) with the understanding of the resources and constraints to arrive at a projection for the size of the new venture (Hermans, et al., 2015). Entrepreneurs may vary in their growth goals due to the heterogeneity in their human and social capital and psychological orientation. Education and specific work experience enables some entrepreneurs to access valuable opportunities and set ambitious growth goals (Shane, 2000). Similarly, as entrepreneurs are embedded in a web of social relationships, the size and heterogeneity of the focal entrepreneur's network may influence the magnitude of her growth goals (Aldrich, 1999, Ertug, Kotha, & Hedstrom, 2020). Finally, the psychological make-up of entrepreneurs may influence their growth goals. Entrepreneurs with a strong need for achievement have been argued to exhibit greater growth ambition (Kolveried, 1992) while entrepreneurs with a strong need for independence have been argued to forsake ambitious growth goals (Davidsson, 1989).

The importance of goals as drivers of motivation and effort, well understood by learning theorists (Locke & Latham, 1990), has been extended to entrepreneurship (Baum, 2013). Essentially, goals motivate and direct effort to fulfill tasks. Because strategy and organization

frameworks related to business model innovation, networking, and team structuring fuel and sustain business growth, entrepreneurs with higher growth goals will find training in these topics both more required and more useful. In short, entrepreneurs with a higher growth goal will be more receptive to the training content because the content is likely relevant to their situation. We propose that entrepreneurs with greater growth goals will benefit more from the training.

H2: Entrepreneurs' growth goal positively moderates the causal effect of training on their ventures' growth.

METHODS

We implemented a randomized control trial with 103 entrepreneurs in the treatment group and 78 in the control group. Entrepreneurs in the treatment group received training at the beginning of the study, and entrepreneurs in the control group were promised and offered training 10 months after the treatment group's training, by which time all the data for the study was collected.

Data and Timeline: Ventures were selected in two stages (Figure A1 in the online Appendix). In Stage 1 a subset consisting of nearly 14,500 new businesses registered with the Singapore Accounting and Corporate Regulatory Authority (ACRA) in 2016 were mailed invitations asking founders[1] to complete an online recruitment screener survey if they were interested in participating in the study. From January to April 2017, a market research firm used public information to contact and urge founders to fill out the screener survey. Baseline surveys were conducted face-to-face in April 2017. The training for the treatment groups was conducted on weekends in May and June 2017. To test for treatment absorption two monthly surveys were carried out in June and July 2017. Subsequently two short performance surveys were conducted at

[1] We use the terms 'entrepreneur' and 'founder' interchangeably

midline November 2017 and endline in February 2018. An exit survey was also conducted in February 2018. Training for the control group was provided in March and April 2018.

Randomization: In all 302 founders filled out the screener survey. Of these, 100 founders did not qualify because they indicated that they could only attend the training in the treatment cohort period or control cohort period. Since such a preference would impede random assignment into treatment or control group, these 100 founders were excluded from the study. We excluded a further 21 founders from the study since they completed the screener survey after the training for the treatment group was conducted. Thus, of the 302 founders who filled out the screener survey, 181 qualified for the study.

Anticipating there might be no-shows in the treatment condition, we randomly assigned a higher number, about 100 founders (actual 103), to treatment and 80 (actual 78) to control. Randomizing was performed using the 'runiform()' function in Stata. We, however, had to run the randomization in four batches because founders were still completing the screener survey as the initial training date for the treatment approached. We tested for systematic differences between the treatment and control groups using an ordinary least squares (OLS) estimation, predicting the possibility of assignment to treatment condition as a dependent variable and using the variables in the paper as independent variables. As we anticipated, the F-statistic (online Appendix Table 1, Model 1, $F = 1.391$) of the estimation was not significant, suggesting no systematic differences between treatment and control group, although some variable(s) could be significant just by chance. Sales revenues of ventures and founders' growth goal in the treatment condition were slightly lower compared to the control condition. Given that we did not stratify randomization on sales or any other variable, we attribute this result to random chance.

Intention to Treat: Our main analysis considered the 181 founders (103 to treatment and 78 to control) randomly assigned to treatment and control conditions at the beginning of the study. Of the founders in the treatment condition, 39 did not attend the training program. Also, one founder in the control condition switched to the treatment condition.

Following convention, we used the original assignment of treatment and control for the 181 founders, i.e., our intention to treat (ITT). ITT analysis is the convention because noncompliers are systematic to training interventions and we want to know the effect of running the program. Moreover, ITT is less likely to find significant effects of the treatment, because founders who did not attend are still retained in the treatment even though they did not receive the training. Also, the founder who switched to treatment is retained in control even though she received the treatment. Thus, the bias in this analysis is a conservative one, i.e., significant effects are less likely.

To be sure, we conducted additional robustness analysis to check if founders who agreed to join the treatment group and could not attend, i.e., noncompliers (39 founders), were any different from compliers (64 founders) who attended the training and also from founders in the control group at the beginning of the study (see online Appendix Table A1, Model 2). Results of this analysis are consistent with the conclusion that no systematic differences existed between compliers and noncompliers (F-statistic = 1.02 and no variable has a p-value < 0.05) in the treatment.

Training Program for Treatment Condition: The two-day training program for the treatment group was conducted in May and June 2017. In the first day, founders were taught how to describe their ventures using a business model canvass and how to identify issues with their business models (see Table 1). Founders were then given a simple framework to diagnose and improve the social capital of their personal networks. Finally, each was offered a simple framework to analyze the

venture team's structure and dynamics. These frameworks were introduced in the classroom in an interactive format where founders had open discussions with peers and the instructor on applying the frameworks. Founders then used these tools in an integrated manner that was customized to the specific challenges and opportunities of their entrepreneurial journeys. Thus, they applied the tools to their specific contexts, for example, to identify flaws in their business models and gaps in their venture teams' structure, and to broaden their networks by applying networking tactics to persuade potential resource-holders to collaborate with them. In June, the founders returned for the second day when they reported how they attempted to address the concerns with their business models and described their efforts to activate their networks or recruit team members. Subsequently, founders were paired with mentors to discuss their business models and other management challenges. These mentors were recruited from an institute of innovation and entrepreneurship responsible for incubation and start-up activities at the university of one of the authors.

Sample Description: Tables 2, 3 and 4 in the paper and Tables A5 and A6 of the online appendix supply detailed descriptive statistics on the backgrounds of the founders in our sample, the types of ventures they founded, and the challenges they face. Table 2 shows about 20% of our sample (35 founders) had prior business education while the remaining 80% were drawn from nonbusiness educational backgrounds (136 founders from science, technology, engineering, math, or humanities). About 50% of founders had prior entrepreneurship experience. The modal founder in our sample possessed prior work experience ranging from zero to five years.

Table 3A displays details of the industry sector classifications using the Singapore Standard Industry Classification (SSIC). Information and communications (28%), wholesale and retail trade (24.6%), and professional, scientific, and technical activities (16.6%) are the three most

prevalent categories. In Table 3B we use founders' self-reports of their ventures to classify the business type (digital versus conventional business model). As can be seen from the table, the ventures in our sample span a wide spectrum of industries ranging from app design to food & beverage to logistics to telecom. Also, about 62% of the ventures in the sample were pursuing a conventional business model while the remaining 38% were pursuing a digital business model. Table A6 of the online appendix provides more details (for a subsample) of how founders' self-reported business descriptions enabled our classification. Table 4 presents venture-financing details. As can be seen, the founders in our sample mostly relied on personal sources of financing (including friends, colleagues, and family) to fund their ventures (n= 136, mean= SGD 46,687). Only a few founders received loan financing from banks or other financial institutions (n= 16, mean = SGD 60,000). None of the ventures in our sample were VC backed when baseline data was collected. Given the relatively supportive financial environment of Singapore, consistent with Belenzon et al (2020), there was only a single case of eponymy in our sample.

--INSERT TABLES 1-4 ABOUT HERE--

In addition, Table A5 of the online appendix provides insights into the main challenges faced by the founders in our sample. The key themes revolve around managing competition (both domestic and foreign), attracting and retaining customers, and mobilizing other resources such as financing and skilled manpower. In summary, our sample consists of entrepreneurs whose revenue-generating ventures are in the early-growth stage, are non-VC backed, and represent a broad range of industry sectors in Singapore, a developed economy context.

Dependent Variable: Our dependent variable of interest is venture growth, which we measure using sales revenue – widely used in prior research to measure venture growth. A focal founder self-reported her venture's annual *Sales* using a five-category, Likert-type scale. We assigned this

variable the value of 1 if the sales were between SGD 0 and SGD 99,999, 2 if between SGD 100,000 and SGD 249,999, 3 if between SGD 250,000 and SGD 499,999, 4 if between SGD 500,000, and SGD 1,999,9999, and 5 if above SGD 2,000,000.

Since sales was self-reported, it is possible that founders who received treatment may exaggerate their self-reported sales to the agency administering the survey, perhaps due to Hawthorne-type social desirability effects induced by the classroom training stimulus[2]. Two robustness analyses suggest this type of response bias is unlikely in our data. First, if social desirability bias in self-reporting of sales revenues were operating in our sample, this bias is likely to be even higher in midline data – information collected six months after training and, hence, temporally closer to the classroom sessions when compared to endline data collection. However, as we report in Table A2 of the online appendix, there is no difference in self-reported sales revenue at midline data collection between treatment and control groups.

Second, we tested for concordance between self-reported and statutorily reported sales revenues for a sub-sample where the latter was available. Specifically, we examined whether ventures disclosed their revenues to the Singaporean regulator ACRA. Per ACRA guidelines, reporting sales revenues to ACRA is purely optional for small firms, that is, firms having annual revenues less than SGD10 million or less than 50 shareholders. Our sample ventures are all small firms whose ACRA disclosure would be voluntary; nevertheless, we were able to identify a sub-sample of 69 observations of sales revenues from 50 ventures with both ACRA sales data and self-reported sales data. Table A3 of the online appendix tests for systematic differences between our sample ventures that voluntarily reported sales revenue information to ACRA and those that did not, since it is plausible that the voluntarily reporting ventures from our sample were different

[2] Thanks to an anonymous reviewer for this insight

from the others. The model predicting voluntary disclosure of accounting information to ACRA based on the baseline variables is not significant (p-value = 0.48), implying that ventures in our sample that voluntarily report their data to ACRA are similar on observables to ventures in our sample that do not disclose information to ACRA.

Of the 69 observations of sales revenue used for the concordance analysis, 31 observations were from 25 ventures (17 with only pre-period sales, 2 with only post-period sales, and 6 with sales in both periods) that received treatment. The remaining 38 observations were from 25 ventures (8 with only pre-period sales, 4 with only post-period sales, and 13 with sales in both periods) in the control group. The pre-period spans the 2017 calendar year (1 January to 31 December 2017); the post-period spans the 2018 calendar year (1 January to 31 December 2018). We transformed the ACRA reported sales revenue data into the exact same five-category, Likert-type scale used for the self-reported sales i.e., 1 if sales were between SGD 0 and SGD 99,999, 2 if between SGD 100,000 and SGD 249,999, 3 if between SGD 250,000 and SGD 499,999, 4 if between SGD 500,000, and SGD 1,999,9999, and 5 if above SGD 2,000,000. This transformed ACRA sales revenue data were then compared to the self-reported sales (by the entrepreneurs) for the corresponding study period. Data points were flagged as overstated if the self-reported sales were higher than the sales figures reported to ACRA.

Examining the 69 observations with self-reported and ACRA-disclosed sales revenues, we find 2 ventures in the treatment group overstated their self-reported sales revenues; similarly, 3 ventures in the control group overstated their self-reported sales revenues. These results suggest that treatment-group ventures were no more likely to overstate their sales revenues compared to control-group ventures (N=69; Chi-square = 0.82 suggesting no difference). Overall, we conclude that concerns of bias in self-reported data in our sample seem unwarranted.

Independent Variables: The *Treatment* indicator variable takes a value of 1 if the founder / venture is in the treatment condition (103 observations), and it takes the value of 0 if the founder / venture is in the control group (78 observations) based on the randomization at the beginning of the study. *Growth Goal* measures the founder's expected sales revenues for the venture 12 months into the future, which was reported at the start of the study using the same five-category, Likert-type scale used for *Sales*.

Control Variables: We use the following control variables that have been shown to influence start-up performance. *Work experience* is the number of years of work experience that a founder possessed before the focal venture. *Education* is a scaled variable that takes values between 1 and 7: 1 for primary and below, 2 for O Level, 3 for A Level, 4 for Diploma, 5 for Bachelors, 6 for Masters, and 7 for Ph.D. *Ethnicity* takes a value of 1 if the founder is Chinese and 0 otherwise. *Female* takes a value of 1 if the founder is female and 0 otherwise. *Singaporean* takes a value of 1 if the founder is a Singaporean citizen and 0 otherwise. *Entrepreneurship experience* is set to 1 if the founder was involved in setting up a new venture prior to the focal venture and 0 otherwise. *Age* is the count in years since the birth year of the founder.

Estimation Strategy: We measured *Sales* and other features of a focal venture / founder at both baseline (April 2017) and endline (Feb 2018), thus enabling us to construct a panel dataset. This data structure enabled a differences in differences estimation strategy with the two groups, treatment and control, using the ITT Panel regression with entrepreneur fixed effects and with standard errors clustered by venture to estimate sales (xtreg in Stata). While randomization would take care of unobserved heterogeneity among founders / ventures, the entrepreneur fixed effects add an additional layer of control for time-invariant heterogeneity across founders / ventures. We also repeated the estimations with entrepreneur random effects for robustness.

RESULTS

Panel A of Table 5 presents the variables by treatment and control conditions at the start of the study (baseline). As we discussed earlier, due to randomization there is no systematic difference between treatment and control groups as a whole (see Appendix Table A1, Model 1), although venture sales and growth goal of the entrepreneurs in the treatment condition are lower than venture sales and growth goal of entrepreneurs in the control condition purely by chance.

Treatment Absorption: We tested if subsequent to the training, there were differences in understanding of the content areas between treatment and control groups (Figure 1). A subset of the sample answered the treatment-absorption question (34 in treatment group and 26 in control group). When compared to the control group those who attended the training intervention (1) had used the business model canvass more explicitly in the past two months, and became aware of a major problem with their business models ($p = 0.02$); (2) understood the size of their social network, recognized how to build social networks, and were more connected to the ecosystem ($p = 0.00$); and (3) identified key users and communicated with them to build relationships ($p = 0.01$). However, there was no change in their team-formation activities ($p = 0.12$). In addition, to gain insights on micro-mechanisms, we conducted semi-structured interviews with a subsample of ten founders who volunteered. Table A7 of the online appendix details the pathways linking training to changes in entrepreneurs' beliefs and actions, and changes to organizational practices and outcomes. We conclude that the training likely resulted in changes in the thinking and behavior of founders who attended. That is, they understood and employed the tools and frameworks taught at the training intervention.

--INSERT TABLES 4-6 & FIGURES 1-4 HERE--

Hypotheses Testing: Hypothesis 1 predicts that the intervention will have a positive impact on the sales revenue of ventures whose founding entrepreneurs received treatment. Table 6 reports the impact of the training intervention on sales. Panel A displays entrepreneur fixed effect models while Panel B reports entrepreneur random effect models. Model 1 of Panel A contains the interaction of *Treatment* and *Endline*, where *Endline* is an indicator variable denoting data collected at the end of the study. The main effect of *Treatment* is omitted by design because we use entrepreneur fixed effects in Panel A. The interaction term *Treatment * Endline* is positive (b = 0.37; p = 0.074), suggesting that treatment positively influences sales revenue of ventures whose founders received treatment. Models 3 and 4 of Panel B test Hypothesis 1 using random effect models. As can be seen, the interaction term *Treatment * Endline* in Model 3 (b = 0.35; p = 0.077) and in Model 4 (b = 0.41; p = 0.035) is positive, suggesting that treatment positively influences venture sales revenues under this specification as well. In sum, our H1 is supported. The predicted sales using estimates in Model 4 of ventures in the treatment condition increases from 1.20 ± 0.05 in the period before treatment to 2.07 ± 0.13 at endline, a rise of 72.5%. In contrast, sales of those in the control condition in the same period increase from 1.32 ± 0.06 to 1.72 ± 0.14, a rise of 30.3% (see Figure 2). A simple transformation of the sales scale yields an increase in sales for those in the treatment condition of SGD128,489; for those in the control condition sales increase by SGD58,987.

Next, we test Hypothesis 2 which predicts that the training's impact will be particularly large for entrepreneurs with greater growth goals. Model 2 of Panel A presents the three-way interaction between periods, treatment, and growth goal with fixed effects while Model 5 presents the same interaction with random effects. As can be seen, *Treatment * Endline * Growth Goal* is positive in both Model 2 (b = 0.335; p = 0.087) and in Model 5 (b = 0.684; p = 0.001), supporting

H2. Figure 3 visually presents the practical significance of these findings by graphing the effect on sales by control and treatment, and the effect when growth goal is one standard deviation below and above mean values. The difference between low- (0.89) and high-growth (1.76) goals for the control group at baseline was 0.87. At endline the difference between low- (1.51) and high-growth (1.93) goals was only 0.42. In contrast, the difference between low- (1.06) and high- growth (1.34) goals for the treatment group at baseline was only 0.28. However, at endline the difference between low- (1.48) and high-growth (2.68) goals increased markedly to 1.20.

Additional analysis in small sub-sample with ACRA sales information: As a robustness test, we examined whether our theoretical predictions H1 and H2 on drivers of venture growth are supported in the subsample with objective ACRA sales revenue data. As discussed earlier, Table A3 results provide evidence that this subsample is not systematically different from our full sample, implying we should obtain similar patterns. Nevertheless, because the ACRA sub-sample is much smaller, we caution readers that this analysis should be viewed as supplementary to the main analyses, since estimations using small samples may be over-fitted or overly influenced by a few influential observations.

In Table 7, Model 2 and Model 3 we test Hypotheses 1 and 2, respectively, using revenues reported to ACRA. In Model 2 the interaction of the treatment and endline variable is weakly positive ($b = 2.30$; $p = 0.208$) indicating marginal support for Hypothesis 1 in the small subsample. In Model 3, however, the interaction term of growth goals, treatment, and endline is strongly positive ($b = 2.54$; $p = 0.000$) consistent with Hypothesis 2. The coefficients can be interpreted as fitted-dollar values of the difference in differences of the treated in Model 2 and the moderation in Model 3. We repeated the same analysis in Model 5 and Model 6 using the self-reported Likert scale sales measure as a dependent variable for the same subsample and tested Hypotheses 1 and

2, respectively. In Model 5 the interaction of the treatment and endline variables is positive (b = 1.17; p = 0.102), supporting Hypothesis 1. In Model 6, the interaction term of growth goal, treatment, and endline is weakly positive (b = 0.27; p = 0.59). Overall, this supplementary analysis in Table 7 is consistent with our theoretical predictions on the main effect of treatment (H1) and moderating effect of growth goal (H2) on venture growth.

--INSERT TABLES 7 & 8 HERE-

Supplementary Analyses – Effect of Training on Venture Survival: The above analyses support predictions from our conceptual model that management training positively influences venture growth (H1), particularly for ventures whose founders have a higher growth goal (H2). Our primary theoretical concern is with explaining variation in venture growth, which is reflected in our research design choices; nevertheless, we delved deeper to examine how management training might affect venture survival[3]. Prior research notes that venture growth is a distinct construct from venture survival although the constructs could be correlated. For this analysis we employed a cross-sectional logistic model with venture survival as a dependent variable. We are unable to use time-to-failure models, since ACRA rules for delisting from their registry does not allow us to construct the necessary fine-grained data needed to accurately capture failure timing.

In total, we coded 100 ventures as having failed (48 + 32 + 20= 100) and 81 ventures as surviving. However, there is one further complication in running such a survival analysis. Recall that our study design involved offering control group entrepreneurs the exact same training about one year after the treatment group received their training (see Online Appendix Figure A1). Only 11 entrepreneurs from the control group attended the training that was offered to them. To study the venture survival effects of founders' exposure to training and the timing of such exposure, we

[3] We thank an anonymous reviewer for this suggestion

created four mutually exclusive categories: control group founders that did *not* attend the training when offered (67 ventures), control group founders that attended the training one year after the treatment group (11 ventures), treatment group founders that did *not* attend training (39 ventures), and treatment group founders that attended training when offered (64 ventures).

Table 8 reports results of the logistic regression comparing survival of ventures led by control group founders that did not attend any training (67 ventures used as the comparison group) with ventures led by treatment group founders that attended the training (64 ventures). We lose nine observations due to missing values in the explanatory variables. In Model 1 the main effect of *treatment group (attended training)* as an explanatory variable is positively related to survival (b = 0.64; p = 0.102), implying that ventures whose founders were from the treatment group that attended training were more likely to survive; ventures led by founders in the treatment condition that attended training had a survival rate of 50 percent against the 36 percent survival rate of ventures in the comparison group. We conclude that training's effect on venture survival is directionally similar to the relationship linking training to venture growth. In Model 2 we add the interaction of the moderator (growth goal) and the treatment variable. We find that the interaction term *Treatment * Growth Goal* is negative (b = -.655, p = 0.099). Ai & Norton (2003) recommend checking the range at which the model predictions are significant in non-linear models rather than relying on the p-value of the interaction coefficient. The graphical representation suggests that the confidence intervals overlap – as reported in Figure 4. We repeated the model using ordinary least squares estimations where the interpretation of the moderation is more straightforward. We find that the moderator has a coefficient of -.136 and a p-value = .127. Table A8 and Figure A2 of the Online Appendix reports results where we repeat the survival analysis using all the four categories of founders: control group founders that did not attend the training when offered (67 ventures),

control group founders that attended the training one year after the treatment group (11 ventures), treatment group founders that did not attend training (39 ventures), and treatment group founders that attended training when offered (64 ventures). These results are consistent to those reported in Table 8. Overall, we conclude that growth goals' positive moderation of the main effect relationship between entrepreneurship training and venture growth does not carry over to the relationship between entrepreneurship training and venture survival.

Treatment Effect on the Treated (TOT): Finally, similar to the survival analysis reported above, we conducted a TOT analysis with sales revenue as the dependent variable. This analysis focuses on founders who received treatment and those in the control condition who did not receive treatment. In the first stage the dependent variable is an indicator variable that takes the value of one if a founder in the treatment condition attended training (64) or a founder in the control condition (1) attended training and the rest as zero. The random assignment to treatment and control is used to predict the first stage dependent variable. From the first stage estimation the predicted probability of actually attending training is used in the TOT analysis as an instrumented variable for treatment.

For our test of the main Hypothesis 1 on the effect of the treatment on the treated when we examine sales revenue as the outcome, the coefficient is numerically larger than the coefficient in the main analysis (Appendix Table A4, Model 1, b = 0.45 compared to b = 0.357 in model 1 of Table 6) although the confidence intervals around the coefficient overlap with zero (p = 0.173). Similarly, the coefficient is larger when estimating sales with random effects (Table A4, Model 3, b = 0.57, p = 0.087). In both fixed effect (Table A4, Model 2, b = 0.49, p = 0.116) and random (Table A4, Model 4, b = 0.73, p = 0.026) effect models, growth goal positively influences the

relationship between treatment and venture growth as predicted by Hypothesis 2. Taken together these tests are consistent with our theoretical predictions H1 and H2.

In sum, the results of the hypotheses testing and additional analyses on drivers of venture growth are consistent with the view that the training intervention increases new venture growth (measured by sales revenue). The increase in sales revenue is greater for founders with a higher growth goal at the start of the training intervention. In addition, our supplementary results on the drivers of venture survival suggests the training intervention positively influences venture survival as well.

DISCUSSION AND CONCLUSION

We advance our field's understanding of how training business founders in growth-catalyst tools from strategy and organization science influences their ability to grow new ventures. To investigate opportunity-based entrepreneurship in a mature market economy, we focused on training a sample of Singapore-based entrepreneurs in the three growth-catalyst tools of business model innovation, team structuring and effective networking using a randomized control trial. The treatment consisted of classroom-based workshops and interactive lectures supplemented by individualized coaching in applying the tools to address each entrepreneur's specific issues and challenges. Our findings provide causal evidence of a beneficial effect of these training inputs on new ventures' sales growth. In addition, we provide evidence that entrepreneurs with more ambitious growth goals benefit much more from the training.

Because of its purported positive societal impact, policymakers in both mature and emerging economies (Armanios et al., 2017; Audretsch, 2004) have earmarked significant resources to entrepreneurship training, using the rationale that training is plausibly an important method for supporting entrepreneurs who launch and grow private enterprises. However, the large

body of research, set mainly in emerging economies (e.g. Anderson, Chandy & Zia, 2016; Bloom & Van Reenen, 2010; Campos, et al., 2017; Brooks et al., 2018; Lafortune, et al., 2018), that has examined whether and how entrepreneurship training influences the performance of participating ventures (cf. McKenzie & Woodruff, 2014; Valerio et al., 2014 for a comprehensive review) provides inconsistent evidence of the beneficial impact of training. Our findings make two significant contributions to this literature. First, we broaden the training content typically examined in prior research. Much of this previous work focuses on training in basic finance or marketing (cf. Anderson, Chandy & Zia, 2016) and is set in emerging economies. We obtain evidence for the beneficial effects of training content drawn from strategy and organization science that enable the formulation and execution of innovative growth-strategies that are relevant for opportunity-driven entrepreneurship – the norm in developed economies. Second, our exploratory prediction that early-growth entrepreneurs with more ambitious growth goals are particularly likely to benefit from our training intervention offers one explanation that helps reconcile the surprising mixed evidence on the beneficial effects of training.

Our central finding that training entrepreneurs in growth-catalyst tools related to business model innovation, networking, and team structuring has a causal effect on their new ventures' growth underscores the need for more research using strategy- and organization-based conceptual frameworks to empirically research entrepreneurial training. Our study presents some initial evidence that the plethora of practitioner toolkits that purport to help make entrepreneurs skilled business and organization builders are beneficial. In particular, we find that conceptual frameworks around business-model design and effective networking seem to help entrepreneurs at the early-growth stage.

Our work is closer to and complements recent RCT-based literature on training entrepreneurs in the organizational aspects of creating and growing new enterprises. Chatterji, et al. (2018) adopt an RCT-approach to obtain evidence that Indian entrepreneurs benefit from peer advice on people-management to drive growth. Building on Chatterji et al. (2018) we explore how new knowledge in the form of structured frameworks augmented by tailored coaching in three strategy and organization tools drives growth. While Chatterji et al. (2018) studied Indian entrepreneurs, we show that entrepreneurs in a mature economy as well benefit from strategy and organization training. Likewise, Camuffo et al. (2020) also employ an RCT-analysis to examine the idea-evaluation stage of the entrepreneurship process, studying Italian nascent entrepreneurs attempting to validate incipient business ideas. We complement Camuffo et al. (2020) by studying founders at the next stage of the entrepreneurship process (Bhide, 2000) - the early-growth stage. Prior research shows that crossing the chasm from a nascent startup with barely any revenue to a growth-stage venture with greater stability of cash flows is a daunting challenge (Aldrich, 1999).

The training absorption questions and the qualitative interviews provide insights into the pathways through which training influenced venture growth and complements prior work that has examined how accelerators work (Hallen, et al., 2020). The illustrative interviews suggest that the training in business model innovation helped entrepreneurs to reimagine the possibilities of their business, and also to represent their business in a coherent yet succinct fashion to influential external resource-holders, such as potential customers, alliance partners, and investors. The networking training enabled entrepreneurs to successfully access new resource-holders.

In addition, our analysis of the more ambitious entrepreneurs suggests that growth goals are an important aspect of entrepreneur heterogeneity to consider in designing and evaluating training programs. Prior research has highlighted other aspects of entrepreneur heterogeneity such

as their 'coachability' (Bryan eta l, 2017) or experience (Lyons & Zhang, 2018) in evaluating entrepreneurs' response to training interventions. Even in mature market economies such as our study setting, where entrepreneurship is typically opportunity-based rather than necessity-based, entrepreneurs may still vary in setting growth goals for their venture because they may have non-pecuniary reasons such as a desire for autonomy or control to transition into entrepreneurship. In such settings, ignoring the growth goals of entrepreneurs may lead to inaccurate inference about the impact of training interventions. More importantly, our research suggests that perhaps training interventions for entrepreneurship in mature market economies need to be tailored differently for entrepreneurs who value growth versus those who value autonomy or control.

We also acknowledge important limitations to our approach. First, our sample size, though comparable to several prior field-experimental studies, is modest. This small sample constrains the conclusions we can draw, particularly about contingencies and mechanisms. Furthermore, because we did not observe entrepreneurs' pre-treatment knowledge of the training content nor observe their actions beyond our intervention events, we cannot identify the precise pathways (micro-mechanisms) through which our training influences venture outcomes. A related point is the fact we track the entrepreneurs in the study for a relatively short window of one year for self-reported measure of performance and a longer three-year window for survival analysis. Therefore, there is a possibility that the results of the sales estimations may vary over a longer horizon. Second, our self-reported Likert scale type measure of venture growth is not ideal. Entrepreneurs who attended the training may have responded with a biased (higher) sales information. However, analysis of the midline data when the bias may be more prevalent, and a sub-samples analysis of actual sales data (were available) suggest the bias may not be concern in our sample. Third, only a small fraction of the invited entrepreneurs participated in the study. Our highly selected subset may

hinder generalizing to the entire Singapore entrepreneurial ecosystem. More generally, future research should examine the systematic heterogeneity driving participation in field experiments. Finally, while we theorize and find that heterogeneity in growth goal is an important driver of who benefits most from training, we note that this was an exploratory hypothesis that was not pre-registered.

Despite these limitations, to our knowledge, we are among the first to examine how training in strategy and organization science frameworks can help entrepreneurs grow their ventures. We hope our work encourages new research on entrepreneur training and informs policymakers, especially in mature market economies where opportunity-based entrepreneurship is a key driver of economic growth.

Acknowledgments

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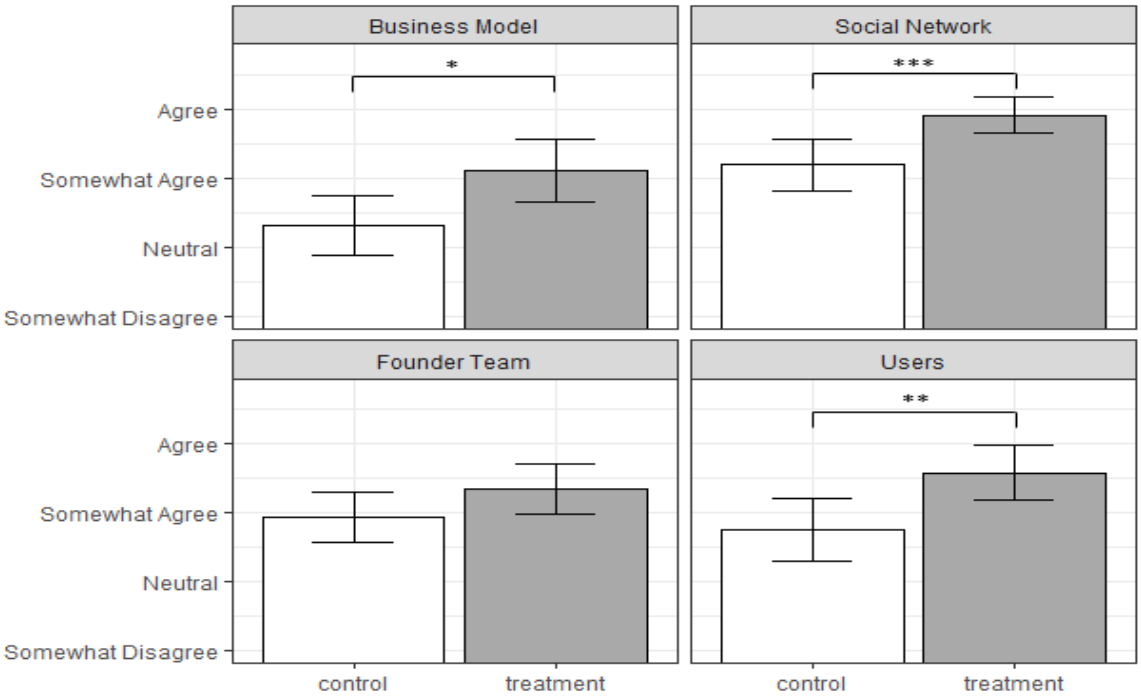
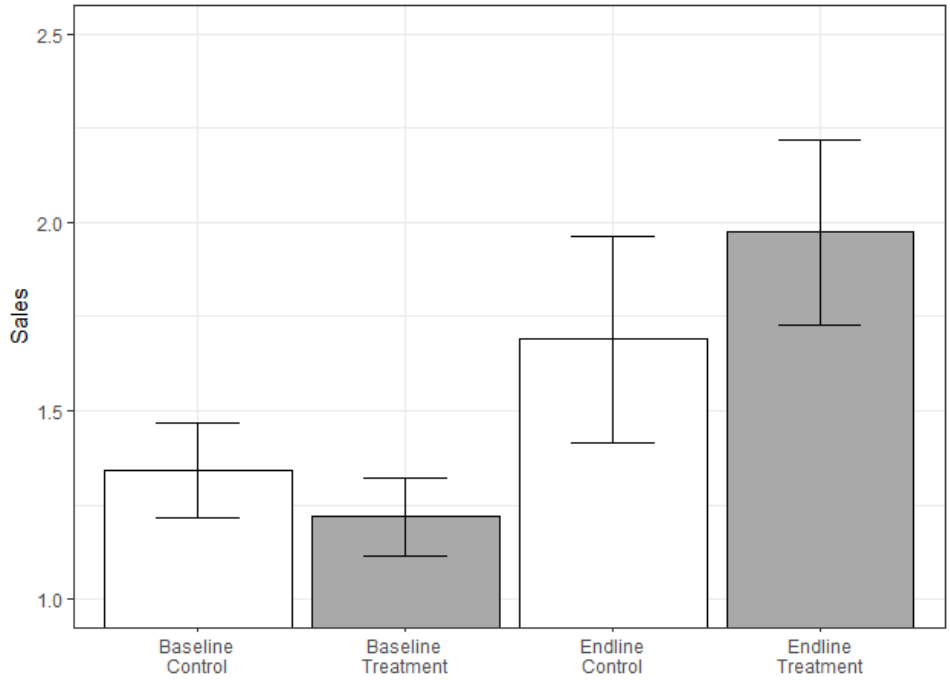
Figure 1 – Treatment Absorption Questions



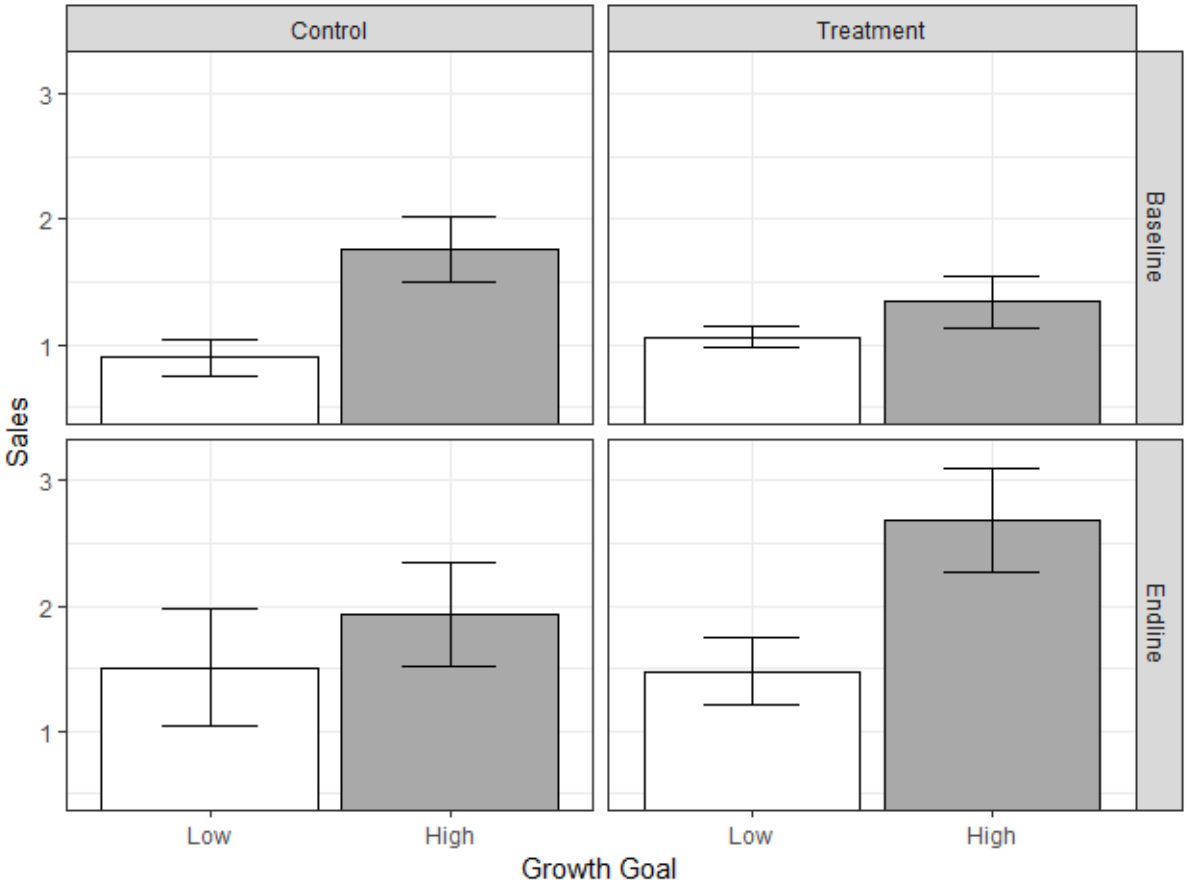
Notes: (i) t-test statistics: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. (ii) The tests are the difference between treatment and control conditions post the training to treatment condition.

Figure 2 – Main Effect of Training on Sales



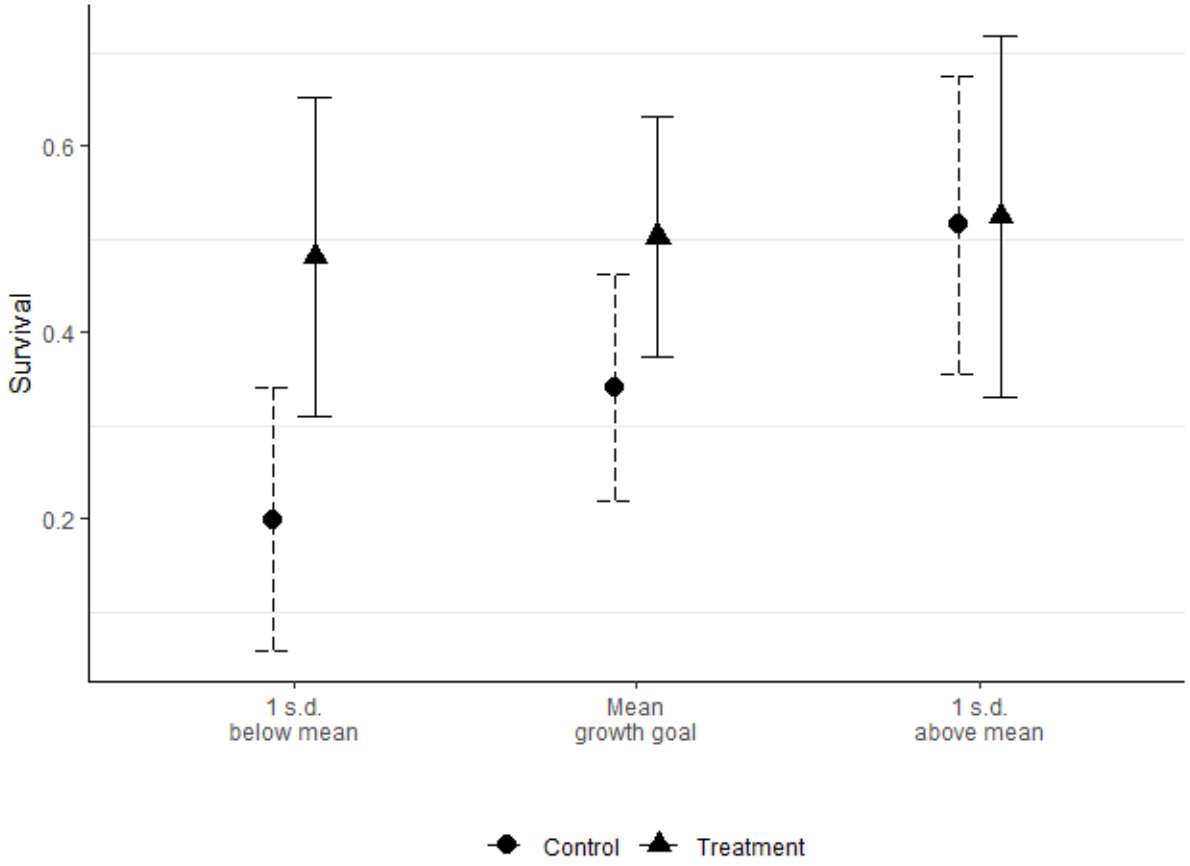
Notes: The above figure represents the predicted values for Model 4 (Table 6)

Figure 3 – Interaction Effect of Treatment and Growth goal on Sales



Notes: (i)The above figure represents the predicted values for Model 5 (Table 6)

Figure 4: Entrepreneurship Training, Growth Goal and Venture Survival



Notes: (i)'Treatment' refers to ventures whose founders were assigned to Treatment group and attended the training sessions. 'Control' refers to ventures whose founders were assigned to the Control group but did not attend the sessions when the exact same training was offered to the Control group about a year after the Treatment group.(ii) Figure 4 is based on the predicted values from Model 2 in Table 8.

Table 1: Description of the SCALE[a] Training Intervention

S.No	Topic Title	Session Description	Application Exercises
1	Business Model Innovation	Participants learn about the business model canvass tool for entrepreneurs and how to apply the tool to their ventures.	Identify the top 3 business model issues that are both urgent and relevant to the participants' specific ventures. Specify steps to address the issues, including how to identify and access specific resource-holders to address the identified issues.
2	Building Effective Networks	Understand how to build personal networks that are rich in social capital relevant to entrepreneurship.	Personalized debriefs that compare participants with their cohort in terms of snapshots of their current personal networks, their fit with the needs of their ventures, insights into participants' networking styles, and how to achieve better alignment between the needs of their tasks and the structure and quality of their networks.
3	Structuring Venturing Teams	Understand how incentives composition and norms affect team functioning in an entrepreneurial context.	Applying the DEFT model of venture team structuring to assess timing of entry of new members, incentivizing and managing group dynamics in the specific context of the participant's venture-building attempt.
4	Mentoring	Experienced entrepreneurs, domain experts and investors were made available to meet one-on-one with participants, to provide advice for participants' most pressing business problems.	Entrepreneurs shared their three most pressing business problems with the mentor.

[a] We referred to our training intervention as the SCALE (**S**tart-up **CA**pability, **L**earning and **E**mpowerment) program in all stakeholder interactions

Table 2: Entrepreneurs' Education and Work Experience

Type	Prior Educational Background			Prior Entrepreneurial Experience		Prior Work Experience	
	Area	**Level**	**N_1**		**N_2**	**Number of years**	**N_3**
Control	Non - Business (STEM, Humanities, etc.)	Diploma	18	Yes	40	0 – 5	29
		Bachelor	33			5 – 10	22
		Masters	10			10 – 15	11
	Business	Diploma	2	No	38	15 – 20	11
		Bachelor	7			20 – 25	3
		Masters	2			25 – 30	2
Treatment	Non - Business (STEM, Humanities, etc.)	Diploma	12	Yes	51	0 – 5	34
		Bachelor	39			5 – 10	26
		Masters	22			10 – 15	19
		PhD	2			15 – 20	8
	Business	Secondary	1	No	52	20 – 25	2
		Diploma	5			25 – 30	6
		Bachelor	14			30 – 35	3
		Masters	4				
Overall	Non - Business (STEM, Humanities, etc.)	Diploma	30	Yes	91	0 – 5	63
		Bachelor	72			5 – 10	48
		Masters	32			10 – 15	30
		PhD	2			15 – 20	19
	Business	Secondary	1	No	90	20 – 25	5
		Diploma	7			25 – 30	8
		Bachelor	21			30 – 35	3
		Masters	6				

Note: N_1 (=171), N_2 (=181) and N_3 (=176) are unequal because of missing data in the relevant survey items.

Table 3A: Distribution of Ventures by Singapore Standard Industry Classification Based on the Original Filings for Start-up Incorporation

Section	Section Name	Count	Count (as % of total)
A	Agriculture and Fishing	1	0.6
C	Manufacturing	10	5.7
F	Construction	4	2.3
G	Wholesale and Retail Trade	43	24.6
H	Transportation and Storage	3	1.7
I	Accommodation and Food Service Activities	7	4
J	Information and Communications	49	28
K	Financial and Insurance Activities	1	0.6
L	Real Estate Activities	1	0.6
M	Professional, Scientific, and Technical Activities	29	16.6
N	Administrative and Support Service Activities	6	3.4
P	Education	9	5.1
Q	Health and Social Services	2	1.1
R	Arts, Entertainment and Recreation	5	2.9
S	Other Service Activities	4	2.3
T	Activities of Households as Employers of Domestic Personnel	1	0.6
		175	**100%**

Notes: (i) The Singapore Standard Industrial Classification (SSIC) is the national standard for classifying economic activities undertaken by economic units, and is used in censuses of population, household and establishment surveys and in administrative databases. Complete report for SSIC2020 available at https://www.singstat.gov.sg/standards/standards-and-classifications/ssic. (ii) Data on industry classification are missing for six ventures.

Table 3B: Count of Participating Ventures in the Sample Based on Industry Sector and Business Type (Conventional Versus Digital Business Model)

Industry Sector	Business Type		Count	Count (as % of total)
	Digital	Conventional		
F & B	3	16	19	10.7
Retail & Distribution	2	15	17	9.6
Consulting	4	11	15	8.4
Training	1	12	13	7.3
Construction, Interiors & Maintenance	1	12	13	7.3
Events & Marketing	9	3	12	6.7
Platform	10		10	5.6
Beauty & Cosmetics	3	6	9	5.1
App design	7		7	3.9
Software solutions	7		7	3.9
Entertainment	3	2	5	2.8
Fashion		5	5	2.8
Health	1	4	5	2.8
Auto	3	2	5	2.8
Gifts	1	3	4	2.2
Recruitment		4	4	2.2
Art, Entertainment, Media	2	2	4	2.2
Logistics	1	2	3	1.7
Finance	1	1	2	1.1
Fitness	2		2	1.1
Pet care	1	1	2	1.1
Real estate	1	1	2	1.1
Translation		2	2	1.1
Charity		1	1	0.6
Childcare		1	1	0.6
Cleaning		1	1	0.6
Cycle		1	1	0.6
Eldercare		1	1	0.6
Insurance	1		1	0.6
Security	1		1	0.6
Sports		1	1	0.6
Tourism		1	1	0.6
Travel	1		1	0.6
Telecom	1		1	0.6
Total	**67**	**111**	**178**	**100%**

Note: N=178 because 3 respondents did not provide their business description in the survey.

Table 4: Financing Details of Participating Ventures at Baseline

	Total			Treatment			Control			Treatment vs control	
	n	mean	std dev	n	mean	std dev	n	mean	std dev	t	p.val
Personal	136	46.7	86.7	73	41	81.4	63	53.2	92.7	0.81	0.42
Banks/Institution	16	60	84.5	8	87.5	99.8	8	32.5	60.1	-1.34	0.21
Overall	144	50.8	88.3	77	48	86.1	67	53.9	91.3	0.4	0.69

Notes: (i) Mean and standard deviation in thousand SGD. t-test was performed between treatment and control groups. (ii) Personal finances are defined as personal savings ("savings"), loans from family members ("family"), credit card ("credit"), and loans from friends or work colleagues ("friends"). Professional finances are defined as unsecured personal loans from banks or financial institutions ("loan"), bank overdraft ("overdraft"), and others.(iii) Baseline refers to data collected at the start of the study (April-May 2017).

Table 5: Summary Statistics by Treatment and Control Conditions

	Treatment (n = 103)						Control (n = 78)						t-test	
	n	mean	median	sd	min	max	n	mean	median	sd	min	max	t	p
Panel A: Baseline														
Sales	99	1.18	1	0.46	1	3	76	1.39	1	0.73	1	3	-2.22	0.03
Work experience	98	10.5	8.5	8.31	0	33	78	9.06	8.5	7.26	0	28	1.22	0.22
Education	103	4.99	5	0.94	2	7	78	4.77	5	0.85	2	6	1.65	0.1
Growth goal	95	2.31	2	1.06	1	5	76	2.66	2.5	1.15	1	5	-2.06	0.04
Independent business	103	0.94	1	0.24	0	1	78	0.97	1	0.16	0	1	-1.11	0.27
Female	103	0.3	0	0.46	0	1	78	0.23	0	0.42	0	1	1.06	0.29
Nationality	103	0.82	1	0.39	0	1	78	0.77	1	0.42	0	1	0.75	0.45
Age	103	37.32	35	8.96	24	65	77	36.16	35	8.66	20	63	0.88	0.38
Entrepreneurship experience	103	0.5	0	0.5	0	1	78	0.51	1	0.5	0	1	-0.23	0.82
Panel B: Endline														
Sales	58	2	2	1.03	1	5	57	1.86	1	1.19	1	5	0.68	0.5
Panel C: Post-hoc analyses data														
Survived	103	0.49	0	0.5	0	1	78	0.4	0	0.49	0	1	1.18	0.24

Notes:
Panel A: Baseline refers to data collected at the start of the study (April-May 2017)
Panel B: Endline refers to data collected during March 2018 before the control group founders were offered training in April 2018
Panel C: Post-hoc analyses data refers to survival data collected in December 2020 from secondary sources

Table 6: ITT Panel Regression of Sales Performance

	Panel A: Entrepreneur Fixed Effect Models		**Panel B: Entrepreneur Random Effect Models**		
	M1	**M2**	**M3**	**M4**	**M5**
Treatment	Omitted F.E.	Omitted F.E.	-0.216	-0.123	-0.129
			(0.10) [0.025]	(0.08) [0.137]	(0.08) [0.101]
Endline	0.464	0.508	0.465	0.348	0.390
	(0.16) [0.004]	(0.16) [0.001]	(0.16) [0.003]	(0.15) [0.018]	(0.15) [0.009]
Treatment * Endline (H1)	**0.357**	**0.315**	**0.352**	**0.406**	**0.491**
	(0.20) [0.074]	**(0.20) [0.111]**	**(0.20) [0.077]**	**(0.19) [0.035]**	**(0.20) [0.013]**
Treatment * Growth goal		Omitted F.E.			-0.291
					(0.11) [0.006]
Endline * Growth goal		-0.128			-0.220
		(0.16) [0.433]			(0.16) [0.161]
Treatment * Endline * Growth Goal (H2)		**0.335**			**0.684**
		(0.19) [0.087]			**(0.21) [0.001]**
Growth Goal		Omitted F.E.		0.308	0.431
				(0.07) [0.000]	(0.09) [0.000]
Work experience				-0.007	-0.006
				(0.01) [0.537]	(0.01) [0.603]
Education				-0.046	-0.044
				(0.05) [0.380]	(0.05) [0.399]
Independent business				-0.029	-0.043
				(0.22) [0.895]	(0.22) [0.840]
Female				-0.140	-0.151
				(0.12) [0.260]	(0.12) [0.191]
Nationality				0.037	0.023
				(0.12) [0.759]	(0.12) [0.848]
Age				-0.004	-0.004
				(0.01) [0.701]	(0.01) [0.713]
Entrepreneurship experience				0.086	0.088
				(0.10) [0.401]	(0.10) [0.377]
Constant	1.279	1.279	1.395	1.646	1.618
	(0.04) [0.000]	(0.04) [0.000]	(0.08) [0.000]	(0.48) [0.001]	(0.49) [0.001]
R2/chi2	0.290	0.284	63.115	106.280	147.922
Log likelihood	-185.606	-174.724	-	-	-
p	0.000	0.000	0.000	0.000	0.000
Number of observations	290	277	290	258	258
Number of ventures	178	170	178	159	159

Notes: (i) Dependent variable for the models in the table is sales revenue. Intention to treat (ITT) panel regression models are estimated in Models 1 to 5. M1 and M2 report models with entrepreneur fixed effects estimations and hence time invariant-treatment main effect in M1 and Growth Goal main effect (M2) are omitted by design and also time-invariant controls like in Models 4 and 5 cannot be used in Models 1 and 2. M3 to M5 report results with entrepreneur random effects estimations. (ii) The number of observations in Model 1 is lower than the full sample size of 362 observations because of missing information on the DV for 6 cases in baseline and 66 cases in endline. We lose 13 cases due to missing value of growth goals in Model 2; in Models 4 & 5 we lose 19 cases due to missing values for the control variables. (iii) Industry fixed effects are included in M3-M5 but not reported for the sake of brevity. (iv) Standard errors, in parentheses, are clustered by ventures; p-value in square brackets.

Table 7: Fixed Effects Panel Estimation in Sub-sample of Ventures with ACRA Sales and Self-Reported Sales

	Panel A: ACRA Sales			Panel B: Self-reported Sales		
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	Omitted F.E	Omitted F.E	Omitted F.E	Omitted F.E	Omitted F.E	Omitted F.E
Growth goal	Omitted F.E	Omitted F.E	Omitted F.E	Omitted F.E	Omitted F.E	Omitted F.E
Endline	0.77	0.77	0.77	0.23	0.23	0.23
	(0.43) [0.083]	(0.43) [0.084]	(0.34) [0.030]	(0.32) [0.472]	(0.32) [0.473]	(0.29) [0.434]
Treatment*Endline (H1)	1.80	**2.30**	1.20	**1.10**	**1.17**	**1.25**
	(1.59) [0.263]	**(1.80) [0.208]**	(0.44) [0.009]	**(0.61) [0.078]**	**(0.70) [0.102]**	**(0.80) [0.124]**
Endline* Growth goals			1.05			-0.54
			(0.50) [0.041]			(0.31) [0.086]
Treatment* Endline*Growth goals (H2)			**2.54**			**0.27**
			(0.52) [0.000]			**(0.51) [0.590]**
Constant	1.92	1.84	1.82	1.27	1.25	1.27
	(0.21) [0.000]	(0.22) [0.000]	(0.11) [0.000]	(0.10) [0.000]	(0.11) [0.000]	(0.10) [0.000]
R2	0.30	0.35	0.88	0.31	0.29	0.39
Log likelihood	-90.12	-84.55	-30.61	-39.84	-39.30	-34.57
Number of observations	69	65	65	69	65	65
Number of ventures	50	47	47	50	47	47

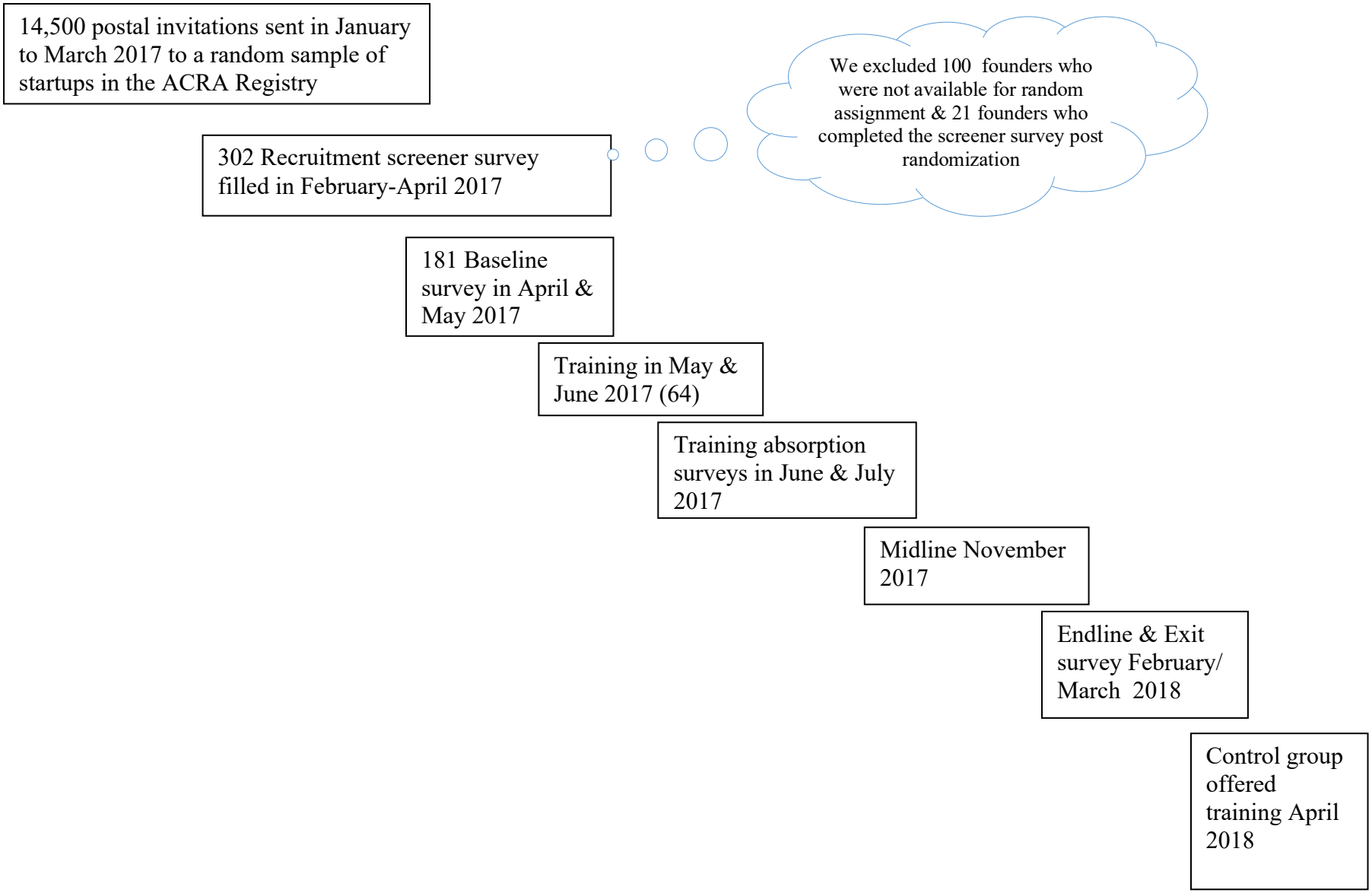
Notes: (i) The dependent variables are ACRA reported sales in Panel A (Models 1 to 3) and self-reported sales in Panel B (Models 4 to 6). Panel regression models with entrepreneur fixed effects are used. Standard errors, in parentheses, are clustered by ventures; p-value in square brackets.
(ii) Models 1 and 6 report analyses of main effect with the full sub-sample of 69 observations with both ACRA reported and self-reported sales data. Four observations are dropped in models 2, 3 and 5,6 as the growth expectations for these ventures is missing. ACRA reported sales revenues were rescaled (divided by SGD 100,000) for ease of interpretation. (iii)Time-invariant treatment main effect and sales expectation main effect (in models 3 and 6) are omitted by design due to the use of entrepreneur fixed effects.

Table 8 – Cross-Sectional Logistic Regression Estimation of Venture Survival

	Model (1) DV = Survived ventures	Model (2) DV = Survived ventures
Control group (did not attend training)	Omitted comparison group	Omitted comparison group
Treatment group (attended training)	0.638	0.693
	(0.39) [0.102]	(0.40) [0.082]
Growth goals	0.419	0.745
	(0.19) [0.032]	(0.29) [0.010]
Treatment group (attended training) X Growth goal		-0.655
		(0.40) [0.099]
Constant	-0.921	-1.123
	(0.42) [0.029]	(0.45) [0.013]
LR chi2	9.160	11.946
p	0.103	0.063
Number of ventures	122	122

Notes:
(i) The dependent variable takes the value of 1 if the venture is still active, and 0 if the venture ceased operations or is inactive as on Dec 2020. Standard errors in parentheses, p-value in square brackets. Industry controls were also included and are not reported for the sake of brevity.
(ii) This analysis is focused on the subsample consisting of 67 ventures whose founders were assigned to control group and did not attend training when provided and 64 ventures whose founders were assigned to treatment group and attended the training. N = 122 because we lose 9 observations due to missing data on the independent variables.
(iii) Excluded from this analysis are 39 ventures whose founders were assigned to the treatment group but did not attend any training and 11 ventures whose founders were assigned to the control group and attended training when it was offered to the control group. See Table A8 of online appendix for the analysis that includes these two types of ventures as well, where we get the same pattern of findings.

Appendix Figure A1: Timeline and Sample of Singapore SCALE Program



Appendix Table A1: F-Test to Check Systematic Differences between Treatment and Control (Model 1) and Attended Training and Control using Baseline Variables (Model 2)

	Model 1	**Model 2**
	Treatment=1 Control=0	**Treatment group attended training=1 Treatment group did not attend training=0**
Sales	-0.135	-0.019
	(0.07) [0.045]	(0.11) [0.866]
Full-time Employee	-0.006	-0.008
	(0.03) [0.831]	(0.03) [0.804]
Independent Biz	-0.189	0.249
	(0.19) [0.333]	(0.23) [0.280]
Female	0.090	0.112
	(0.09) [0.300]	(0.11) [0.310]
Singaporean	0.107	-0.168
	(0.09) [0.259]	(0.13) [0.195]
Age	0.005	0.002
	(0.00) [0.268]	(0.01) [0.790]
Entrepreneurship Exp.	-0.010	-0.147
	(0.08) [0.901]	(0.10) [0.152]
Constant	0.638	0.537
	(0.29) [0.029]	(0.36) [0.140]
R^2	0.056	0.075
F	**1.391**	**1.020**
p	0.212	0.423
N	171	96

Notes: The purpose of the estimations is to check if there are any systematic differences by the categories: treatment and control in Model 1 and those who attended training and did not attend training in Model 2. Standard errors in parentheses, p-value in square brackets. Model 1 dependent variable takes the value of 1 if the entrepreneur (103) is assigned to treatment condition and 0 if in control (78). The observations in the Model 1 estimation are 171 (treatment 96 and control 75) due to missing values for explanatory variables. Model 2 dependent variable takes the value of 1 if the entrepreneurs (64) are in the treatment condition and attended training and 0 if the entrepreneurs (39) did not attend training. The observations in the Model 2 estimation are 96 (treatment attended 60, assigned to treatment but did not attend 36) due to missing values for explanatory variables.

Appendix Table A2: Panel Fixed Effects and Random Effects Estimation of Sales at Midline Showing no Difference at Midline

	(1) Sales	(2) Sales	(3) Sales	(4) Sales
Treatment	Omitted F.E	Omitted F.E	-0.204 (0.11)[0.068]	-0.217 (0.10) [0.023]
Midline	0.504 (0.07)[0.000]	0.491 (0.11) [0.000]	0.484 (0.07)[0.000]	0.465 (0.11) [0.000]
Treatment * Midline		0.025 (0.15) [0.865]		0.034 (0.15) [0.819]
Constant	1.262 (0.03) [0.000]	1.262 (0.03) [0.000]	1.382 (0.09)[0.000]	1.39 (0.08) [0.000]
R^2	0.291	0.291		
Log likelihood	-111.5	-111.46		
p	0	0		.
Number observations	298	298	298	298
Number of ventures	179	179	179	179

Notes: The purpose of the estimation is to check if at midline those in the treatment group reported higher sales to please the experimenters for the training that was provided (i.e.: a Hawthorne-type social desirability bias). Dependent variable is sales. Standard errors in parentheses, p-value in square brackets. All models are formed using panel OLS regression. Models 1 and 2 are carried out with fixed effect, while models 3 and 4 are with random effect. The number of observations and number of ventures varies due to missing values in the dependent variable.

Appendix Table A3: No Difference between Ventures that did and did not Voluntarily Report Revenue to ACRA

	(1) Reported revenue=1 Did not=0
Treatment	-0.442
	(0.382) [0.247]
Full time employees	-0.027
	(0.140) [0.846]
Work experience	0.007
	(0.038) [0.852]
Education	-0.121
	(0.237) [0.609]
Sales goal	0.041
	(0.185) [0.826]
Independent business	-1.550
	(1.023) [0.130]
Female	0.365
	(0.450) [0.418]
Nationality	-1.023
	(0.441) [0.020]
Age	0.001
	(0.034) [0.985]
Entrepreneurship experience	-0.221
	(0.388) [0.570]
Constant	1.916
	(2.064) [0.353]
chi2	12.646
Log likelihood	-88.978
p	0.476
Number of ventures	158

Notes: The purpose of the estimation is to check if there are any systematic differences between ventures that reported revenues to ACRA and those that did not. Standard errors in parentheses, p-value in square brackets. In total 69 accounting data filings were found within the period of their venture founding (2016) to 1 December 2020 for the baseline and endline periods. The accounting filings are from 50 ventures – 25 ventures in treatment group and 25 ventures in control group. These 50 ventures were thus defined as 1 for reported revenue, and the remaining 131 ventures were assigned as 0. We lose observations for 23 ventures (4 in the submitted revenue data to ACRA and 19 in the did not submit revenue data to ACRA conditions) due to missing information on the independent variables from the model. The final sample for estimation is 158 ventures (46 that submitted revenue information to ACRA and 112 that did not submit revenue data to ACRA).

Appendix Table A4: TOT Analysis of Sales Performance

	Panel A: Entrepreneur Fixed Effect Models		Panel B: Entrepreneur Random Effect Models	
	(1)	(2)	(3)	(4)
Treatment TOT	Omitted F.E.	Omitted F.E.	-0.27	-0.25
			(0.12) [0.028]	(0.10) [0.014]
Endline	0.45	0.50	0.42	0.46
	(0.16) [0.005]	(0.16) [0.002]	(0.16) [0.007]	(0.16) [0.004]
Growth Goal	Omitted F.E.	Omitted F.E.	0.32	0.46
			(0.07) [0.000]	(0.08) [0.000]
Treatment TOT *		Omitted F.E.		-0.46
Growth goals				(0.14) [0.001]
Treatment TOT * Endline (H1)	**0.45**	**0.43**	**0.55**	**0.58**
	(0.33) [0.173]	**(0.33) [0.190]**	**(0.33) [0.091]**	**(0.34) [0.087]**
Endline * Growth Goal		-0.17		-0.17
		(0.16) [0.310]		(0.16) [0.295]
Treatment TOT * Endline * Growth Goal (H2)		**0.49**		**0.73**
		(0.31) [0.116]		**(0.33) [0.026]**
Constant	1.28	1.28	1.37	1.34
	(0.04) [0.000]	(0.04) [0.000]	(0.06) [0.000]	(0.05) [0.000]
R^2	0.26	0.28		
Chi/Log Likelihood	-170.47	-167.40	71.47	91.87
p	0	0	0	0
Number of observations	275	275	275	275
Number of ventures	169	169	169	169

Notes: Dependent variable for the analysis is sales revenue. Standard errors in parentheses clustered around 169 ventures, p-value in square brackets. Models 1&2 are fixed effects panel estimation of sales. Models 3 & 4 are random effects panel estimation of sales. The Treatment TOT variable is an instrumented variable from a first stage predicting those who actually attended treatment based on the random assignment to treatment condition and control variables. We lose 72 observations for missing values for the dependent variable and 15 observations for missing values for the controls.

Appendix Table A5: Main challenges faced by entrepreneurs

Challenge	N = 75	
	Mean	**SD**
Overseas competition	7.51	2.31
Manpower (management)	5.44	2.25
Local competition	5.25	2.75
Manpower (employment)	5.2	2.39
Financing/ cash flow	4.50	2.75
Rising business cost	4.39	2.50
Attracting/ retaining customers	3.38	2.21

Note: Entrepreneurs were asked to rank the eight challenges from 1 (most important) to 8 (least important). The responses were rescaled and represented in range of 1 (least important) to 10 (most important) for interpretation. Other challenges listed by the entrepreneurs include governmental regulation and support, and business operations (logistics, marketing, manufacturing and payment)

Appendix A6: Examples of Business Descriptions

Industry Sector	Business Type (Digital/ Conventional)	Business Description (Raw text from entrepreneurs' self-description of their ventures, with names masked to provide anonymity)
F & B	Conventional	Artisanal styled baked goods - breads, pastries and cakes made using traditional methods without the use of modern preservatives, addictive and emulsifiers.
F & B	Digital	Online business selling frozen Chinese dumpling.
Retail & Distribution	Conventional	Importer and general wholesaler of Chinese delicacy such as edible 'birdnest', dried seafood (sea cucumber) and other resources.
Retail & Distribution	Digital	Real Time 3D platform which linking shopping malls, shops, restaurants, hotels, entertainment premise, and individual products to provide real-time interactive & guiding/shopping/reservation experience to users. To B: We're can bring their targeted client to find their shop/product/service easily, increase deal closing rate. And base on the system, we provide SaaS(CRM, Workflow Enhancement Service) To C: We guide them to find what they need in the physical world easily, increasing shopping/reservation/interactive experience.
Consulting	Conventional	Investigation of fire or explosion cause and origins and producing expert reports
Consulting	Digital	The primary service that my company offered is to Provide analytics services and data management services for SME's. The product which we are focusing to build is to use Blockchain + IoT as an anti-counterfeiting solution for customers.
Training	Conventional	Enrichment programs for young children.
Training	Digital	Currently, we are a one-stop solution for coaches to streamline their administrative processes of planning, coaching and earning. In the long run, […] aims to be the de-facto repository for every child's non-academic records and achievement.
Construction, Interiors & Maintenance	Conventional	Rework or make new services to building or house owners.
Construction, Interiors & Maintenance	Digital	We provide home automation integration
Events & Marketing	Conventional	Event Management Artiste Management Marketing
Events & Marketing	Digital	We are a digital marketing agency. we specialises in online media planning and buying. We also provide digital marketing consultation and execution for services like SEO, social media community management etc.
Platforms	Digital	[….] is the next generation knowledge-sharing platform for tacit knowledge. At [….], we power knowledge exchange through a simple principle - Share. Learn. Earn.
Platforms	Digital	[….] is a platform to nurture the hidden section of the society i.e housewives, NON-IT freelances, neighborhood. It provides platform to connect neighbors and freelancers to advertise in their own reachable areas and with similar yet variety of interests. Summarize in one line is "Your Kind of Crowd"

Appendix Table A7: Selected Quotes from Qualitative Interviews

Participant Details	Raw interview data	Training content domain	Our theoretical interpretation on pathways linking training to venture outcomes
P01 - Female - Digital Venture - Prior non-Business (STEM) Education	I think for me the most impactful outcome was I actually ended up creating many different types of business models. Especially for the investor conversations, they wanted to see different kinds of scenarios. So I would create one for the future or my company's completely B2C focus, they wanted to see one, then they wanted to see another one for the B2B use cases, they wanted to see different kinds of variations for I would say, just reimagining the customers or the contributors or so on. So I actually ended up creating many.	Business models	- Assists founders to reimagine their business - Facilitates conversations with valuable resource-holders such as investors
	I think we did quite a lot of tweaks after the scale program, I had to do a lot of tweaks, I had to get the confidence that based on what I had learned during the program that I would be comfortable sort of discussing those, and I felt like we needed more traction. And with the scale program I saw very clear things that I had ignored before, and that was a lot of the areas sort of you can see from the business model canvas, that certain areas I was still insecure about, that I'm not really sure about whether the partners who I need to get involved, to get a stand, and even thinking about where it helped me was actually after the program I ended up getting interns in Singapore. I always thought that I actually need to hire people that are super expensive, I have no local shareholding in the company so I get zero governance for it, but then I kind of figured it out, I can get really creative with the interns and get lots of things done, and kind of build a credible team, even though they are like temporary help, but that definitely helped, and just sort of focusing on the value prop for different segments I think that definitely helped with the investor discussions then afterwards.	Business models	- Facilitates thinking about organizational boundaries (internalize Vs outsouce) and creative ways of mobilizing resources
	And I think one of the most powerful lessons was the Uber example from the lady [instructor], she used that and I think that was sort of the one thing that stuck. Which was like Uber is not like a vehicle startup or a transportation startup, it's just a means to get from A to B, they don't own the cars, it's essentially a service to get people from point A to point B, and how you actually execute that is what matters. It doesn't matter if you have	Business models	- The power of analogy to learn from other industries

Participant Details	**Raw interview data**	**Training content domain**	**Our theoretical interpretation on pathways linking training to venture outcomes**
	the fanciest car, or if you have the lowest pricing, I think that example was a really good one, really powerful one.		
P02 - Female - Conventional (non-Digital) venture - Prior Business Education	We filled everything out and we realized that our value propositions were in a way narrowly tied to the scale of the product but then we could have other value propositions that were not actually directly linked to what our original one was. We always thought that we were selling something that was a health product, something that helped people and we always try to go along the lines of how can we expand this so that more people will take it and it is easier to find so that the distribution is better, the channels are wider so we looked at it as though it is a channel problem at the beginning and after we went through our options, we realise that the channels were not really what we were looking at. We needed to be a bit less traditional in how we approach it. We will not do to compete with the other products, the other major dairy products that were in the market, because they were already coming up on this particular segment that we were in. It was not as if we were the sole ones operating in this area, we realise that the big manufacturers were trying to cash in on this already, but they had not been making very good headway even though they have all the best channels supposedly, supermarket channels and they had the best pricings. For us to copy that model which was what we were thinking of doing in the beginning, would have been probably something that would not have given the result that we were hoping to find so instead of that, we have to relook at what it is that the customers were looking at.	Business models	- Enables founders to assess limitations of current business plan
P03 - Male - Digital Venture - Prior Business Education	If I did not attend it, my pitch may not be as complete as it would be. Because I did some research prior to attending SCALE, I myself have tried pitching before, so I did up certain business plans, proposal all these, but it was more information gathered from Google. You search business model, you search all these things, business plans, important information that I need to put in. But going through SCALE, it formalized things. I would say it helped me to formalize the processes of developing a pitch, creating my business plan, and also how I should think about or look at my business model and revenue model. So I would say that’s the benefit that I’ve gotten.	Business models	- Coherent business and revenue model helped in pitching

Participant Details	**Raw interview data**	**Training content domain**	**Our theoretical interpretation on pathways linking training to venture outcomes**
	I remember there was a topic on network, there was also a topic on diversity of network. I get different kinds of resources and information through a variety of networks that I can build through linkedin. But it actually turned out in a different manner for me. After attending the session, after I did up the modelling, I've decided to leverage on my existing network who are the ones that I have been working with for the last 15 years….I've gotten my initial seed investment from my ex company, who invested half a million dollars for this particular venture. Because I pitched to them using the business modelling of how fintech solutions can assist the industry to move digital, so that was the vision of the company - to become a regional fintech company for the financial advisor industry. And then I set up the different business models, and I pitched to my investors, and that's where I got my first funding, and I started this venture together with my investor.	Business models & Networks	- Coherent business and revenue model helped in pitching -Networking sessions on leveraging existing relationships
P04 - Male - Conventional (non-Digital) venture - Prior Business Education	So coming back from the course I immediately, almost immediately change the way the company is marketed, how we try to put the image of ourselves to the public, and how we want to present ourselves, and what type of market we want to target. Because my company is not a very deep tech company, because when I went for the course I realized that many of these companies, many of these entrepreneurs come from deep tech backgrounds. But mine, I'm coming from interior design, so it's really nothing like deep tech. It does feel a little out of place but coming back after talking to everybody I changed how we market ourselves, our aggressiveness, how bold we are, in a way we are not so shameful of ourselves. We want to build ourselves a name, so we took it upon ourselves that we want to be the best in the market, we want to be the best in doing things right. Before that we never even dare to say we want to do things right. So it was a very good attitude change, I would say it's almost a 180 degrees turn in that aspect.	Business models & Networks	- Changed marketing orientation
P05 - Male - Digital venture	It is always difficult to teach an old dog new tricks. So changing mindset is clearly a challenge, but I really appreciate the number of frameworks you gave us. Absolutely took on board the business model canvas and implemented that in everything we did and in fact, used that as one of the key resources for generating revenue for investors so it was one of the key resources that we continually shares with potential investors when we were	Business models	- Coherent business and revenue model helped in pitching

Participant Details	**Raw interview data**	**Training content domain**	**Our theoretical interpretation on pathways linking training to venture outcomes**
- Prior non-Business (Others) Education	raising capital. To this day, we still review our business model canvas occasionally, so that was a really good thing for us. We’re still a small team, two of us found this and so by sharing it with my founder, it made an impact on him as well, so good frameworks like that is really really helpful.		
P06 - Male - Conventional (non-Digital) venture - Prior non-Business (STEM) Education	I think the part that really had an impact was probably more on the networking, and how to be more aware. In terms of mindset, I used to have a mindset that networking is very sales-sy, but throughout the scale programme I had less of that feeling.	Networks	- Changed mindset on leveraging relationships to build the business
P07 - Female - Digital venture - Prior non-Business (Others) Education	The networking part, I connected with the most. Because the way I started my business was through connections, even until today it’s about “Oh I know someone, and someone recommended me to someone else, and then I recommended someone” and then you know slowly the networks started building…I remember feeling like that’s something at least I am doing right, that I’m heading on the right track…. I think in the beginning, I started as having those personal contacts first and then they become clients, but now it’s the other way round…. I remember thinking that too when I was taking the course, that I’ve been very lucky…[growing the venture through referrals]...most of the client relationships still rests with me, after all in most of the pitches, I am the one there pitching for the account... but there are occasions where clients …will directly contact my team.… I think previously [before SCALE training], in 2017, I could have felt a little bit threatened by that, but I think now, I am more comfortable with clients reaching out to my team directly.	Networking	- Validation of founder's self-taught strategy for building & leveraging relationships to grow
P08 - Female - Conventional (non-Digital) venture - Prior non-Business (Others) Education	When I attended the course....I realized that for my business, I needed to be much more deliberate if I was to drive it to a certain place. So that was a mindset change…. that I need to be very deliberate about for instance, my network and nurturing relationships with authenticity …. I have decided to be deliberate … even though I'm not a social butterfly, but I tried to find networks of business people that would fit with my personality and my objective… to be very honest, that took me awhile - so it was again like a dating kind of thing, like you try a few and they didn't work out. I went for	Networking	- Identifying effective strategies to build referral networks based on fit with personal values and business model of the venture

Participant Details	**Raw interview data**	**Training content domain**	**Our theoretical interpretation on pathways linking training to venture outcomes**
	a few business networking groups, a few of those. There were other groups that I joined that were more ad-hoc. Now I have finally found one that I think fits more and aligns with my values and has the demographics and variety that I'm after, so I'm slowly working on that…. [also] I realized that after all I have said and done right, my business model still seems to work best with referrals and not by mass marketing.		
P09 - Male - Digital venture - Prior non-Business (Others) Education	...learning to be an entrepreneur you read all these books, like "The lean startup"…it tells you about going out and it's all very nice but actually if you ask questions it doesn't actually work… and that is what we switched around [after SCALE]… we don't build anything fancy anymore, which for the developers is a little bit less exciting but what we actually do, it does actually work, it gets picked up and people are actually paying for it….initially I was always explaining to people what a great platform we were building…I guess I've learnt to shut up more…now I'm not trying to convince them but basically listen to them to figure out what are the things that they need, that we don't do yet, or how we can better connect to that, I think that's the big difference.	Networking	- Learning from customers by building relationships and listening more

Note: We included these qualitative insights, from 9 of the 10 entrepreneurs we interviewed, because they provided the clearest (illustrative) evidence of the micro-mechanisms linking training to changes in founders' mindsets and actions related to business-building.

Table A8: Cross-Sectional Logistic Estimation of Venture Survival

	(1) Survived businesses	(2) Survived businesses
Control group (did not attend training)	comparison category	comparison category
Control group (attended training)	-0.488 (0.79) [0.538]	-7.566 (472.12) [0.987]
Treatment group (did not attend training)	0.711 (0.46) [0.122]	0.797 (0.48) [0.096]
Treatment group (attended training)	**0.709** **(0.40) [0.074]**	**0.713** **(0.40) [0.075]**
Growth goals	0.504 (0.17) [0.004]	0.730 (0.29) [0.011]
Control group (attended training) * Growth goals		15.767 (975.04) [0.987]
Treatment group (did not attend training) * Growth goals		-0.092 (0.54) [0.865]
Treatment group (attended training) * Growth goals		**-0.713** **(0.40) [0.073]**
Constant	-1.268 (0.41) [0.002]	-1.456 (0.44) [0.001]
chi2	19.267	27.874
Log likelihood	-103.640	-99.336
p	0.007	0.002
Number of ventures	165	165

Notes: The dependent variable takes the value of 1 if the venture is still active, and 0 if the venture ceased operations or is inactive since 2020. The comparison category is 39 ventures in control group that did not attend any training, with 11 ventures in the control group that attended training with the control group training period, 64 ventures in the treatment group that attended training in the treatment period, and 39 ventures in the treatment group that did not attend any training. The Standard errors in parentheses, p-value in square brackets. Industry controls were also included and are not reported for the sake of brevity. The number of ventures is lower than the full sample of 181 due to missing values in the independent variables.