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RESEARCH ARTICLE

Learning from African entrepreneurship—on the psychological function of entrepreneurial preparedness

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Abstract Psychological preparedness for entrepreneurial actions helps to connect macro-institutional support for entrepreneurs to actions of entrepreneurs. Action knowledge and personal initiative are part of entrepreneurial preparedness, and there are two training concepts that have been developed to increase the number of entrepreneurs among BA and high school students in low- and middle-income countries and to improve the skills and mindset of entrepreneurs. I discuss large-scale randomized controlled interventions in both of these areas with the STEP and personal initiative training. Showing that psychological preparedness for entrepreneurial actions can be enhanced, the question is whether methods shown to work in low-income countries can inform entrepreneurship research in general. Issues that seem to speak against generalizing are often seen in necessity, survivalist, and informal entrepreneurship. These issues are discussed and are deemed of lower importance for generalization of findings. There are also methodological advantages when doing research in low- and middle income countries. Practical and policy implications are also provided.

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Plain English Summary Entrepreneurship is about taking action and seizing opportunities. People often think of African entrepreneurs as just trying to survive, but there is more to it. In fact, Africa has likely many more entrepreneurs than the West, and these young business people are keen to learn and grow. We have created training programs for university and high school students to boost the number of entrepreneurs and improve their skills. We have tested these programs with over 6000 students across 11 developing countries, and they have been successful: Training participants started 30% more businesses than the control group. We have also developed a training called personal initiative to help entrepreneurs increase their profits by up to 30%. This has been tested with thousands of participants in ten countries. What makes these training programs special is that they are scientifically tested and proven to be highly effective (the tests were similar to examining the effectiveness of a new medicine). They focus on immediate skill and mindset learning. Psychological training helps entrepreneurs be ready to make the most of government and macro-economic support for businesses. So, there is a lot we can learn from entrepreneurship in Africa.

Keywords Entrepreneurship · Entrepreneurial actions · Personal initiative · Economic psychology

JEL Classification L26 · D91 · G41

1 Introduction

In this article, I argue for the importance of psychology for studying entrepreneurship, for methodological advantages of doing research in low- and middle-income countries (LMICs), and for the usefulness of studying entrepreneurship in LMICs.[1]

Psychological research on entrepreneurship is interesting for theoretical and practical reasons: Actions are central to entrepreneurship, and therefore, the process of improving those actions needs to be studied for practical applications (Frese, 2021; Frese & De Kruif, 2000). Psychological action theory allows to understand how actions influence entrepreneurial success (Frese, 2005; Frese & Fay, 2001). Studying entrepreneurship can help to reduce poverty—one of the grand challenges for management and entrepreneurship scholars (George et al., 2016) and a United Nations Sustainable Development Goal. At any moment in time, there are around 210 million firm creations in LMIC countries across the globe (Reynolds, 2012). If interventions improve their actions, it would help economic development. At the very least, the poverty of the owners of micro and small enterprises can be reduced by increasing their effectiveness (Reynolds, 2010).

Macro- and micro-system approaches for effective support for entrepreneurs are often discussed just along disciplinary lines without reference to each other. Economists suggest large-scale (macro-system) improvements to institutions and strategies of countries, for example, entrepreneurship friendly tax regimes, access to credit, good banking systems, encouragement of the private sector to collaborate with small businesses, improving human capital, encouragement of formalizing firms, and supporting good jobs, easy access to markets, and reducing barriers, such as corruption or regulatory hurdles (Wurth et al., 2022). These are also described as important by entrepreneurs (Frese et al., in prep 2024). However, we suggest that it is also necessary to understand psychological preparedness for entrepreneurial actions. Figure 1 describes the relationship between

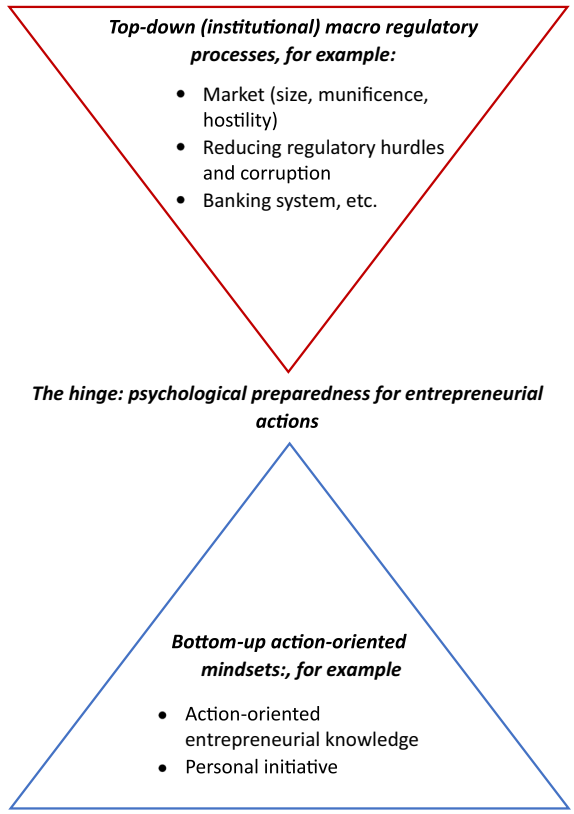

Fig. 1 Combining macro- and micro-processes in the entrepreneurial ecosystem of a country

macro-conditions and micro-areas: For example, good financial support by government programs can be offered and will be taken. However, users of such financial support need to be prepared to make the best use of financial resources.

Preparedness for actions requires input from psychology; preparedness was originally developed by Seligman, combining biology with psychology to understand the quick development of phobias (e.g., of snakes) (Seligman, 1971). We transport this concept to combine macro-system economic concepts with micro-concepts of psychology: A match between macro-institutional offers and psychological acceptance and motivation is needed to start a company. Psychological preparedness connects the micro-world of individual entrepreneurs to the macro-world of institutional conditions. The idea is similar to the fit idea in person-environment interactions, for example, in trait activation theory (Cable & Edwards, 2004; Tett & Burnett, 2003): Psychological preparedness

[1] All of the studies reported here were done with colleagues and students in Europe and Africa as well as economists at the World Bank. I dedicate the Global Award for Entrepreneurship Research to them. I received helpful feedback on this article from Mona Mensmann, Michael Gielnik, Janina Peschmann, Philip Yang, and Amba Frese.

makes the micro- and macro-worlds click; the click helps to build on opportunities, to use resources well, and to put good ideas into action. In the following, I elaborate on two components of psychological preparedness and discuss them in more detail—action-oriented entrepreneurial knowledge and personal initiative (PI).[2] They can be improved by two trainings:

- The STEP training which focuses on the cognitive area of effective entrepreneurship (action-oriented knowledge) (Gielnik et al., 2015; Peschmann et al., 2023)
- The personal initiative training which improves the motivational part of the entrepreneurial mindset—PI implies to be self-starting, future-oriented, and persistent in overcoming barriers (Frese, 2021)

Before describing these trainings, I need to elaborate on two methodological advantages for doing studies in LMICs.

2 Methodological issues for studying entrepreneurship in low- and middle-income countries

Studying entrepreneurship in LMICs may help to address endogeneity which is characterized by omitted variables, simultaneity, measurement error, and selection (Hill et al., 2021). Entrepreneurship research often describes the problems of selection effects (range restriction), e.g., exit from the market. Often a Heckman's instrument variable is developed to deal with endogeneity problems (Hill et al., 2021). However, it is not easy to develop a good instrument variable that takes care of 'pre-selection' issues. Examples of pre-selection are as follows: Potential entrepreneurs may have an idea for starting a company but stop soon afterwards; others may think long and hard about start-up ideas, before noticing that entrepreneurship is not for them; still others may even briefly start a firm for a few weeks but then take an attractive job offer. Pre-selection may lead to range restriction, which in turn causes serious underestimates of relationships (Hunter et al., 2006; Mendoza & Mumford, 1987). "…certain forms of range restriction can distort observed predictor correlations to a much greater degree" than assumed by many researchers (Sackett et al., 2007, p. 542).

Some entrepreneurship researchers make a virtue of selection effects and suggest to concentrate on high-growth entrepreneurship (La Porta & Shleifer, 2014a). Shane (2009, p. 145) argued: "Stop subsidizing the formation of the typical start-up and focus on the subset of businesses with growth potential. Getting economic growth and job creation from entrepreneurs is not a numbers game. It is about encouraging high quality, high growth companies to be founded" (Shane, 2009). Shane's paper was influential and useful because it reinforced a differentiated discussion on "gazelles" (Morris et al., 2015). Research that attempts to select only highly successful entrepreneurs often has perfect "hindsight-vision"; this may lead to good post-diction models that may not lead to an adequate understanding of high growth. Shane knew this problem and, therefore, suggested utilizing experts (venture capital providers) as predictors of gazelles. Unfortunately, venture capital providers are also not very good at predicting success for individual firms; they make their money by predicting industries rather than individual success. The small meta-analytic correlation between VC investment and returns breaks down when industry is included (Rosenbusch et al., 2013). Similarly, experts as well as artificial intelligence methods were not able to predict growth well in an African setting (McKenzie & Sansone, 2019).

Davidsson (2004) suggested a thought experiment on horse racing to understand some of the effects of studies that are selecting: sucessful entrepreneurs: "We design the study so that we include only those gamblers who actually won…" (p. 62), leading to strong verification of the hypothesis that gambling leads to winning. This is obviously wrong (Davidsson, 2004). To deal with this problem, Davidsson suggested starting prediction studies as early as possible. Such studies exist, e.g., in the Global

[2] Obviously, there are a number of psychological issues that contribute to action-oriented knowledge and to the mindset of Personal Initiative, such as personality variables, motivational/affective antecedents (e.g., entrepreneurial passion), intellectual resource, and cognitive antecedents; moreover, the action oriented characteristics include a number of different concepts, such as information search, active feedback processing, and deliberate practice, and they all are contingent on cultural factors (they are described in more detail in Figure 1, p. 429 of Frese & Gielnik, 2014).

Entrepreneurship Monitor (GEM) or in some analyses of representative social surveys (Davidsson et al., 2009; Hopp & Greene, 2018). However, a large part of studies (my own included) tends to recruit research participants from some sort of registers of existing entrepreneurs (e.g., Dun & Bradstreet). Selection effects may then be operative—even when relatively new ventures are selected.[3]

Range or variance restriction reduces correlations when selection affects the variable involved in a correlation (Hunter et al., 2006); other correlations may increase.[4] Therefore, it is better to study budding entrepreneurs who have no other choice but to start a business because there are no better alternatives (we will talk about "necessity entrepreneurship" a bit later in this article). For example, about one-third of Ugandans have an intention to start a company or have just started one at any one point in time (Walter et al., 2005). Given this high degree of start-up activities, selection effects are probably small. Therefore, studies done in countries like Uganda may suffer less from range restrictions than even the most sophisticated analysis and recruitment strategy in high-income countries with their welfare or unemployment support.

Another frequently discussed endogeneity problem relates to causality. The best way to study causal effects is to use true experimental field studies with a random control group (randomized controlled treatment, RCT) (Hill et al., 2021). Other reasons for relying on experiments are ethical ones: I do not want to provide interventions with unclear scientific merit in LMICs. Entrepreneurial success in poor countries is important because poverty becomes worse when things go wrong. It is also unethical for unproven interventions to induce optimism and hope in people living under precarious circumstances. Thus, objective evidence for causal effectiveness of interventions is essential. Experiments also keep researchers honest and humble and stimulate new thinking when results do not support hypotheses. Practical issues also speak for doing such studies in LMICs—there is often a greater need for good interventions in such countries and a greater willingness to learn about entrepreneurship.[5]

We conducted experimental field studies in LMICs to test the effectiveness of new training programs to produce preparedness for entrepreneurial actions. The curricula for these training programs were based on scientific evidence. The first training aims to increase entrepreneurial action knowledge and effectiveness of entrepreneurial actions so that more students are prepared to start an entrepreneurial career; the second training improves the motivational and skill mindset of personal initiative.

3 Interventions to improve action-oriented entrepreneurial knowledge and personal initiative: STEP and Personal Initiative (PI) training

3.1 STEP training (student training for entrepreneurial promotion)

STEP targets Bachelor, high school, and technical college students aiming to increase the frequency of successful entrepreneurship ("make job providers out of job seekers"). STEP is highly action-oriented. For example, it mandates that groups of 5–6 students start an informal business in their first or second session; this is crucial to gain experiences in actions.[6] STEP trains action knowledge and skills, providing, for example, action knowledge to successfully initiate and manage a new venture

[3] A extreme example on the problems of selection effects occurred in Collins' book *Good to Great* (Collins, 2001). Collins selected companies that were originally average and then improved their stock returns to three times the market. He underestimated the dynamics of the market, however. A bit later two of Collin's great companies went bankrupt, and on average, his group of "great companies" did worse than the general market (Codrington, 2011).

[4] The selection effects may pose particular problems in qualitative studies; they are usually based on small samples; also retrospective interpretations prevail because interesting results or new theory can be found only when new details are unearthed. Then hindsight errors and self-serving attributions are frequent; retrospectively, entrepreneurs' reports are based on sense-making based on lay theories about events and their reactions.

[5] Our pilot studies revealed that in Western countries, only a small fraction of entrepreneurs showed interest in skill-enhancement programs like Personal Initiative training, thereby limiting the potential sample size.

[6] Action theory suggests to base trainings not on simulation, but to use real-life actions as much as possible (Frese, 2021). Also real-life actions provide better learning when errors occur—people learn more from important consequences (Horvath et al., 2021).

including business opportunity identification, marketing, leadership and strategic management, psychology of planning and implementation, including how to deal with one's mistakes, and financial bootstrapping. Personal Initiative is also integrated into the STEP training.

STEP differs from traditional business training due to its emphasis on learning while acting and being guided by scientific knowledge; the content is tied to participants' new informal start-ups. The multi-disciplinary STEP training uses "action principles"—minimally necessary rules of thumb to be well-functioning based on research; the curriculum development radically reduced the curriculum content to its absolute minimum of principles for action.[7] Thus, there is little abstract teaching—everything relates to the new business just started. For instance, marketing's 5 or 6 Ps (Product, Price, Promotion, Place, and People + Passion) are not presented abstractly. Instead, participants relate each P to their group's business, developing steps for effectively marketing their products or services as well as product/service adaptations. Active forms of getting negative feedback from customers are developed, taught, and incorporated.

After the 12th and final session, their businesses are dissolved. Usually, they received seed capital in the beginning (e.g., USD 100 for each group) with the expectation to get it paid fully back after the training—about 80–90% is usually paid back. STEP accepts "honest mistakes" resulting in financial loss (using them as training material); but trainers expect students to recover and to continue efforts to repay the initial amount.

Training sessions consist of three parts: presentation of action principles, experiential learning with real-world tasks, and students' ventures. Students present achievements, next steps, problems encountered, and solutions implemented. Trainees and trainers provided positive and negative feedback referring to specific action principles for performance improvement. Trainers emphasize that errors should be interpreted as learning opportunities rather than as setbacks (Frese & Keith, 2015). Over time, participants increasingly take over to provide feedback to their peers, shifting the responsibility from trainers to trainees.

STEP training—developed between 2006 and 2008 with instructors from Makerere University Business School in Uganda—aims to alleviate poverty. African Bachelor of Arts students often struggle to secure employment in the existing economy. Consequently, the primary dependent variable is the number of businesses started. As the training was conducted during the final semester of their studies, it was feasible to determine soon after graduation and one year later whether or not they had launched businesses (Gielnik et al., 2015).

The RCT proved that the training group had a 30 percent higher rate of starting a business than the control group one year after the training (Gielnik et al., 2015). The most important mediators between training and starting a firm after the training were entrepreneurial actions and opportunity identification—both of these were strongly influence by STEP training. STEP also increased action knowledge, number of entrepreneurial actions, and planning and entrepreneurial goal intentions (Gielnik et al., 2015).

STEP training has been implemented in 11 LMICs across approximately 22 universities. Long-term studies across 2 years based on 6000 Bachelor students with 15,600 observations showed 30% higher business ownership in the trained group, with total income approximately 10% higher than in the control group (Peschmann et al., 2023). The participants' employability was also enhanced, with the treatment group getting more jobs than the control group. STEP training did not just increase start-ups in university students but also in 800 high school students (Herrmann et al., n.d. in preparation).

It is crucial to note that some researchers expressed concern that highly motivating trainings may inadvertently increase start-up rates for individuals who are not adequately equipped for entrepreneurship in terms of personality, strategies, or genetics (Shane, 2009). According to this hypothesis, the much larger group of STEP training start-ups would have poorer performance than the smaller and less encouraged group of firms started by the non-training control group—the latter group did not receive extra motivation and would be a more 'natural' selection of start-ups. The results dismiss this hypothesis; businesses founded by training participants were as profitable as those in the control group in the long run (Peschmann et al., 2023). In summary, by enhancing concrete action-oriented knowledge and the preparedness to utilize opportunities to start businesses, STEP helps to improve the hinge between micro- and macro-subsystems.

[7] Financial literacy has shown this to be useful somewhat later, as well (Drexler et al. 2014).

3.2 Personal initiative (PI) training for psychological preparedness

Personal Initiative (PI) improves preparedness by enabling entrepreneurs to detect and exploit opportunities, to utilize resources, and to achieve high entrepreneurial success. PI, as a behavioral syndrome of self-starting, future thinking, and overcoming barriers, is particularly well-suited to describe successful entrepreneurship. The three components of PI interact with each other and reinforce each other (Frese, 2021).

First, self-starting is a central concept for entrepreneurship because entrepreneurs do not usually have bosses who tell them what to do. Thus, entrepreneurs are always self-starting to some extent. However, entrepreneurs can also be reactive and thus show signs of the opposite of self-starting, for example, when they mimic competitors or trends in the market. Of course, entrepreneurs can and should learn from others, but when learning from competitors, they should not mimic blindly, but at least slightly change their offerings. Therefore, self-starting includes some degree of creative and innovative add-ons to products, services and processes.

Second, future-orientation implies thinking of upcoming opportunities and problems and preparing for them now. Future thinking may lead to new ideas or stimulate innovativeness by thinking about future directions of the market or one's position in the market.

Third, overcoming barriers. It is a defining characteristic of entrepreneurship that difficulties appear: Most entrepreneurs have little resources and have to fight for customers, difficulties with suppliers, and problems in actually getting everything done. As entrepreneurs usually work in a competitive environment, competitors may erect barriers. They may take away customers with better prices or better products. Some researchers conceptualized persistence as part of the concept of grit (Mueller et al., 2017); at first sight, this looks to be the same; however, I prefer the construct "action characteristic" of overcoming barriers; the action-oriented concept includes the changeability of skills and does not share the problems of the grit concept, as grit is highly related to the personality trait conscientiousness and traits are usually assumed to be less easy to change (Crede et al., 2017).[8]

PI is not just related to general performance but also to creative performance and employee productivity (Tornau & Frese, 2013). The opposite of personal initiative is to be reactive—a reactive approach is driven by the situation and/or by others; there is little to no planning or working towards a goal. Reactive implies that entrepreneurs respond to each problem separately and to each situational demand without trying to influence the situation. Of course, there may be some situations where reactive performance is useful, for example, when environmental difficulties surprise entrepreneurs or when planning becomes a form of procrastination.

We think of personal initiative to be a good summary of the motivational component of effective entrepreneurship (Frese, 2021). Empirically, there are clear correlations with entrepreneurial success. Most importantly, an intervention study to improve personal initiative developed on the basis of action theory's (Frese & Zapf, 1994) facet model (Frese & Fay, 2001) was shown to be effective: The three aspects of PI (self-starting, future-oriented, and overcoming barriers) are combined with the components of the action sequence (developing goals, knowledge about the action environment, plans, and feedback during the action and at the end of the action). For each facet, we developed action principles, exercises, small cases, etc., in the action-oriented training (Mensmann & Frese, 2017).

The first randomized controlled intervention study of PI training caused Ugandan entrepreneurs to be more successful (Glaub et al., 2014). The World Bank and our research group did the first large-scale RCT study on PI training in Togo between 2014 and 2016 (Campos et al., 2017). It involved 1500 informal entrepreneurs from various industries (53% were female) who were randomly assigned to three groups: a non-treatment control group, a traditional business training, and one group receiving PI training.

[8] In many cases, the literature (and including some of my earlier studies) did not sharply differentiate between trait-PI and PI-action-characteristic (Tornau & Frese, 2013). A trait is defined to be stable across situations and across time. An action-characteristic is not just internal to the person but includes state-like interactions with the environment. We developed an interview measure of the state-like action characteristic (Fay & Frese, 2001). The concept of action characteristic encourages to develop interventions, in contrast to personality traits that are difficult to change.

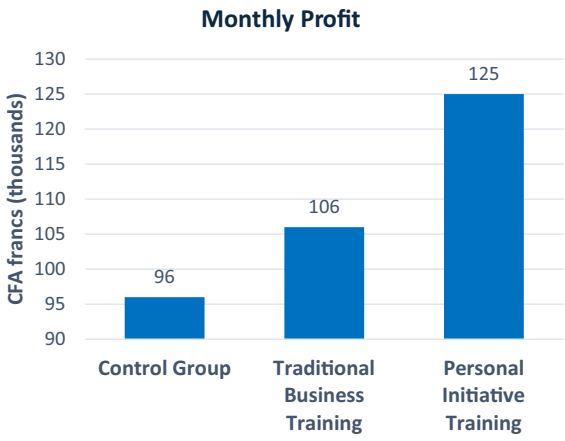

Fig. 2 Comparing personal initiative training with a traditional business training, RCT in Togo (N=1500, 500 in each group). Source: numbers from Campos et al. (2017)

The PI training emphasizes self-starting actions that are based on innovation and opportunity identification; it leverages personal strengths and resources to generate new ideas (details in Frese et al., 2016a; Mensmann & Frese, 2017). Participants learn how to set goals that are high in innovativeness and ambitiousness. The participants are encouraged to search for negative feedback and to use errors as a learning device in line with the error management concept (Frese & Keith, 2015). PI training boosts the use of creative approaches to overcoming obstacles. The training teaches how to plan well in line with Gollwitzer's implementation theory (Gollwitzer, 1999) (and to always have a backup plan). At the end of the training, the participants committed to a long-term business project for the next 4 to 6 months.

Campos et al. (2017) showed PI training to have the highest impact on profitability, being significantly higher than the traditional business training (cf. Fig. 2). The traditional business training did not significantly improve profitability compared with the control group. PI training increased the monthly profits by 30% (ca USD 60 more per month). The implementation of novel products and services was markedly higher among the PI training participations; they also increased capital and labor inputs as well as diversification of products or services.

Another RCT of PI training in Mozambique led to positive effects in mostly illiterate and very poor female farmers; however, the interaction of two trainings—the PI training and the training for effective farming (agricultural extension training)—was central (Montalvao et al., 2024). The experiment included three random groups of approximately 740 participants each—one group received new practically applicable knowledge on effective farming; a second group participated in both, the PI and the farming training; and, finally, one no-training control group. PI training increased the number of add-on start-ups for income diversification and led to entrepreneurship in farming. The participants in the PI training increased the number of side-gigs by a significant degree. The most important result was that PI training led participants to use the improved farming knowledge better (e.g., planting cash crops, cf. Fig. 3) than those who only received the farming training but no PI training. Even though both groups participated in the same farming training, only the PI group developed the entrepreneurial mindset to utilize their newly acquired knowledge on better farming. This shows that PI training formed the motivation to be entrepreneurial, to be open and experimental, and to get things done. PI training created the entrepreneurial mindset to improve farming as well as to develop side-businesses leading to higher profits.

There are boundary conditions for the positive effects of PI training (Alibhai et al., 2019), as shown

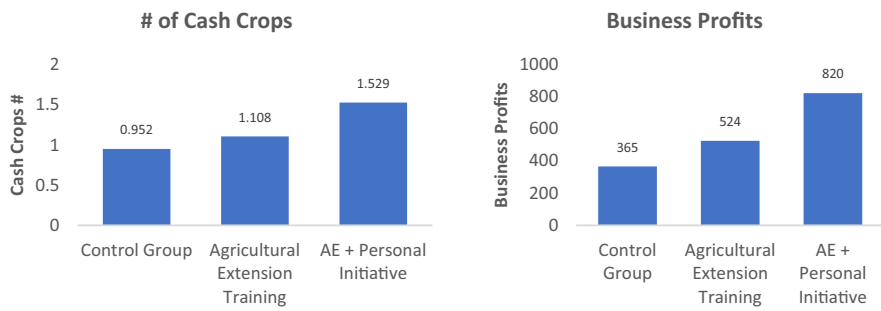

Fig. 3 Agricultural extension training (AE) and personal initiative training (PI) in Mozambique (*N*=2240; *n*=760 for combined training). Source: numbers from Montalvao et al. (2024), profits in Mozambican metical

by a zero result in Ethiopia; this lack of success of the PI training was probably not due to cultural differences but to the (in)effectiveness of some trainers (Wolf et al., 2024). Although there was a correlation between PI and success in this sample, many of the trainers were not able to change PI enough to make a difference.

Another boundary condition on PI is time. Some of the effects continue on very long term (unpublished data show differences to prevail across the three groups in Togo up to 8 years after the training in 2014); however, we also found at times short-term effects (Ubfal et al., 2022).

Can people keep up showing PI over very long time? My current thinking is that PI actions cost effort—it is hard work to prompt initiating actions again and again. Therefore, PI actions are often reduced over time; because of prior innovations, that may not affect profits negatively (Mensmann & Frese, 2019). Studies on employees show some negative well-being effects if people force themselves to show PI (Zacher et al., 2019). However, PI actions can be considered the result of skill learning. Thus, the PI-skill can be reawakened if needed and will then have positive effects by taking charge of the environment and utilize new opportunities.

3.3 Recapitulation

Up to this point, we showed the two most important aspects of psychological preparedness for entrepreneurial actions—PI and action knowledge—to increase the rate of entrepreneurship among students and to improve entrepreneurial success. The experimental studies were done in an environment with low restriction of variance; after all, African entrepreneurship is often high because there is a lower chance of getting employment outside entrepreneurship. Therefore, a large part of our samples could be called "necessity entrepreneurs." Entrepreneurship research has often argued that necessity entrepreneurs are different from opportunity entrepreneurs—thus calling into question the generalizability of our results.

Some quasi-experimental and small studies in Germany and in South Africa may suggest some generalization of results (Frese et al., 2016b; Solomon et al., 2013). However, these studies do not include randomized control groups. Generalization issues are important—too often institutional or cultural factors determine differences.

In the following, I discuss some obvious differences between low- and high-income countries. What looks different may be due to differences in means but that does not represent differences in "laws of nature." I proposed that LMICs allow "better" studies of entrepreneurship, because of lower range restriction (more entrepreneurship) and higher motivation to learn better skills. These LMIC studies may help to overcome Western biases resulting from the fascination with entrepreneurship in Silicon Valley, which itself may be a very specific form of entrepreneurship.

4 "Poor" entrepreneurship as necessity entrepreneurship

The insight that a high percentage of entrepreneurs in LMICs start their business out of "necessity" because they do not have "better options" available, contributed to a differentiation between necessity and opportunity entrepreneurship (Reynolds et al., 2003, p. 36). Necessity entrepreneurs start a company to "survive" (Weiss et al., 2024) having to deal with the "liability of poorness" (Morris et al., 2020). The entrepreneurship literature is strongly influenced by this differentiation (Dencker et al., 2021). It is plausible that the reasons why a person chooses entrepreneurship would also affect the way the business is run and its eventual success or failure. A similar concept, push and pull motivation for entrepreneurship, argued that push consists primarily of negative context conditions (negative job, bad boss, unemployment, etc.), and pull refers to own motivation (positive hopes, detection of great opportunities, and aspirations) (Dawson & Henley, 2012).

There are two problems with "necessity-entrepreneurship": first, its dichotomous measure and second its assumed importance for entrepreneurial outcomes. Many researchers use the dichotomous measure of necessity versus opportunity entrepreneurship, but it was also met by criticism (Caliendo & Kritikos, 2019; Coffman & Sunny, 2021; Eijdenberg & Masurel, 2013; Weber et al., 2023). Some studies equated entrepreneurship by the unemployed with necessity entrepreneurship (Fairlie & Fossen, 2020). Assumptions developed in this area contradict psychological research: Negative situations (unemployment) may motivate people to think of opportunities for entrepreneurship. Negative situations often trigger one to rethink one's

career (Bridger et al., 2013), and stress situations may even increase PI (Fay & Sonnentag, 2002). Maybe the proverb "necessity is the mother of invention" has some truth to it (George & Zhou, 2002).

Some other research suggested the use of motivational theories to improve the theory of necessity entrepreneurship, for example, by relating necessity to the lower levels of Maslow's hierarchy—meeting physiological and security needs (Dencker et al., 2021). We applaud the idea to develop a stronger theory on necessity entrepreneurship; however, Maslow's hierarchical model has not survived empirical scrutiny (Hall & Nougaim, 1968; Wahba & Bridwell, 1976); therefore, it may not be an ideal candidate for theoretical redirection.

The most damaging issue for the concept of necessity entrepreneurship is that its measures are often based on retrospective or concurrent surveys which may lead to apparent spurious correlations between perceived environment and perceived necessity entrepreneurship. Attribution theory suggests that people favor ego-syntonic interpretations. If one's current profitability is not high, entrepreneurs may attribute this to the bad environment ("it was not my fault, the environment was bad"). In contrast, if one's company does well, the owner tends to attributes this his or her actions (Ross, 1977) and makes one-self responsible for the success. The attributional critique is generic as it calls into question the validity of retrospective reporting of motivational factors.

This leads to the conclusion that there is no easy measure for necessity versus opportunity entrepreneurship. But even if we had a perfect measure, prior motives for starting a business are unlikely related to entrepreneurial success. Empirically, there is little support for the hypothesis that necessity entrepreneurship leads to lower success. A British study discovered no clear relationships on subsequent growth (Birley & Westhead, 1994). There was a small negative effect of necessity entrepreneurship on success in a Dutch study of solo entrepreneurs (De Vries et al., 2020). A longitudinal study in Germany found necessity entrepreneurship to have reduced chances of survival, lower income, reduced number of employees, and fewer patents or trademarks (Caliendo et al., 2023); this seems a persuasive result favoring the necessity theory. However, a plausible alternative interpretation is that the sample was made up of unemployed who partially misused the program because it gave generous and prolonged support to the unemployed who said they wanted to start a company (*Gründungszuschuß*); this may have attracted some people who were not keen to start a company but used the program to get better and prolonged welfare support. In contrast, a study comparing East and West German entrepreneurs found no significant correlations of push or pull variables to potential economic outcome variables in East Germany (Galais, 1998). In West Germany, push motivation was related to higher business income but lower satisfaction (Galais, 1998). Three different African samples also showed a near zero average correlation of r=.05 with unemployment as reason for entrepreneurship (Frese, 2000); prior unemployment as reason for entrepreneurship did not significantly contribute to failure of informal businesses in South Africa (Woodward et al., 2011).

Thus, the best conclusion is as follows

1) Necessity vs. opportunity-based entrepreneurship should not be measured in a dichotomous way.
2) The push vs. pull motives and high growth goals before the starting-up are not a good predictor of success after start-up—this is not surprising given the fact that intentions require a plan of action to have an impact on behavior (Gollwitzer & Sheeran, 2006).
3) The reciprocal relationship between necessity and opportunity development needs to be empirically elaborated in more detail.
4) At this moment in time, the current literature is not able to provide clear answers, and, therefore, we can safely conclude that the laws of nature are the same for necessity and opportunity entrepreneurship.

This supports the idea that studies with people who are "forced" into entrepreneurship can still produce new knowledge about entrepreneurship because of the low degree of range restriction.

5 Poor entrepreneurship: the need for financial resources

Ask entrepreneurs anywhere in the world whether they need more money, their answer is most likely "yes." Forming a successful firm requires financial support—and this is true both in low- as well as in high-income

countries. What is more interesting is that even in the USA—the "Mecca" of venture capital and angel investors, only 1 in 5 entrepreneurs receive a bank loan to start a business, and the median figure for starting capital is USD 28,000; differences between industries exist and initial capital may be as low as USD 9952 (for professional scientific and technical service), but a sizeable number of start-ups have even less than USD 5000.[9] These are unexpectedly low numbers for a rich country.

Obviously, starting capital is much lower in LMICs. But it is important for later success. Frese (2000) reported from four African samples an overall correlation of .30 between starting capital and success; the exact same correlation was also reported in Jamaica (Honig, 1998).

Do these data mean that increasing the money supply later on helps? There was strong support and enthusiasm for the idea of micro-credits after Yunus started his micro-credit bank in Bangladesh (Yunus, 1989). However, further studies turned out to be a bit less optimistic. A meta-analysis on micro-credit reported a relatively small average correlation of r=.11 of micro-credits with profit increase (Chliova et al., 2015). This correlation was based on very few studies, and the meta-analysis reported a sizeable publication bias; that means positive effects of micro-credits are more often reported than non-positive effects (Chliova et al., 2015). Thus, the small effect is partly due to publication bias; moreover, the studies were not based on RCTs. Fortunately, there is a meta-analysis of seven large RCTs showing the causal effect of micro-credit programs on entrepreneurial success to be zero (Meager, 2019).[10]

Could it be that there is an economic and psychological difference between starting capital and credits later on? How can we explain the importance for success of starting capital in contrast to micro-credit programs? Potentially, starting capital's relationship with entrepreneurial success may be based on selection effects: Apparently, successful people receive more capital to start a business than those who are perceived to be not so successful (Cooper et al., 1988)—such an effect can happen not just with strangers but also with capital provided by family or friends. Some effects appear in pitches: Being perceived to have high PI in a pitch is a positive signal that leads to enhanced pitching success (Alinaitwe et al., 2024). Thus, starting capital may be received because the person signals entrepreneurial competence and motivated engagement. Also, financial resources at the very beginning of one's entrepreneurial career may be indicative of an interesting business idea and assumed personal potential for entrepreneurship.

Still starting capital may be even more important than later funds because the early capital is needed to generate early profits; early profit, in turn, may lead to additional success that can be reinvested. However, the issue is not just the objective financial support but also how entrepreneurs deal with financial constraints. The better they can deal with capital constraints the more successful they can be (Bischoff et al., 2020). Bischoff et al. (2020) showed in two longitudinal randomized field experiments that STEP trained participants developed a better mental model of how to deal with financial constraints and that this was a major reason (mediator) for starting a firm; similarly, those who could not participate in the STEP training tended to refrain from creating a firm. One implication is that action-oriented training for potential firm owners may help to deal with financial constraints. Psychological preparedness also implies knowing strategies to deal with difficult environments. This does not mean, of course, that the lack of objective financial resources in LMICs is unimportant. However, bootstrapping methods to deal with financial difficulties might compensate lack of finances (Ebben & Johnson, 2006; Winborg & Landstrom, 2000) (indeed, financial bootstrapping is taught in both STEP and PI training).

The upshot of our discussion here is that early starting capital is important for later success. "Easy" solutions later on in the process, like micro-credits, may not be as useful as previously thought. Painstakingly accompanying firms with help and mentoring as well as psychological training may work better than just concentrating on finances.

6 Formal and informal entrepreneurship

Related to necessity and poverty entrepreneurship but not identical to them is the issue of informal business.

[9] https://www.lendingtree.com/business/startup-costs-by-industry (retrieved May 19, 2024).

[10] There is one important exception to these negative effects: An RCT on providing Nigerian high growth companies very high grants of USD 50,000—grant receivers reported strong growth including employment growth (McKenzie, 2017).

One reason to be critical of generalizing results from research in LMICs is the dominance of informal entrepreneurs in much of the emerging world (La Porta & Shleifer, 2014a). Usually, informal business is defined by not having a tax number, not paying central tax (different types of registration exist, e.g., local registration), but participating in the legal sector of the economy (thus, criminal activities are a separate category, although they are often informal) (La Porta & Shleifer, 2014a). La Porta and Shleifer (2014b) argue that formal and informal business have little overlap; they have different production processes, different customers, and informal business is unlikely to become formal (taxation costs are higher than advantages from being formal).

In many African countries, more than half of GDP is produced by informal business and the majority of firms are informal (Struwig et al., 2019). For Uganda, 49% of GDP is due to the informal economy according to one estimate (Struwig et al., 2019). Owners choose informality because of high taxes, social security costs, and complicated regulations around labor, restrictions for foreign labor, etc. "A one-point increase of the regulation index (ranging from 1 to 5)… is associated with an 8.1 percentage point increase in the share of the shadow economy" (Schneider & Klinglmair, 2004, p. 18–19).

Of course, the informal economy does not just exist in low-income but also in high-income countries. Estimates on the informal economy are in the range of 41% in developing countries and 18% in the developed world (OECD countries) (Schneider & Klinglmair, 2004). High-income countries like Greece and Italy had, at least in the early years of 2000, a strong shadow economy as well (with 28% and 26% of GDP being informal), and, thus, they are not that different from some African countries, like Kenya (34%) and South Africa (28%) (Schneider & Klinglmair, 2004). More importantly, countries' informal parts of the economy do not necessarily change to become less informal when countries grow their wealth; moreover, entrepreneurs' choices for informality in both Western and developing countries are influenced by similar factors (Portes & Sassen-Koob, 1987; Tonoyan et al., 2010). Although mean differences between Western and developing countries exist, they do not seem to amount to a different quality in the psychology of entrepreneurship.

In the last analysis, it is entrepreneurs who decide on whether to be informal or formal. Thus, the perspective of entrepreneurs is important. Positive reasons for being formal are as follows: Value-added tax can be retrieved back, e.g., from formal suppliers. Government support, bank support, etc. are better available for formal business; some customers may demand official receipts; informality may hold back growth—marketing is easier if a company is formal; institutional theory suggests that there is higher legitimacy of a formal organization; making the company well-known is a goal of marketing, but for an informal business, too much prominence would attract the tax office or corrupt police; the formal business may also appeal more to highly qualified employees.

Moreover, disadvantages exist if a business is informal: There is little protection and lower support by the government and its agencies. Theft in informal businesses may be high (La Porta & Shleifer, 2014a), and owners tend not to report theft to the police. Informal businesses are frequently forced to pay bribes to the police and other government agencies (they often do not have land titles or are deemed to be illegal occupants of spaces).

Descriptive studies support the negatives of informal business (La Porta & Shleifer, 2014a): Informality may hinder quality and efficiency in production improvements. On the other hand, encouraging informal businesses to formalize carries costs:

First, the financial outlets for becoming formal are often very high in LMICs (Khavul et al., 2009). Informal businesses can develop a better capital base and more action knowledge if they are informal in the beginning phases of their business (stepping stones towards a strong development in poor countries (Gielnik & Frese, 2013; Kodithuwakku & Rosa, 2002)). Empirical studies show that informal companies in developing countries are better off if they do not start their companies as formal; and the longer they stay informal, the better their sales and growth rate (Williams et al., 2017).

Second, the empirical literature shows that the path to growth is not better for formal than for informal companies (Jacob et al., 2019).

Third, most of the studies discussed up to this point are descriptive and thus do not support causal understanding. One of the few experimental studies demonstrates that becoming formal does not make businesses more profitable (Benhassine et al., 2018). Recouping the tax disadvantage of being formal is often difficult (Benhassine et al., 2018). Also,

reducing the costs for formalization does not have long-term positive effects (Galiani et al., 2017).

Fourth, psychological preparedness may be important, as well. A longitudinal study examined whether formal entrepreneurship has positive growth effects on firms (Jacob et al., 2019). Being formal did not contribute to later growth. However, this longitudinal study also included personal initiative in its design. Indeed, PI mattered: In contrast to low PI owners, formal entrepreneurs with a high degree of PI managed firms to grow. The article also included a mechanism: Those formal entrepreneurs, who were also high on PI, made better use of resources available than those with lower PI. Obviously, we cannot draw firm conclusions from one study, but this study suggested that psychological prerequisites to utilize resources count. The action-oriented mindset of PI allows entrepreneurs to make use of the advantages of being formal.

Thus, an alternative view of formal and informal business is that all business has to deal with barriers. Both formal and informal companies produce barriers, and these are important if a business transitions from informal to formal. A conclusive study on changing from informal to formal business suggests that this change should not be done too early (Williams et al., 2017).

7 Conclusion and policy implications

This article started out with the premise that macroeconomic conditions require psychological preparedness for entrepreneurial actions. I examined two aspects of psychological preparedness in more detail: action-oriented entrepreneurial knowledge and the motivational personal initiative that helps to develop ideas because of future thinking and to push forward in spite of barriers. Furthermore, there are good reasons to studying change of psychological preparedness in LMICs because range restrictions are less frequent in countries where there are few alternatives to entrepreneurship. Additionally, large-scale studies with many entrepreneurs are feasible in such countries because the need to improve businesses and profitably to better support their families is higher in such countries.

The two trainings described above confirmed that psychological preparedness can be improved leading to better coping with difficulties, resource utilization, and improved entrepreneurial knowledge, skills, and motivation. As far as we can ascertain, PI training has positive effects both for very successful and not-so-successful entrepreneurs (Campos et al., 2017). This is also true for women entrepreneurs with varying levels of intelligence or human capital (Campos et al., 2018). Legitimate concerns that we might encourage the wrong people to start a company and produce more failure in this way can be dismissed because the more frequent STEP participants are as successful (and even slightly more successful) than the 30% smaller control group of start-up entrepreneurs. Moreover, STEP participants manage the lack of financial resources better than the control group. Similarly, PI training aids the process of utilizing farming knowledge to produce higher yields and higher income. It reaffirms that psychological preparedness for entrepreneurial actions is achievable even in predominantly illiterate women (of course, science still needs to search for who profits most from the trainings suggested).

This article attempted to discuss potential issues that often are levied against studies from LMICs and are related to the issues of necessity, survivalist, and informal entrepreneurship. I discuss some (clearly preliminary) conclusions:

First, necessity entrepreneurship: I contend that there is little criterion validity of the measure of necessity entrepreneurship, although the idea is plausible and there are clear mean differences across low- and high-income countries; however, the literature shows little or no correlational differences between these countries. Indeed, I propose to abandon the concept of necessity entrepreneurship until there are better measures, data, and systematic effects of the concept on success.

Second, financial resources: The need for financial resources has validity; most entrepreneurs cite financial resources as important. I propose, however, that there might be a difference between starting capital and later credits. Thus, a preliminary conclusion of correlational differences suggests that the timing, the size, and the details of the resource provision matter. The psychological reaction to financial resources may be significant. The saying that "money concentrates the mind" is probably true. The hope to secure sufficient finances is universal among entrepreneurs. At the same time, commercial approaches (e.g., micro-credits) have been less helpful than originally expected.

I have often advocated the idea that micro-credits providers should also refer their clients to get PI training. I am not so sure about that anymore. The focus on finances might overshadow training effects. This is an important research question, requiring careful psychological studies of attentional processes before, during, and after receiving credits or grants. Also, any research on financial support should include questions on coping with financial constraints. STEP training seems to help here, but more research is needed.

Perhaps dealing with the lure of (and attention to the lack of) financial resources may also be important here. In terms of differences between low- and high-income countries, we can only state that simply throwing money at entrepreneurs does not always help (and particularly not if micro-credits carry high interest rates). Also, surprisingly, starting capital is lower everywhere in the world than generalizations from Silicon Valley would suggest.

Third, formal vs. informal business: Visiting informal firms in LMICs is often shocking when comparing them to formal businesses in the West. Mean differences between low- and high-income countries exist, although they are less pronounced and due to other factors than usually assumed (immigration, strength of labor unions, labor laws, etc.) (Portes & Sassen-Koob, 1987). LMIC's entrepreneurs need to make decisions whether to stay informal or become formal. Empirical work supports the proposition that LMIC's businesses should start informally (Williams et al., 2017). In developing countries, the transition to formal business should be gradual and easy (e.g., sudden high taxation, even for non-profitable firms, will not help such a transition). PI training might help to utilize resources or develop new ones. Given the complexity of formal and informal business, we cannot draw any firm conclusions on differences between low- and high-income countries. Some degree of informality also exists in high-income countries, for example, side-gigs to one's job before registering a business.

Scaling of interventions: Whenever interventions are based on preparing individuals for entrepreneurial actions, the issue of scaling up becomes important. The successful application of the STEP training in high schools in Uganda shows a way that might help to scale up training effects and potentially support a cultural shift towards an entrepreneurial culture in a society. Prior use of STEP in a technical college for all students produced apparently positive effects even though the students did not have a choice on whether to participate (Gielnik et al., 2016).

In conclusion, I hope to have demonstrated that the common pursuit of psychology and economic approaches may support economic macro development and can help individual entrepreneurs to participate more meaningfully in the economic activities of countries.

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