VENTURE IDEA ASSESSMENT (VIA): DEVELOPMENT OF A NEEDED CONCEPT, MEASURE, AND RESEARCH AGENDA

ABSTRACT

To address challenges constraining prior research on evaluation of entrepreneurial projects, we develop the concept of Venture Idea Assessment (VIA) and validate an instrument to capture it. VIA concerns assessment of Venture Ideas (VI) unbundled from assessment of any agents with whom they may be associated. The assessment can be performed by anybody at any stage of the venture development process, not just by potential founders at its outset. We develop and validate a parsimonious VIA measure across six empirical studies using a broad set of assessors and VIs using interviews, experiments and surveys following real-world start-up processes and decisions. In a research agenda we outline how the VIA platform—the concept and its operationalization—can be employed in novel research across a range of entrepreneurship research streams.

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1. Executive Summary

What drives assessments of how promising a venture idea might be? How and why do such assessments vary across team members, helpers, investors, mentors, current and potential employees, and the general public? How do these assessments vary over time, and how does this affect stakeholders' actions? Researching these questions requires a clear concept distinguishing assessment of ideas from assessments of the people who pursue these ideas—as well as a valid instrument to capture such assessments. As effective, agreed-upon tools of that kind are currently lacking, we develop the concept and measure of *Venture Idea Assessment (VIA)*. VIA complements the concept and measure of *Opportunity Evaluation* (Wood & McKelvie, 2015; Scheaf et al., 2020)

that are concerned with entrepreneurs' first-person evaluation of venture ideas as feasible and desirable for their own entrepreneurial pursuits. VIA thereby opens new avenues for theoretical developments and empirical research.

We endow the VIA concept with four key features: 1) the assessed stimulus is a Venture Idea (VI), an envisioned future venture in and of itself, disregarding any particular individuals with whom it may be associated; 2) VIA applies to any assessor of VIs, not just prospective entrepreneurs; 3) the VIA concept is relevant for any type of entrepreneurial endeavor at any stage of the venture creation process; and 4) VIA refers to an overall *assessment result*, expressed as degree of confidence along a single dimension that makes no assumptions about either the process or reasons underlying the result. These features build on prior work emphasizing venture creation as an iterative and socially interactive process (e.g., Dimov, 2007; Sarasvathy, 2001) and the importance of distinguishing assessment of the ideas from assessment of those who (may) pursue them and of idea-person/team fit (e.g., Davidsson, 2015; Grégoire, Shepherd & Schurer Lambert., 2010; McMullen & Shepherd, 2006).

We comprehensively develop and validate a parsimonious measure of VIA across six empirical studies, using interviews as well as experimental manipulations and surveys of real-world start-up processes and decisions. We collected data from lay and expert participants, with assessments of both hypothetical and real-world VIs. This extensive empirical work yields a short, versatile, and easy-to-administer VIA instrument that performs well on a range of reliability and validity tests.

Taken together, our VIA concept and measure form a new platform—a rigorous conceptualization with a thoroughly validated operationalization—for advancing theory and empirical research on the causes and effects of varying confidence in VIs. We also foresee considerable potential for practitioner use of the VIA instrument. To encourage and facilitate new research directions, we offer a research agenda that outlines future research opportunities regarding

the influence of idea and person characteristics on VIAs; VIAs' effects on stakeholders' actions; the causes and effects of temporal fluctuations in VIAs; and the possibility of using aggregated VIA scores for idea screening and outcome prediction. To guide scholarly and practical applications, we conclude the paper with detailed advice on how best to use VIA.

2. Introduction

An important research stream in entrepreneurship studies aims to discern the factors that influence assessments of early-stage entrepreneurial projects—and the consequences of such assessments. Applying labels like *opportunity beliefs*, *opportunity confidence* and *opportunity evaluation*, this research has highlighted the influence of entrepreneurs' knowledge, motivations and affective states, as well as the criteria used by entrepreneurs and external investors (e.g., Drover et al., 2017; Hsu, Haynie, Simmons & McKelvie, 2014). Recent developments suggest reserving the term *opportunity evaluation* for entrepreneurs' assessment of whether a situation/idea represents an opportunity for them personally (Wood & McKelvie, 2015; Wood & Williams, 2014) and Scheaf et al. (2020) contributed an instrument for measuring such evaluations. These contributions provide a toolbox for knowledge accumulation on this particular type of assessment.

Yet, a careful examination of the literature reveals that research on the assessment of entrepreneurial stimuli (i.e., a potential opportunity, a venture idea, or the context for pursuing such ideas) for other purposes and by other stakeholders has not reached the same high level of conceptual and methodological development. McMullen and Shepherd's (2006) distinction between third- and first-person assessments was an important step forward for this purpose by providing a basis for separating assessments of entrepreneurial stimuli from assessments of the agent and/or their fit with the stimulus. To enact such separation, subsequent studies introduced the notions of *opportunity belief* and *opportunity confidence* (see Davidsson, 2015; Grégoire, Shepherd & Schurer-Lambert, 2010; Shepherd, McMullen & Jennings, 2007). Yet later

applications have been inconsistent regarding the nature of the stimulus and distinctions between the stimulus and its assessment, as well as between assessments of the stimulus and of the agent. Furthermore, while some studies consider the views of stakeholders beyond focal entrepreneurs—such as other team members, employees, mentors and supporters (see Davidsson & Gruenhagen, 2020)—extant research does not typically treat these views as assessments of entrepreneurial stimuli. Likewise, few studies examine how assessments vary over time. Most importantly, no validated instrument exists for researching assessments other than first-person opportunity evaluations.[1] This lack of effective tools hinders theoretical developments and empirical advances in this important domain of entrepreneurship research.

To address these challenges, we develop the concept of Venture Idea Assessment (VIA) and validate a broadly applicable survey instrument to capture such assessments. The VIA concept has four distinctive features. First, the assessed stimulus is a Venture Idea (VI), an envisioned venture in and of itself, disregarding any agent with whom it may be associated (Davidsson, 2015: 683; Grégoire et al., 2010; McMullen & Shepherd, 2006). Second, VIA applies to any assessor of VIs—not just prospective entrepreneurs. Third, the VIA concept is relevant at any stage of the venture creation process and for any type of entrepreneurial endeavor, form or purpose. Fourth, VIA refers to an overall *assessment result*, expressed in terms of degree of confidence along a single dimension that makes no assumptions of either the process or reasons leading to this result.

These four features of VIA facilitate theory building and empirical research on a range of questions including: What characteristics of VIs make them attractive? How do assessor characteristics moderate this? How do temporal changes in founders' assessments of their idea

[1] Starting from Scheaf et al.'s (2020) Table 3, we thoroughly investigated prior measures and found that only Grégoire et al.'s (2010) was clearly intended as third-person and provided with substantive validation (albeit only partly successful). Yet citation analyses reveal that most of its limited use has involved conversions to a first-person stance and item adaptations, and Grégoire's own attempts at further development and validation proved unsuccessful.

(VIA) and of themselves (self-efficacy) relate to effort, pivoting, termination, and trying again? How does the degree of confidence in a VI influence the amount and type of support that family, friends and mentors provide? How does the degree of confidence affect team members' and employees' decisions to join or leave a start-up? How do diverging VIAs among stakeholders relate to tension, conflict, and remedial action? Are aggregated VIA scores useful for selecting and progressing ventures in mentoring programs, and for predicting success in crowdfunding?

We acknowledge that encouraged by validation results we presented at a conference in 2018, a few author teams have begun using VIA in their research. This includes one published study (Gish, Wagner, Grégoire & Barnes, 2019). While this can raise questions about our contributions' novelty, Gish et al. (2019) neither introduce the VIA concept nor aim to expose VIA's theoretical developments or to report comprehensive evidence for the measure's psychometric properties. Further, we purposefully delayed submitting the present work to a journal to examine VIA's distinctiveness with Scheaf et al.'s (2020) opportunity evaluation measure (which first appeared online in 2019, as we were getting ready to submit).

All in all, our work offers four contributions. First, we introduce a concept (VIA) developed for assessing one type of entrepreneurial stimulus (VI) with greater conceptual clarity and broader applicability across assessors and venture creation stages than its predecessors. Second, we expand prior distinctions among agent, stimulus and assessment result to the situation where the assessor is not the entrepreneurial agent. Third, we develop and thoroughly validate a short, easy-to-administer VIA instrument, offering a useful complement to Scheaf et al.'s (2020) opportunity evaluation measure. Finally, we outline a research agenda that illustrates the broader and more processual streams of research that our VIA concept and instrument make possible—potentially leading to deeper theoretical understanding of a range of under-researched issues.

3. Conceptual Developments

We define VIA as *the degree of confidence an individual has in a venture idea in and of itself as a basis for the creation of a new venture, independent of the perceived qualities of any entrepreneurial agent with whom this idea may be associated*. This definition marks that we conceive VIA as a subjective, unidimensional, better-worse concept expressed as degrees of confidence. The phrases "venture idea in and of itself" and "independent of…" specify the assessed stimulus. In turn, "has in" denotes that VIA is the assessment *result*, not the act of assessing. The definition allows for assessments by a range of assessor categories for a broad variety of research purposes. We provide the conceptual foundations for this definition in the following subsections.

3.1. Premises: Venture Creation as a Dynamic Social Process and Separate Assessments

Our work builds on two important premises. First, following Dimov (2007), Sarasvathy (2001), Wood and McKinley (2010) and many others (see Davidsson & Gruenhagen, 2020; Healey, Bleda & Querbes, 2021; Shepherd, Sattari, & Patzelt, 2020), we conceive venture creation as an iterative and socially interactive process involving multiple people, unfolding new insights, and changes of direction. This implies that various stakeholders influence the process and that assessments of a project and its components can vary within assessors over time and across assessors at any given point in time. This motivates research on the antecedents and effects of such assessments beyond extant studies of focal entrepreneurs' initial evaluation of possible opportunities.

Second, we build on McMullen and Shepherd's (2006) premise that individuals make assessments of entrepreneurial stimuli (that is, ideas or situations/circumstances) separate from their assessments of the agents with whom these may be associated. This provides a conceptual distinction that allows more precise theoretical analyses—similar to Schumpeter's (1934) separation of the entrepreneurial, manager and capitalist roles, despite these roles often being bundled empirically. Although some investor practices support this distinction (Shane, 2018), the

premise does not imply that stakeholders spontaneously and routinely make strictly separate assessments (cf. McMullen & Shepherd, 2006). However, we assume that assessors *can* make separate assessments and test this in our empirical studies.

These premises call for an extension of the third- vs. first-person assessment logic, which we illustrate in Figure 1. The figure separates agent and stimulus as per our second premise. It also separates assessor and agent, reflecting an important aspect of our first premise. Question *b* (in Figure 1) represents the traditional third-person scenario: an assessment of the (non-agent) stimulus in and of itself by the (prospective) agent. Question *c* illustrates the first-person case: a bundled assessment of stimulus and self. We expand these distinctions by adding the possibility of an assessor that is not the focal, entrepreneurial agent. From this standpoint, assessment of the stimulus (*d*) is often part of a more complex set of considerations (potentially including *e-i*).

<INSERT FIGURE 1 ABOUT HERE>

3.2. The Stimulus: What Is the Object to Be Assessed?

Separating the agent from the non-agent stimulus makes it possible to address how antecedents and effects differ between assessments of agent and assessments of the stimulus (cf. Bishop & Nixon, 2006; Dimov, 2010). Prior research points towards two relevant types of non-agent stimuli: 1) an idea or "mental image" of a future venture, using labels like "new venture idea" (e.g., Davidsson, 2015) or "opportunity idea" (e.g., Dimov, 2007; Wood & McKinley, 2010); and 2) a situation or set of circumstances, labelled "[objective] opportunity" (Shane & Venkataraman, 2000) or "potential opportunity" (McMullen & Shepherd, 2006; Shepherd et al., 2007). As per our definition above, we focus on the first type of stimulus (venture ideas), unbundled from any particular agent (see bottom right corner of Figure 1). We make this choice to achieve clarity about the stimulus of interest in our theoretical and methodological developments.

We adopt from Davidsson (2015) the label *Venture Idea* (VI) defined as an envisioned

"combination of product/service offering, markets, and means of bringing the offering into existence" (p. 683). We use the VI label and definition because they specifically describe the stimulus of interest: a cognitive representation of a venture that can be of any quality and which different stakeholders may deem variously promising. The VI notion includes ideas for commercial, social as well as independent or corporate ventures. It can refer to mundane, imitative, and part-time ideas or ideas with global ambitions based on sophisticated applications of new scientific knowledge, and any shades in between (see Welter et al., 2017). Furthermore, VIs can exhibit different levels of development; the term is *not* reserved solely for an early version of what later becomes more elaborated and/or proven (cf. Vogel, 2017). Representing shareable and communicable cognition, VI is a venture-level concept (Davidsson, 2015): the VI can be shared among stakeholders and survive changes of what people are involved in the venture.

3.3. The Assessment: Choosing Our Concept Label

Having discussed the stimulus (VI), we can now turn to its assessment. Prior research has used *opportunity evaluation*, *opportunity belief*, and *opportunity confidence* for assessments of entrepreneurial stimuli. By contrast, terms like *opportunity discovery*, *-identification*, *-perception* and *-recognition* only occasionally (e.g., Prandelli, Pasquini & Verona, 2016) refer to entrepreneurial stimuli *assessments* and hence, we do not discuss them further.

Opportunity evaluation concerns an entrepreneur's subjective evaluation of whether a stimulus is an opportunity that they personally should pursue (represented in Figure 1's Question *c*). Our conceptual and empirical developments aim instead at Questions *b* and *d*, depending on who the assessor is. Some studies use *opportunity belief* and *opportunity confidence* for this purpose (e.g., Davidsson, 2015; Grégoire & Shepherd, 2012; Wood, Williams & Grégoire, 2012). Though we began the present work based on these concepts (and initially used the label "opportunity confidence"), we realized that it was preferable to introduce and develop the notion of Venture

Idea Assessment (VIA). Four main reasons support this labeling choice.

First, the VIA label specifies the nature of the stimulus—a venture idea as defined above—whereas the predecessor concepts have been applied with varying stimuli (cf. Davidsson, 2015; Dimov, 2010; Grégoire & Shepherd, 2012; Shepherd et al., 2017). Second, VIA helps separate the stimulus (VI) from the assessment *outcome* (that is, the extent to which someone assesses a VI positively as the basis for a new venture). Research applying the predecessor concepts has not consistently upheld this separation (cf. Ivanova, Treffers & Langerak, 2018; Mainela, Puhakka & Sipola, 2018; Shepherd, McMullen & Ocasio, 2017). Third, VIA upholds the distinction between third- and first-person assessments (McMullen & Shepherd, 2006). Yet because some prior studies use opportunity belief/confidence as first-person assessments (e.g., Dimov, 2010; Ivanova et al., 2018), using either of these labels would induce confusion with what is now known as opportunity evaluation (Scheaf et al., 2020; Wood & Williams, 2014). Fourth, recent applications have introduced further risks of confusion by making the term "opportunity belief" contingent on the correctness of such beliefs (Gras et al., 2020) and by portraying opportunity belief as evolving into the elsewhere often equivalent notion of opportunity confidence (O'Shea, Farny & Hakkala, 2019).

In sum, although the terms opportunity belief and opportunity confidence introduced the important distinction between stimulus and assessment (Shepherd et al., 2007) and the relevance of repeated assessments over time (Dimov, 2010), these terms have become loaded with such extraneous meaning that establishing the present conceptualization under either of these labels—as we originally intended—would seem unwise (Suddaby, 2010). Hence, we suggest VIA as a thoroughly defined and elaborated alternative, which is clear about the nature of the assessed stimulus and free from misleading connotations arising from inconsistent or ambiguous use.

3.4. The Assessment: Unidimensionality, and Confidence as Anchor

We conceive of VIA as an assessor's *degree of confidence* (which can vary from none to very

high) that a VI offers a sound basis for a venture creation attempt. This aligns with the definition of confidence as "a state of mind in which one is free from doubt" (Merriam-Webster, 2020). It is also consistent with Dimov's (2010) and Davidsson's (2015) uses of "opportunity confidence", and with discussions of the role of doubt in forming "opportunity beliefs"—where higher levels of confidence are theorized as relevant antecedents of entrepreneurial action (Casson, 1982; McMullen & Shepherd, 2006; Shepherd et al., 2007). Using "confidence" in this manner also has underpinnings in neuroscience, notably with the Bayesian view of probability as subjective degrees of belief (Ma & Jazayeri, 2014; Meyniel, Sigman & Mainen, 2015).

Owing to the same focus on capturing overall *assessments* of VIs, we conceive of VIA as unidimensional—in the sense that the concept (and its measurement) consists of a single overarching entity (the assessment *result*). This unidimensionality has important conceptual advantages. First, it allows for aligning the concept (and its measure) with the real-life phenomenon of people's *overall* assessments of venture ideas (Åstebro & Elhedhli, 2006; Åstebro, & Michela, 2005; Shane, 2018). Second, it reinforces the concept's focus on *assessment results*—as distinct from the *processes* or *reasons* for arriving at these results.

We readily agree that one can legitimately assess different 'dimensions' (e.g., feasibility, novelty) or 'parts' (e.g., value proposition, market demand, etc.) of venture ideas—and we respect that others pursue such aims (cf. Dimov, 2010; Grégoire et al., 2010; Scheaf et al., 2020). However, making such underlying dimensions part of the concept and its measure would come at significant costs. Across the broad spectrum of intended applications of VIA, there is no agreement yet on a shared set of salient dimensions/parts that would systematically explain people's degree of confidence in VIs—and such a shared set may not even exist. Instead of forcing participants to apply predetermined decision criteria, VIA provides a means for identifying such criteria and how they might vary across contexts, which would not be possible if VIA were definitionally associated

with a fixed set of underlying dimensions. The unidimensional conceptualization of an 'overall' assessment is internally consistent and operationally flexible, making the concept amenable to a range of applications across varying types of ideas, assessors, and process stages.

3.5. Assessments by Different Assessor Categories

3.5.1. Assessments by focal, entrepreneurial agents. The entrepreneur's VIA (*b* in Figure 1) is conceptually relevant in three cases: i) to represent the third-person assessment assumed to precede first-person opportunity evaluation (McMullen & Shepherd, 2006); ii) for theorizing differential actions over time (e.g., resource investments, pivoting, abandonment) in response to entrepreneurs' fluctuating confidence in the idea (VIA) and in their own entrepreneurial abilities or fit, respectively (*b* vs. *a* and *c* in Figure 1); and iii) for theorizing about the causes and effects of discrepancy between the entrepreneur's and other stakeholders' respective level of confidence in the same idea (cf. Collewaert & Sapienza, 2016; Preller, Patzelt & Breugst, 2020).

3.5.2. Assessments by other stakeholders. The third case above calls for broadening the domain of assessments to stakeholders beyond the focal entrepreneur. This includes other team members, investors, employees, mentors, program managers (e.g., in an accelerator), and supporters like family, friends, and small-scale crowdfunders. These stakeholders' confidence in an idea might vary among them and across time. Such variance should influence their actions, net of the effect of the confidence they may have in the agent pursuing this idea.

Investigating these matters requires new conceptualizations. When the assessor is another stakeholder than the focal entrepreneurial agent, the traditional third- vs. first-person distinction does not suffice. Apart from VIA (*d*), the assessor may have reason not only to assess the agent (*f, h*) but also to consider what the assessment of both VI and agent imply for their own actions (*e, g* and *i*). While an investor's favorable assessment of the VI, the agent and their fit (i.e., positive *d, f* and *h*) suggests that they think the VI may be an opportunity for the focal agent, it does *not* imply

the identification of a first-person opportunity *for the investor-assessor*. For example, the first-person assessment may not be favorable because the VI pertains to an industry that they do not invest in (reflected in *e*) or the entrepreneur may not be someone that they would like to work with (reflected in *g*). If the assessor is a mentor or supporter, assessments of *e, g* and *i* are not primarily about whether the situation is an opportunity for the assessor or not (as in *c* for the entrepreneur), but rather an input into *what kind* of action the assessor-stakeholder may decide to take. Hence, when the assessor is a stakeholder other than the focal entrepreneur, additional contingencies apply beyond the third- vs. first-person distinction. Our development of VIA provides useful clarifications for investigating these contingencies as well as explication of what else is needed.

3.5.3. Assessment by non-stakeholder experts or laypersons. Lastly, the VIA assessors may also be non-stakeholders—for example, a group of experts or laypersons assessing VIs to estimate success chances. This is a less complex situation compared to the above, as there is no first-person case for the assessor to consider and the assessment of VIs may be made without the assessor making any matching assessment of agents (*f* and *h*). In other words, the assessment task may be purely about *d*. Interesting questions in this situation are whether and why a small group of experts' average VIA provides better or worse outcome predictions than that of a larger group of laypersons (Davis-Stober, Budescu, Dana & Broomell, 2014; Onarheim & Christensen, 2012) and the implications of greater variance in VIA across assessors for some ideas compared to others.

3.6. Synthesis

The above explicates how VIA builds on and extends prior works by portraying venture creation as a process involving multiple contributors and potential assessors over time, and by separating a) stimulus vs. assessment, b) assessments of the stimulus vs. of the agent, and c) assessment by the agent, by other stakeholders, and by non-stakeholders. VIA concerns the unidimensional, overall result of assessments of VIs as defined above, performed by any assessor

at any stage of venture creation. Consistent with Figure 1, VIA can be used alongside measures of opportunity evaluation (Scheaf et al., 2020), although the measures would serve different purposes. In addition to extending the domain across time and assessor types, VIA provides a level of conceptual precision and elaboration that has not been provided for VIA's predecessors.

Before turning to VIA's operationalization, it becomes pertinent to clarify how VIA relates to "opportunity"—the more so considering recent debates about this concept's merits (cf. Foss & Klein, 2020; Wood & McKinley, 2020). "Opportunity" is absent in the VIA concept label because the focal stimulus is an idea *not yet assessed* as favorable for or by anyone—and which may garner negative assessments. Accordingly, a positive assessment implies that the assessor deems a VI to be "an opportunity for someone". If VIA is part of the assessor's broader evaluation of a situation (including the VI and self) that leads to a decision to act on the idea (as entrepreneur, investor, team member, employee, etc.), the VIA terminology does not oppose calling the positively assessed idea "an opportunity" and labeling the event "opportunity identification" or the like. Hence in these situations, using VIA along with opportunity language can be appropriate.

This said, many applications of VIA would include multiple stakeholders with varying degrees of confidence in the same idea, stakeholders (e.g., mentors, supporters) whose associated decisions would concern types of support and advice rather than "go/no go", and graded assessment by non-stakeholders who are not facing a binary (opportunity/non-opportunity) decision. In these situations, using "opportunity" alongside VIA may not be suitable and potentially confusing.

4. Developing and Validating the Instrument

We anchored our validation efforts on established guidelines for scale development (Hinkin, 1998; Podsakoff, Podsakoff, MacKenzie & Klinger, 2013). Framed in terms of MacKenzie, Podsakoff and Podsakoff's (2011) scale validation steps, our work includes a conceptual definition of the construct (Step 1); item generation (Step 2) and assessment of the items' content validity

(Step 3); specification of the measurement model (Step 4); collection of pre-test data (Step 5); scale purification and refinement (Step 6); re-examination of scale properties in new samples (Step 7); assessment of scale validity (Step 8) and cross-validation (Step 9).

VIA offers a comparatively straightforward measurement task where either reflective or formative measurement could be applied (MacKenzie et al, 2011: 302) and where the former aligns with the above rationales for unidimensionality (Edwards, 2011: 373). We find strong support in the method literature for this unidimensional, reflective specification (see Edwards, 2011 and Howell, Breivik, & Wilcox, 2007, and the example of job satisfaction they both use).[2] As explained in Section 3.4, our use of *confidence* to represent the single, better-worse assessment proceeds from prior developments of the *opportunity confidence* concept (Davidsson, 2015; Dimov, 2010). Nevertheless, we investigate the suitability of the confidence metric in our empirical studies below.

4.1. Design and Purpose of the Six Empirical Studies

We conducted six empirical studies that collectively address MacKenzie et al.'s (2011) steps for scale development. Table 1 summarizes the studies' design and purpose.

< INSERT TABLE 1 ABOUT HERE >

Consistent with VIA's intendedly broad applicability, we use different types of assessors across the studies. We use entrepreneurs as domain experts in Studies 1 and 2, adding research students as competent conceptualization evaluators in the latter. Participants in Studies 3, 4, and 5 can all be seen as playing stakeholder roles, such as prospective investors, mentors or team members, with Study 5 representing a real-world context. Study 5 further integrates external experts as an unbiased source for criterion validity testing. We collect founders' VIA ratings of their own and other teams' projects in Study 6. We also use different types of ideas: experimental

[2] We are not arguing that *any* concept can be made unidimensional. For example, the Big Five personality traits (John & Srivastava, 1999), do not sum up to "overall personality" on a single dimension. The same would apply to development of a measure of "salient features of VIs". A valid VIA measure makes such development possible.

designs with hypothetical ideas in Studies 3-4 and real-world agents and ideas in Studies 5-6.

We test content, discriminant and criterion validity. We use the latter term for all examinations of expected relationships between VIA and other concepts (i.e., where others might alternatively use the labels *convergent*, *predictive*, and/or *nomological* validity). As regards reliability, we use internal consistency (Cronbach's α) for individual ratings and follow Rossiter (2002) in distinguishing between inter-rater agreement for small to medium sized groups of expert ratings; and standard errors (*s.e.*) for some assessments by larger groups of varying composition.

4.2. Distinguishing VIA from Other, Neighboring Concepts

Our primary validation challenge is to demonstrate VIA's distinctiveness from a) the perceived quality of the agent(s) associated with an idea and b) first-person opportunity assessments.

When the assessor is an entrepreneurial agent, entrepreneurial self-efficacy (ESE) is a primary candidate for empirical contrasting. ESE (Bandura, 1982; Chen et al., 1998; McGee et al., 2009) concerns individuals' confidence in their abilities to pursue entrepreneurial projects, whereas VIA concerns their confidence in a venture idea. Accordingly, we expect measures of these concepts to be distinct and to have different antecedents and consequences. We include ESE in Studies 3, 4 and 6. In the latter, the respondents also assess other teams' entrepreneurial efficacy.

We undertook Studies 1-5 before the publication of Scheaf et al.'s (2020) measure of first-person opportunity evaluation. To represent "first-person attractiveness" and contrast VIA with it, Studies 2 and 3 use notions of perceived feasibility (PF) and perceived desirability (PD), phrased as first-person assessments (McMullen & Shepherd, 2006). In turn, Study 6 allows us to directly test VIA's distinctiveness against Scheaf et al.'s (2020) measure. Table 5 (further below) lists VIA's final items. We report items for all other measures used in Studies 1-6 in Table A1 of an online appendix that also provides descriptive statistics and factor analyses results for all studies.

5. The Empirical Studies and Their Validation Results

5.1. Study 1: Qualitative Exploratory Interviews with Entrepreneurs

Study 1 consisted of face-to-face interviews examining 12 entrepreneurs' reactions to the task of assessing VIs, concept definition, item content, wording, and response scale formats. With varying stems and markers for "degree of merit", all items contained the phrase "this idea" and suggestions about it like "could turn into a successful business" and "would go nowhere". To capture respondents' degree of confidence in VI's whatever criteria they apply (as per our unidimensional specification), we avoided mentioning reasons in the items. Results supported that respondents distinguish self-efficacy from confidence in a VI's merits and indicated preference for using "confident" in item stems, a 7-point response scale, and having anchors for each level. Additionally, the feedback suggested some modification of items and instructions.

5.2. Study 2: Establishing our Items' Content Validity

5.2.1. Sample, design and measures. We employed Hinkin and Tracey's (1999) content validity technique with nine entrepreneurs and 21 PhD students to cover both conceptual and entrepreneurial expertise (n=30). Following the instructions reported in Figure A1 (appendix), we first asked participants to read definitions for VIA, ESE, PF and PD. Next, we asked them to rate 27 items according to *each item's fit with each definition* on a five-point scale (1 = "not at all" and 5 = "completely"). We used the same randomized item order across participants (since we embedded the survey in a text document). We included nine VIA items adapted from Study 1 (see Table 2, below). For ESE, we selected eight items from three previously validated instruments (Cassar & Friedman, 2009; Chen et al., 1998; McGee et al., 2009). By avoiding items targeting specific business skills that can be hired, we achieved a unidimensional ESE measure. We used a mix of adapted and new PF and PD items with first-person wording (Table A1, online appendix).

< INSERT TABLE 2 ABOUT HERE >

5.2.2. Results. Table 2 shows that the VIA items' ratings reached mean values of 4.0 or higher when evaluated against the VIA definition, compared to between 1.43 and 2.57 when evaluated against other definitions. These results (p<.01) support content validity: VIA items align with VIA's definition and not with those of other concepts. More formally, scale-level HTC of .87 and HTD of .58 provide 'strong' and 'very strong' evidence, respectively, for definitional correspondence and distinctiveness according to criteria suggested by Colquitt et al. (2019).

5.3. Study 3: Between-subjects Survey-experiment with a General Population Sample

We designed Study 3 to identify a more parsimonious set of VIA items and to test discriminant and criterion validity. To these aims, we conducted a between-subjects experiment where we randomly assigned participants to assess either a VI involving a new cell phone application for scheduling grooming services, or one involving a new technology for a new type of computer games (appendix Figure A2). Building on the above theorizing, we expected the manipulation to yield different VIA scores but not affect entrepreneurial self-efficacy (ESE). Further, VIA should be distinct from but positively related to first-person VI attractiveness (PF+PD).

5.3.1. Sample. We conducted the online survey with 332 U.S.-based respondents from Amazon's MTurk®. Importantly, we undertook the study well before the onset of a marked decline in MTurk® data quality reported by Chmielewski and Kucker (2020). Excluding 11 respondents who were outside the specified age range and four who failed an attention check, the final sample size of 317 includes 120 respondents who reported experience from one or more start-ups.

5.3.2. Data collection and measures. We included the nine VIA items from Study 2. We also included the eight ESE items and first three PF and PD items, respectively, displayed in Table A1 (online appendix). Participants entered responses on seven-point Likert scales anchored "Not at all [1] – Very little [2] – Little [3] – Somewhat [4] – Much [5] – Very much [6] – Completely [7]."

We randomly assigned participants to either of the VI vignettes presented in Figure A2 (online

appendix). Immediately after reading their assigned VI vignette, respondents answered the VIA and PF+PD items (with presentation order randomized across concepts, subsets, and items). To assess VIA's discriminant validity with ESE, we randomly presented the ESE items either before the vignette, after answering the VIA and PF+PD items, or both times.

5.3.3. Results. Initial analyses revealed that the five reverse-framed items performed questionably on several criteria. Consistent with increasing concerns about such items (cf. Ebesutani et al., 2012; Wong et al., 2003; Woods, 2006), we decided to retain only the positively worded items marked in **bold** in Table 2. These items also share the same "confidence" stem.

Internal consistency and reliability. Cronbach's α for the four-item VIA measure is .90, indicating high internal consistency. It remains at this high level in subgroup analyses by gender and VI. With the two ideas and sample used, we obtained values of VI_1 $M = 5.51$ (*s.e.* =.08) and VI_2 $M = 4.89$ (*s.e.* =.10) (here and elsewhere, summated indices are scaled 1-7 like the original response scale). The comparison concepts also received high Cronbach's α: .94 for ESE and .94 and .95, respectively, for PD (3 items) and PF (3 items). Based on the .83 correlation between PF and PD, we combine them in one index for the criterion validity tests below.

Discriminant and criterion validity. A two-factor confirmatory factor analysis (CFA) demonstrates that VIA is distinct from ESE (see Tables A3 through A6, online appendix). The four VIA items and eight ESE items load on their respective latent concept ($\chi^2 = 147.5$; $df = 53$) and return satisfactory fit statistics (*CMIN/df* = 2.78; *CFI* =.97; *RMSEA* =.075).[3] The estimated correlation of .324 indicates that the two constructs share 10.5% of variance and importantly, this value is much lower than the AVE values of .711 and .670 for VIA and ESE, respectively. These results support VIA's discriminant validity.

[3] Common thresholds for fit include *CMIN/df* < 3; *CFI* >.90/.95, *RMSEA* <.05/.08/.10 (cf. Chau, 1997; Hair, Black, Babin, Anderson, & Tatham, 2010; Hooper, Coughlan, & Mullen, 2010; Hu & Bentler, 1999).

Model 2 in Table 3 (below) reveals statistically significant evidence that the VI manipulation affects VIA (b =-.560; p <.001). This supports a fundamental validity criterion: different VIs yield different VIA scores. The technologically more complex VI_2 garners lower levels of VIA, adding five percentage points to explanatory power despite the two ideas only representing a small section of the possible VIA range. Further supporting discriminant and criterion validity, supplementary analyses did not provide practically or statistically significant evidence of a relationship between the VI manipulation and ESE scores (see online appendix, Table A7). Among those who provided ESE measures both before and after the manipulation (n = 103), mean ESE scores are 5.14 before and 5.07 after the manipulation for VI_1, and 4.77 and 4.74 for VI_2, respectively (both n.s.).

< INSERT TABLE 3 ABOUT HERE >

Table 3, Model 4 confirms the expected relationship between VIA and first-person attractiveness (b =.565; p <.001), adding 15 percentage points to Adj. R^2. At the same time, the .57 correlation between VIA and PF+PD—indicating 33% shared variance—supports that the concepts are separate. That VIA reflects third-person and PF+PD first-person assessments is also supported by age negatively affecting PF+PD while being unrelated to VIA (models 1-2 vs. 3-4). Older respondents may be less attracted by these specific ideas—related to grooming and computer gaming—as well as being more deeply committed to their current career path and/or approaching retirement, making VIs less attractive for their own action even when assessed as favorable for the right agent. Similarly, the fact that ESE contributes more to Adj. R^2 for PF+PD than for VIA (.151 and .063, respectively, when entered after all other variables in supplementary analyses) supports the distinction between VIA and PF+PD. Individuals with higher ESE should be more inclined than those with lower ESE to act on VIs with as favorable assessments as these have.

All in all, Study 3 supports trimming VIA to four items with a common “confidence” stem and only positively worded items (see also online appendix, Tables A8-A9). Study 3 also provides

evidence for our measure's internal consistency, and discriminant validity in relation to ESE and "first-person idea attractiveness." In addition, we obtained evidence that VIA captures differences in VIs and explains variance in "first-person idea attractiveness" over and above what ESE explains. Study 4 builds on these results.

5.4. Study 4: Within-subjects Survey-experiment with Entrepreneurs

5.4.1. Sample. To re-examine internal consistency, VIA vs. ESE discrimination and the effects of VI characteristics on VIA with a more qualified sample, we conducted a within-subject experiment with 40 serial entrepreneurs, first-time entrepreneurs, and business angels. Notably, 22 report experience from multiple ventures in which they had ownership, and 24 report additional experience from helping start-ups in which they did not have ownership.

5.4.2. Data collection and measures. After answering the eight ESE items (see Table A1, appendix), participants read a description of VI_2 from Study 3, followed by the four VIA items. We used the same instructions and scales as in Study 3 (please see Table 5, below). Once respondents had answered the VIA items, we randomly assigned additional information that was either positive or negative (see Figure A3, appendix). We then asked respondents to answer the VIA items again. Finally, we repeated the ESE items followed by socio-demographic questions.

5.4.3. Results. *Reliability*. We obtained Cronbach's α of .90 and .92 for VIA (before/after the manipulation), on par with Study 3's general population sample. The standard error is somewhat larger than for the general population sample in Study 3.[4] This reflects a greater willingness among Study 4 participants to give more extreme scores, whether positive or negative.

Discriminant validity. Based on correlations of .14/.21 before/after treatments (Table A10), Study 4 reveals even better VIA vs. ESE discrimination than Study 3. The sample size of 40 is

[4] We obtained a standard error of .23 before manipulation for the VIA index in Study 4. For comparability, we drew repeated random samples of $N = 40$ from the 156 participants in Study 3 who assessed the same idea based on the same description. This resulted in ten estimates ranging from .14 to .23 and averaging .19.

short of ideal for factor analyses. Yet after dropping one ESE item, an orthogonal EFA analysis yields two factors with eigenvalue > 1, explaining 65% of the total variance (see online appendix, Table A11). The rotated loadings match the two concepts, with ESE items exhibiting loadings in the .67 to .83 range on Factor 1 and the VIA items loading in the .74 to .94 range on Factor 2.

Criterion validity. Analyses confirm that our manipulations of the idea description affect VIA scores. In Group 1 (negative manipulation; $N = 19$), we observed a before-after *decrease* in mean VIA from 5.07 to 4.68 (a .39-drop on a 7-point scale; $p = .03$). In Group 2 (positive manipulation; $N = 21$), mean VIA *increased* from 5.17 to 5.43 (a .25 increase; $p = .03$). In other words, the initial, random difference of .10 grew sevenfold to .75. By contrast, the manipulation does not influence the groups' mean ESE scores (Group 1: 5.78 to 5.80 [n.s.]; Group 2: 6.08 to 6.07, [n.s.]). Please see supplementary online appendix's Table A12 for further evidence supporting this conclusion.

In sum, Study 4 provides further evidence on the reliability and validity of the four-item VIA measure using an entrepreneurially experienced sample. The study confirms that qualified respondents make separate assessments of the merits of venture ideas (VIA) and of their own entrepreneurial ability (ESE). The results also indicate that the variance in VIA may be greater in an entrepreneurially experienced sample than in a general population sample.

5.5. Study 5: Longitudinal Assessment by Multiple Raters of Multiple, Real-world Ideas

In Study 5, we reassess the psychometric properties of VIA with real-world ideas and populations exhibiting various levels of expertise. Importantly, the study provides stronger tests of criterion validity concerning the hypothesis that one person's VIA can predict another person's real-world decisions at a later time. We achieve this by testing our instrument in a mentorship program for science-based ventures (see Bryan, Tilcsik & Zhu, 2017; Sariri, 2020). Figure 2 depicts the program and data collection over time. To increase statistical power, we aggregate data from three iterations of the ten-month program.

< INSERT FIGURE 2 ABOUT HERE >

5.5.1. Sample frames. We collected VIAs from two samples of individuals: i) 149 MBA students who eventually completed short consulting mandates with a venture and ii) eight business and technology experts who helped select the ventures into the program.

5.5.2. Study design and measures. We collected VIAs through short online surveys, closely following the program's unfolding. To assess discriminant validity, the surveys included measures of respondents' assessments of the entrepreneurs (Table A1). As Figure 2 highlights, MBAs' assessments at t_0 rested on their reading of 5-page application forms completed by entrepreneurs seeking entry into the program. For their part, the assessments of business and technology experts (at t_2) rested on 12-minute interviews they conducted with the entrepreneurs whose venture idea they evaluated. Lastly, MBAs' assessments at t_6 built on their experience working with a focal venture's founder(s) on a consulting mandate over a two-month period, just before the assessment.

Figure 2 also shows that Study 5's outcome measures originate from two separate groups of individuals (program officials and experienced mentors) and occur *after* we had collected VIAs from other individuals. This sampling-and-design feature addresses concerns of common-method bias—since the source of variance differs between the predictor and explained variables.

5.5.3. Results. The Cronbach's α statistics for VIA in Table 4 (.923, .896 and .858) support our measure's reliability for real-world ideas. Table 4 reports correlations of .647 (p<.01) and .668 (p<.01) between MBAs' (at t_0) and experts' (at t_2) assessments of venture ideas (VIA) and founders' abilities, reflecting moderate levels of shared variance between these early assessments (41.9% and 44.6%). By comparison, MBAs' VIAs (at t_6) exhibited correlations with assessments of founders' experience and coachability of -.124 (n.s.) and .217 (p =.082)—further indicating that our VIA instrument captures different considerations than these other measures. More pointedly, the table reports the results of binary logistic regressions examining VIAs' predictive value on

subsequent decisions about a venture's selection or progress in the program. Model comparisons (a/b) examine the stability of these findings while also controlling for raters' assessments of the entrepreneur(s) pursuing an idea. The results systematically support VIA's criterion validity.

< INSERT TABLE 4 ABOUT HERE >

Model 1b demonstrates the predictive value of MBA students' VIAs (working from reading ventures' application documents at t_0) for program officials' decisions (at t_1) to invite ventures to interview (b =.455; p <.001). Similarly, Model 2b shows that MBAs' VIAs (at t_0) predict program officials' decisions (at t_3) to invite ventures into the program (b =.462; p =.018). Both analyses control for assessments of founders' capabilities and year. Significant evidence for the year variable reflects that the program doubled in size in year 2. Model 1b's estimates imply that a one-point increase in VIA score translates into increased odds to be interviewed changing from a baseline, sample average of .680:1 (i.e., the constant $e^{-.386}$) to 1.071:1 ($e^{-.386+.455*1}$). This 1.58x increase implies that a venture applying to the program initially faced less than 50-50 chances to be interviewed, yet its chances increased substantially with higher VIAs. In much the same vein, Model 2b's results imply that a similar one-point increase in VIA score yields increased odds to be invited to the program moving from .141:1 ($e^{-1.959}$) to .224:1 ($e^{-1.959+.462*1}$), a 1.59x increase.

In addition, the results show that VIA assessments by experts (at t_2) are valid predictors of both program officials' decisions (at t_3) to invite ventures into the program (Model 3b: b =1.172; p =.023) and of mentors' decisions (a t_5) to 'mentor forward' a venture into the program (Model 4b: b =1.093; p =.048), again after controlling for assessments of the founders' entrepreneurial capabilities. Model 3b's estimates imply that a one-point increase in VIA score translates into increased odds to be invited to the program moving from a baseline sample average of .361:1 ($e^{-1.018}$) to 1.166:1 ($e^{-1.018+1.172*1}$), a 3.23x increase. For their part, Model 4b's results imply that starting from baseline odds of .227:1 ($e^{-1.483}$), a one-point increase in VIA score associates with

increased odds of .677:1 ($e^{-1.483+1.093*1}$) to be mentored forward in the program (a 2.98x increase).

Finally, the data collected at t_6 builds on MBA students' VIA assessments after they had spent two months working with a venture's entrepreneur(s) on a consulting mandate. Model 5b's results show that at t_7, ventures faced baseline odds of 4.536:1 ($e^{1.512}$) to be mentored forward into the program, yet these odds increase to 11.834:1 ($e^{1.512+.959*1}$) for a venture associated with a VIA score one-point higher than average. For their part, Model 6b's non-significant evidence for the constant imply that at t_9, an average venture faced 1:1 odds of being mentored forward (e^{0}); yet these odds improve to 2.622:1 ($e^{0+.964*1}$) for a venture with a one-point higher-than-average VIA score.

Taken together, Study 5's results provide convincing evidence for the criterion validity of our VIA concept and measure. Moreover, these findings establish the practical importance of VIA in a real-life entrepreneurial context, where the advice and decisions of experienced mentors and potential investors can make a substantial difference for a venture's prospects.

5.6. Study 6: VIA vs. First-person Opportunity Evaluation and Inter-Rater Agreement

To establish VIA's discriminant validity with respect to Scheaf et al.' (2020) recently published measure for first-person opportunity evaluation (OE), Study 6 asked the 47 founders of 25 nascent technology start-ups in an incubator program to use both instruments to assess their own idea as well as that of other entrepreneurs. We expect VIA and OE to be correlated yet distinct, with VIA reflecting assessments of a focal VI in and of itself versus OE also reflecting its potential fit with the agent's abilities, knowledge, motivations and resources. More specifically, we anticipate that when an entrepreneur moves from evaluating their own VI to somebody else's, there should be a drop in OE and this drop should be markedly larger than the drop in VIA, if any.

5.6.1. Study design. Three days prior to a presentation-and-feedback session, participants completed an online survey asking for VIA and OE assessments for *their own idea* (Phase 1). Of 25 ventures that delivered five-minute presentations on presentation day (Phase 2), we randomly

selected four ventures for which we asked all other entrepreneurs-attendees to provide VIA and OE assessments, i.e., to assess *someone else's idea*. Respondents completed these assessments immediately after each of the four ventures had presented and received feedback.

5.6.2. Samples. Out of 47 program participants, 40 (85%) completed both Phase 1 and Phase 2. Participants submitted 125 Phase 2 assessments of other entrepreneurs' ventures.

5.6.3. Measures. All surveys included the four VIA items from Studies 1-5, as well as the complete OE instrument (Scheaf et al., 2020). In Phase 1, the VIA items refer to one's own VI (α =.685) while in Phase 2, they refer to the VIs of 1-4 other teams they assessed (α =.819).[5]

The Phase 1 survey included eight entrepreneurial self-efficacy (ESE) items largely identical to those used in Studies 3 and 4 above (α =.724; r_{VIA} =.316, p<.05). The survey also included two single-item measures of perceived person-idea and team-idea fit (r_{VIA} =.174$^{n.s.}$ and .185$^{n.s.}$ respectively). In Phase 2, we asked these fit measures with respect to how the assessor and their team fit with the other team's idea (both r_{VIA} =.164$^{n.s.}$). The Phase 2 survey also included questions about "first overall impressions" of the other team's entrepreneurial capabilities (i.e., Entrepreneurial "Other-Efficacy"; EOE, α =.820; r_{VIA} =.393, p<.01). For this purpose, we rephrased the eight ESE items to refer to that other team (see online appendix, Table A1).

5.6.4. Results. We first observe that when participants focused on assessing their own venture, they reported VIA scores of 6.08 on average (on a seven-point scale), versus scores of 4.70 (on a six-point scale) on Scheaf et al.'s (2020) OE measure. Adjusting VIA to the same six-point metric would yield a VIA* value of 5.23. These results indicate that entrepreneurs tend to report very positive assessments (near the superior end of the scale) when assessing their own venture ideas, regardless of whether they make these assessments from a 3rd-person VIA perspective or from a

[5] The moderate Cronbach's α in Phase 1 appears to be due to three respondents mistakenly entering very low values of '1' to one item (never the same) alongside values of 5, 6 or 7 for the other VIA items. Yet we conservatively kept these values for all subsequent tests, acknowledging that doing so necessarily increases the error term in our tests.

1st-person OE perspective. By contrast, this pattern of results changes drastically when assessing *other entrepreneurs'* ideas: VIAs of other entrepreneurs' ideas stood at 4.67 on average (slightly *above* the 4.0 mid-point of a seven-point scale) whereas the mean OE score for these ideas stood at 2.85 on average (*below* the six-point scale's 3.5 mid-point). These values indicate that, even when accounting for their less positive 3rd-person VIAs, participants tend to report *negative* 1st-person OEs of other entrepreneurs' projects—in the sense that they believe these projects are not for them. Moreover, these views occur alongside assessments that they or their teams are not a good "fit" for these ideas: they don't have what it takes to pursue them (cf. Shane, 2000).

To further examine the distinction between VIA and OE, we ran Phase 1 / Phase 2 means comparisons (see Figure 3). The results show that as they move from assessing their own VI to that of others, VIA scores drop by -1.410 (23.2%) on average (p <.001): unsurprisingly, respondents think more highly of the idea they chose to pursue than that of others (cf. Onarheim & Christensen, 2012). Assessments of entrepreneurial efficacy (ESE/EOE) exhibit a smaller average decrease of -.94 (16.2%, p <.001). More importantly, we observe larger drops in assessments of others' ideas in terms of OE, own person-idea fit and own team-idea fit: on average -1.844 (39.2%), p <.001; -2.867 (47.2%), p <.001; and -2.606 (43.8%), p <.001, respectively. Lastly, VIA's correlation with OE was modest: .277 (p =.084) in Phase 1 and .319 (p <.01) in Phase 2. These values amount to about 8-10% of shared variance. Taken together, all these results support that VIA reflects subjective assessment of the idea as such, while the larger drop in OE reflects that this measure also captures consideration of fit with oneself and/or one's team.[6]

[6] To "control" for participants' idiosyncratic scale anchor for their own venture's VIA and for the number of other ventures assessed, we also computed subject-level differences that contrast assessments that participants made for their VI, themselves and their team versus for other teams and their VIs. Results confirm that the -1.873 average drop in Scheaf et al.'s (2020) OE score is more negative (by -.437; p =.026) than the -1.437 average drop in VIA. Supporting discriminant validity, these results confirm that shifting the assessment target from one's venture idea to that of others exerts markedly different effects on VIA scores, relative to Scheaf et al.'s (2020) OE measures.

< INSERT FIGURE 3 ABOUT HERE >

5.6.5. Inter-rater agreement (IRA) and reliability (IRR). Study 6's design also allows us to examine inter-rater agreement (IRA) and reliability (IRR) for VIA, using Phase 2 wherein up to 35 entrepreneurs provided independent assessments of the same four 'other' ventures. Results show that entrepreneurs converge in their assessment of other teams' ideas. The four VIs yielded mean VIA scores of 4.275 (*N*=35), 4.539 (*N*=32), 5.242 (*N*=30) and 4.679 (*N*=28). Assuming a uniform distribution of the variance if the raters responded randomly (LeBreton & Senter, 2008), we obtained r_{wg} values for the four-item measure ranging from .70 to .84 across the four VIs (with a mean of .762), whereas the same calculations assuming a "slightly skewed" distribution (Meyer et al., 2014) yielded r_{wg} values from .58 to .78 (mean =.673). Using Brown & Hauenstein's (2005) a_{wg} index, we obtained values ranging from .86 to .91 (with a mean of .89). Considering these indices' specifications, strengths and weaknesses, these values indicate defensible levels of IRA.

Furthermore, $ICC_{(1)}$ values of .184 (averaging across items) and .275 (at the construct level) indicate that perceived differences between the assessed ideas exert "moderate to large" effect sizes (Murphy & Myors, 1998) on VIA assessments, relative to the total variance in VIA scores across all assessed ideas by all participants. Finally, $ICC_{(k)}$ of .777 (averaging across items) and .897 (at the construct level) indicate high levels of inter-rater reliability, such that entrepreneurs' VIAs form reliable indicators of the sample's collective assessments (LeBreton & Senter, 2008).

6. Discussion

To address prior limitations and advance theoretical understanding of the assessments of entrepreneurial projects, we developed the new concept of Venture Idea Assessment (VIA). We then conducted six empirical studies to examine the validity of a parsimonious survey instrument

Please see supplementary online appendix's Tables A16 though A19 for further CFA evidence supporting this conclusion. Interestingly, low correlations observed with Scheaf et al.'s (2020) "loss estimation" dimension ask whether VIA can capture assessments of a VI's downsides: we return to this question in the discussion below.

meant to capture VIAs. The results support the measure's content validity, internal consistency, discriminant validity, criterion validity and inter-rater agreement/reliability. Taken together, our concept and instrument form a new platform—a conceptualization with a thoroughly validated operationalization—for advancing research on the causes and effects of confidence in VIs.

From a theoretical standpoint, the VIA platform is important because it adds conceptual precision with respect to the nature of the stimulus (a VI), separating the assessment (VIA) from the substance of the stimulus, and discerning the assessment of VIs from the assessment of the founders. VIA strictly concerns the assessment of VIs. In addition, our platform acknowledges the conceptual relevance of obtaining VIAs from stakeholders other than the focal entrepreneurs, and beyond the initial ideation phase. Our proposed VIA platform thereby expands the prior third-person vs. first-person distinction (McMullen & Shepherd, 2006; Scheaf et al., 2020) and liberates future research from constraints regarding by whom and at what time one can obtain relevant assessments; the implied quality of the assessed stimuli; and the reasons for arriving at the assessments—which can instead be assessed separately and then related to VIA. As a result, VIA provides a basis for cumulative research enhancing theoretical understanding of why and with what consequences assessments vary across ideas and across individuals and time for a given idea.

From a methods standpoint, the validated VIA platform is important because it allows for conducting research on the antecedents and consequences of venture idea assessments across people, place, and process. Given its parsimony, the instrument lends itself to various survey and experimental approaches extending to conjoint studies and experience sampling techniques (Lohrke, Holloway, & Woolley, 2010; Uy, Foo & Aguinis, 2010). As such, VIA constitutes a useful addition to Scheaf et al.'s (2020) first-person opportunity evaluation measure.

To help actualize its research potential, we sketch below a research agenda leveraging the VIA platform. We readily acknowledge that broader theories and additional literatures would be

relevant to pursuing this agenda, and we encourage future research to draw also on such sources.

6.1. When VIA is an Outcome: Research on the Antecedent Drivers of VIAs

What characteristics of VIs make them attractive and how do assessor characteristics moderate this? Because it offers a carefully defined concept and validated measure for assessing VIs, the VIA platform provides a unified basis for theory development and empirical research on the reasons why some VIs garner more positive assessments than other VIs. This includes drivers associated with the ideas themselves and drivers associated with the individuals assessing ideas.

6***.1.1. The influence of VIs' characteristics.*** Past research has made important contributions on the influence of prospective entrepreneurs' affective states, motivations, prior knowledge and other cognitive resources (cf. Frederiks, Englis, Ehrenhard & Groen, 2019; McMullen & Kier, 2016; Prandelli, Pasquini, & Verona, 2016), as well as on entrepreneurs' and investors' assessment criteria (e.g., Haynie, Shepherd & McMullen, 2009). By contrast, few studies examine the influence of venture idea characteristics in and of themselves (e.g., Grégoire & Shepherd, 2012; Samuelsson & Davidsson, 2009). As a result, extant entrepreneurship research has yet to tackle an important aspect of Shane and Venkataraman (2000)'s individual-opportunity nexus.

Because it allows for making apple-to-apple comparisons regarding what levels of confidence people have in different VIs, using VIA as a focal dependent variable facilitates studying VI characteristics without confounding the results with assessments of agent's capabilities or idea-agent fit. Although there are some investigations of VIs' novelty and innovativeness (Dahlqvist & Wiklund, 2012; Hyytinen, Pajarinen, & Rouvinen, 2015), research addressing other characteristics such as scope, complexity, clarity, completeness and others is virtually absent, as are strong conceptualizations and operationalizations of such characteristics. By providing a theoretically consistent and methodologically validated outcome variable that can be systematically used across studies, the VIA platform facilitates such advances.

6.1.2. Assessor characteristics as antecedent and moderator of VIAs. VIA scores will inevitably reflect dispositions of the person making the assessment. This is not a bias—as long as the obtained scores reflect the assessors' "true" level of confidence. Consequently, studying the influence of individual differences on VIAs—in general and regarding specific VI characteristics—constitute important avenues for theorizing and empirical testing. Building on the wealth of studies on the individual drivers of opportunity evaluations, one could investigate the influence of affective states, cognitive resources, and other personal characteristics on the VIAs ascribed to different VIs. Importantly, our proposed VIA platform also encourages investigations of the extent to which such individual drivers might *moderate* the above effects of VI characteristics.

6.2. When VIA is a Predictor: VIAs' Influence on Non-agent Assessors' Actions

How does the degree of confidence in a VI influence the amount and type of support that family, friends and mentors provide? Because it separates VI and agent assessments, our proposed VIA platform facilitates theorizing and empirical testing of how stakeholders weigh perceived qualities of the VI and the entrepreneur(s), respectively, in their decisions and behaviors. For investors and prospective new team members and employees, this typically entails go vs. no go decisions. For family, friends, and mentors, it can instead affect what type of action they take.

Current research on social support usually addresses the effect of such support on entrepreneurs and their ventures (e.g., Klyver, Honig & Steffens, 2018). VIA allows for expanding research on whether and what support family and friends are willing to provide in the first place, whereas the distinction between confidence in the person and in the VI provides important nuances. We posit that what support family and friends offer is likely contingent on whether the concerns they have apply to the VI itself, the person's suitability for entrepreneurship, or the person-VI fit. Similarly, mentors' advice and commitment to a venture may vary depending on the confidence they have in

the VI and the person—and this confidence can affect what type of learning they try to instill in their mentees (cf. St-Jean & Audet, 2012). These are but two examples within a broad range of stakeholder decisions and behaviors where VIA allows increased attention to the influence of one's assessment of VIs—and potentially of the underlying characteristics of these VIs.

6.3. Inter-Individual Differences in VIA

How does the degree of confidence in a venture idea affect team members' and employees' decisions to join or leave a start-up? How do diverging VIAs among stakeholders relate to tensions, conflicts, remedial actions, and their eventual success? VIA's common definition and measurement format facilitate theoretical and empirical extension into various stakeholder relationships. For example, our work encourages further research on the antecedents and consequences of cohesion, tension, conflict and/or dissatisfaction: a) within venture teams (Boone, Andries & Clarysse, 2020; Healey et al., 2021; Preller et al., 2020); b) in entrepreneur-investor relationships (Bammens & Collewaert, 2014); and c) in mentor-mentee dynamics (Radu Lefebvre & Redien-Collot, 2013). Like in many other areas, current research is mainly geared toward the effects of individual and team-level characteristics rather than addressing VIs' influence. For instance, Boone et al. (2020) productively address team level passion, yet their work does not investigate the occurrence and consequences of within-team variance in passion, where VIA disparity may be an important underlying reason. By providing means to theorize and study the influence of inter-individual differences in confidence in venture ideas (net of assessments of agents' suitability for pursuing these ideas), our VIA platform fosters increased understanding of the influence of changes in team composition (whether externally imposed or not), the implementation of remedial actions, and the efficacy of such actions.

6.4. Inter-temporal Evolution of VIA

How do changes in founders' confidence in their idea (VIA) and in themselves (ESE) relate to

the intensity of their efforts, their venture's pivoting, its termination, and their propensity to try again? Our proposed VIA platform allows for investigating the trajectory of assessments across the venture development process (see Gielnik et al., 2015). Such studies would be consistent with process-oriented theories suggesting that the assessment may concern the pursuit of one evolving idea (Shah & Tripsas, 2007) or a sequential development of interrelated ideas (Sarasvathy, 2001), rather than an initial choice among alternative ideas. Accordingly, both entrepreneurs and other stakeholders may periodically re-assess the evolving VI during the venture creation process (Dimov, 2010; Wood & McKinley, 2010; 2017). To reflect this, it would seem worthwhile to examine how VIA affects—and is affected by—emerging developments during the venture creation process, unrestricted by assumptions of front-end, concurrent evaluations of multiple ideas and an unalterable choice of one of them as a likewise unalterable idea to be implemented.

Whether experimental or observational (see Gielnik et al., 2015), such process-oriented studies can assess how time, stage of development and events in the process affect VIAs. Particularly interesting and important may be studies of the interrelationships among stakeholder feedback and changes to the venture idea, with changes in VIAs as the cause and effect of actions and reactions at both ends of such dynamics (cf. Grimes, 2018; Lex et al., 2020).

In pursuing process research, the distinction between confidence in the idea (VIA) and confidence in the agent (entrepreneurial self-efficacy [ESE] or "other-efficacy") becomes particularly important. Temporal variations of the two likely have different antecedents and consequences. For example, a drop in either ESE or VIA would typically increase the likelihood of venture termination. Yet only a reduction in ESE but *not* in VIA should reduce the subsequent propensity to start again, after termination. Conversely, a reduction in VIA but *not* in ESE should increase the likelihood of pivoting as an alternative to termination. Varying levels of VIA may also act as moderator or mediator of other variables' influence (cf. Dimov, 2010). And while the

above directly concerns founders' ESE and VIA pertaining to their own idea, our platform also allows for studying the inter-temporal evolution of VIA among other stakeholders, from investors and their staged investments to family and friends as social supporters.

6.5. Using Aggregated VIA Scores for Idea Screening and Outcome Prediction

Are aggregated VIA scores useful for screening and ongoing assessments of VIs in mentoring programs and success prediction in crowdfunding and the like? Our research has demonstrated that it is possible to collect VIAs for the same idea from several respondents and to achieve a defensible degree of inter-rater agreement/reliability. This opens the possibility of using average of aggregated VIA scores as proxy estimates of venture ideas' success chances. In fact, given a sufficiently large and diverse sample of assessors, the degree of agreement among raters may not need to be high for the mean (or median) to remain highly indicative (Davis-Stober et al., 2014).

For example, one might ask respondents to rate VI descriptions based on information from crowdfunding platforms and the like. One could then analyze how these scores relate to proximal outcomes such as fundraising success and traditional performance variables like survival, growth, and profitability. As regards using groups of experts or lay persons as assessors, the "wisdom of the crowd" logic and the possibility of shared biases among experts might allow for counterintuitive surprises (Davis-Stober et al., 2014; Onarheim, & Christensen, 2012).

To the extent that further research confirms VIA's predictive validity and ensuing work takes on MacKenzie et al.'s (2011) Step 10 (developing norms for the scale), aggregate VIA scores would constitute a very practical tool for investors (cf. Shane, 2018) and entrepreneurs alike. Investors could routinely obtain aggregate VIA scores and use them alongside their other decision criteria. For their part, entrepreneurs could obtain aggregate VIA scores to determine whether their idea needs further work before pitching to business angels or launching a crowdfunding campaign. If aggregate VIA scores turn out to be valid predictors of subsequent outcomes, this would offer

many interesting opportunities for both research and practice (see Åstebro & Elhedhli, 2006).

7. Advice on How to Use VIA and to Mitigate Its Limitations

To foster sound advances in future research, we provide guidance for using VIA—including how to overcome some of the challenges and limitations we noted in our own studies.

First, VIA should be used to assess the merit of venture ideas in and of themselves, that is, their suitability as a basis for a new venture, disregarding any agent with whom they may be associated. Conversely, VIA should *not* be used for measuring entrepreneurs' (first-person) opportunity evaluation (Wood & McKelvey, 2015; Scheaf et al., 2020; please see Section 3.5.1 for three legitimate uses of VIA with entrepreneurs concerning their own VI). Similarly, VIA should *not* be used for assessing the entrepreneurial conduciveness of other stimuli like environmental circumstances. Figure 4 graphically summarizes these prescriptions.

< INSERT FIGURE 4 ABOUT HERE >

Second, VIA should *not* be used alongside measures of opportunity belief or opportunity confidence. These are predecessors that in most usage conceptually overlap with VIA.

Third, we advise against excluding any of the currently validated items. For example, VIA item 4 in Table 5 (item 9 in Table 2) has lower inter-correlations in Studies 3 and 4 than other items, and weak inter-rater results in Study 6. Yet it has among the best content validity in Study 2. In Studies 3 and 4, it reduces the standard error, is half as likely to elicit "complete" confidence and enhances criterion validity. In all, the item contributes strongly to VIA's overall performance and should be retained (cf. Rossiter, 2002: 328).

Fourth, we strongly recommend providing clear, strong and repeated instructions to ascertain that participants correctly understand what to assess (see examples in Table 5). In this regard, our investigations revealed that achieving idea-agent separation might pose the single greatest challenge in applying VIA. Though legitimate reasons can explain the .14-.32 correlations between

ESE and VIA observed in Studies 3, 4 and 6 (e.g., dispositional optimism affecting both or high ESE individuals being better at identifying the true merit of VIs), some Study 5 results indicate that cross-contamination can be problematic in real-world contexts, when people assess VIs on the basis of limited information. In developing instructions to overcome this challenge, one may emphasize different considerations, depending on the data collection context, material and task. Yet, we recommend firmly establishing that the assessment should *not* reflect views about the agents (if present/known) and *not* first-person implications for the assessor.

< PLEASE INSERT TABLE 5 ABOUT HERE – NOT AFTER FIRST MENTION ON p. 13 >

Fifth, in addition to providing clear instructions, other strategies could include: a) withholding information about the agent, reducing this information or separating it from information about the idea; b) increasing the amount of information given about the VI (and the agent); and c) increasing the time available for processing the information and improving other conditions conducive to making well-considered assessments. Results from Study 5 illustrate the importance of points b and c. In that study, different founder assessments collected under varying conditions yielded person vs. idea assessment correlations from indicating just over 50% of shared variance down to slightly negative. Examining this in detail points to the influence that depth of information and processing time could have. When founder and idea information is limited and bundled (e.g., assessing application forms or short pitches), assessors likely draw inferences from idea to person and vice versa. When MBAs had worked closely with a venture for two months, by contrast, there was no sign of cross-contamination. Though such deep levels of understanding might be neither necessary nor possible, we encourage future users to ascertain that respondents receive (and can process) sufficient information about the ideas and the entrepreneurs, as this increases data quality.

Sixth, we encourage users to mitigate potential problems of range restriction (Dahlke & Wiernik, 2020). For instance, Studies 5 and 6's results concern higher potential ideas that had

passed initial screenings. This narrows the observed variance in VIA. Seen in this light, it is very encouraging that despite range restriction, the regressions in Table 4 provide unambiguous support for VIA's usefulness. Nevertheless, we recommend future users of VIA to use samples of ideas exhibiting various ranges of (perceived) quality (see Welter et al., 2017) and/or to provide clear instructions encouraging participants to make full use of the response scales to counter positivity biases (see Posavac et al., 2006) and capture as much as possible of the "true" variance.

Seventh, Study 6 reports low correlation between VIA and Scheaf et al.'s (2020) "loss estimation" (LE) dimension. This calls for attention to the possibility that assessors give less weight to downside risks when making third-person rather than first-person assessments. This being said, our auxiliary analyses and LE's low correlations with the other Scheaf et al. dimensions point to other possible explanations (please see Tables A9 and A15, online appendix).

Eighth, the current set of items may not be ideal for assessing social venture ideas. If users wish to add or rephrase items for use of VIA in such contexts, we strongly recommend pretesting and further validation efforts be undertaken before substantive implementation.

Finally, we conducted all studies in English and in OECD democracies, mostly relying on VIs pertaining to high-potential, technology ventures. Although we would expect VIA to perform equally well in other contexts, we encourage securing additional, context-specific validation evidence when applying VIA in contexts sharply deviating from ours (cf. Heggestad et al., 2019).

8. Conclusion

Previous research has suffered from the absence of a an agreed-upon concept and validated instrument for capturing assessments of venture ideas in and of themselves, across assessor categories and venture development stages. To overcome this problem, we developed the concept of Venture Idea Assessment (VIA) and made it applicable to any individual's assessment of a venture idea at any stage of the venture creation process. Our conceptual developments provide a

robust foundation for future work, while our comprehensive validation across six empirical studies yielded a short, versatile and easy-to-administer VIA measure that performs well on a range of reliability and validity tests. The VIA platform thus holds promise as a useful tool for future research and practical applications. To this aim, we explicated some routes that such research can take in an illustrative agenda for future research. We hope that our colleagues will successfully pursue some of these and look forward to additional, productive VIA applications beyond our imagination.

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Table 1.

Summary of the design and purpose of the six empirical studies

Study	***Data collection*** *(date conducted)*	***Participants and assessed ideas***	***Assessed validity issues***
1	Qualitative exploratory interviews *(January 2017)*	12 entrepreneurs n/a	Item pool generation (Step 2) Content validity (Step 3) Scale refinement (Step 6)
2	Within-subject content validity survey *(April 2017)*	30 research students and entrepreneurs n/a	Content validity (Step 3) Scale refinement (Step 6)
3	Between-subject survey-experiment *(July 2017)*	317 general population Two hypothetical ideas, different domains	Pretest data collection (Step 5) Scale refinement (Step 6) Scale consistency and reliability; discriminant and criterion validity (Step 8)
4	Within-subject survey-experiment *(Spring 2018)*	40 entrepreneurs and investors Two variations of a single, hypothetical idea	Re-examine properties and cross-validate in new sample (Steps 7, 9) Scale consistency and reliability; Discriminant and criterion validity (Step 8)
5	Longitudinal survey panels *(Three program years: Aug 2017-May 2020)*	149 MBA students (across years) Eight business and technology experts 428 real-world ideas from mentoring program focused on high-potential science-based ventures (across years)	Re-examine properties and cross-validate in new sample (Steps 7, 9) Scale consistency and reliability; Criterion validity (Step 8)
6	Within-subject online surveys *(May 2020)*	40 technology entrepreneurs from incubator program focused on high-potential science-based new ventures 25 real-world ideas from said program	Re-examine properties and cross-validate in new sample (Steps 7, 9) Discriminant validity (Step 8) Inter-rater agreement and reliability (Step 8)

Note: The "steps" refer to MacKenzie et al. (2011). Step 1 (construct definition) and Step 4 (measurement model specification) do not appear in the table because they are not part of the empirical work as such. MacKenzie et al.'s (2011) "steps" do not always reflect a strict, temporal sequence. In particular, Step 8 re-appears at many points.

Table 2.

Study 2 – Results: Mean rated "fit" of VIA items with definitions of VIA and other concepts

	VIA items	Definitions of…				Smallest difference VIA > Other	HTC	HTD
		VIA	ESE	PF	PD			
1	I doubt that any person at all could turn this idea into a successful business (R)	4.00	1.70	2.57	1.73	+ 1.43	0.80	0.50
2	**Someone could turn this idea into a successful business**	4.63	1.53	2.47	2.07	+ 2.16	0.93	0.65
3	This idea would not go very far if someone tried it (R)	4.03	1.50	1.93	1.67	+ 2.10	0.81	0.58
4	**A person with the right knowledge and motivation should be encouraged to act on this idea**	4.13	1.83	2.30	2.07	+ 1.83	0.83	0.52
5	I believe that no one should be advised to start a business based on this idea (R)	4.03	1.43	2.00	2.00	+ 2.03	0.81	0.56
6	Even the best suited entrepreneur would likely not be able to succeed with this idea (R)	4.17	1.50	1.87	1.80	+ 2.30	0.83	0.61
7	**This idea is a good business opportunity for the right person or team**	4.27	1.63	2.23	2.17	+ 2.04	0.85	0.57
8	I do not believe this idea could be successfully implemented even by the best suited entrepreneur (R)	4.07	1.50	2.03	1.77	+ 2.04	0.81	0.58
9	**If someone were to fail with this idea, it would be due to other factors than the idea itself**	4.28	1.93	2.07	2.00	+ 2.21	0.86	0.57

Notes: Please refer to the supplementary online appendix, Figure A1 for Study 2's instructions.

N = 30. VIA = Venture Idea Assessment; ESE = Entrepreneurial Self-Efficacy; PF = Perceived Feasibility; PD = Perceived Desirability. (R) indicates negatively framed "reversed" items. The mode rating for all VIA items is 5 when evaluated against the VIA definition and 1 when evaluated against the other concept definitions.

The **bold** items are those included in the final instrument, after additional validation.

HTC = Hinkin-Tracey Correspondence; HTD = Hinkin-Tracey Distinctiveness (Colquitt et al., 2019), both reported on the item level. The former relates to content validity, the latter to discriminant validity. Across the four-item (2, 4, 7, and 9) scale, average values for HTC and HTD are .87 and .58, respectively, which Colquitt et al. (2019, Table 5) rate as "strong" and "very strong" validation evidence, respectively.

Table 3.

Study 3 – Regression Results for Criterion Validity

	Dependent variables			
	Four-item VIA		First-person attractiveness (PF+PD)	
	Model 1	***Model 2***	***Model 3***	***Model 4***
Predictor variables	*b (p)*	*b (p)*	*b (p)*	*b (p)*
Constant	5.216 (<.001)	5.211 (<.001)	3.812 (<.001)	3.808 (<.001)
Age (years)	.004 (.524)	.005 (.411)	-.021 (.004)	-.024 (<.001)
Gender	-.246 (.055)	-.253 (.042)	-.323 (.050)	-.179 (.172)
Education level	-.210 (.013)	-.215 (.009)	-.141 (.150)	-.019 (.824)
Entrepreneurial experience (EXP)	.076 (.629)	.073 (.635)	.215 (.239)	.174 (.281)
Entrepreneurial self-efficacy (ESE)	.287 (<.001)	.263 (<.001)	.527 (<.001)	.379 (<.001)
Venture Idea Manipulation		-.560 (<.001)	-.883 (<.001)	-.567 (<.001)
Four-item VIA				.565 (<.001)
F	8.521(<.001)	10.937 (<.001)	24.164 (<.001)	39.402 (<.001)
Adj. R^2	.106	.159	.305	.460

Note: Please refer to the supplementary online appendix, Figure A3 for Study 3's Venture Idea manipulation.

OLS regression using SPSS. $N = 317$. VIA = Venture Idea Assessment. The columns display unstandardized regression coefficients (*b*) and associated probabilities (*p*-values; exact "significance levels"). We mean-centered all continuous predictors before conducting the analyses and used contrast codes (-.5 vs. +.5) for the dichotomous predictors (gender (F = +.5); entrepreneurial experience (repeat entrepreneur = +.5), venture idea (second = +.5).

Please refer to the supplementary online appendix's Tables A2 through A7 for Study 3's descriptive statics as well as the results of additional discriminant and criterion validity analyses.

Table 4.

Study 5 – VIA's Association with Program-related Decisions

Time	Data source and variables	Model 1a *b (p)*	Model 1b *b (p)*	Model 2a *b (p)*	Model 2b *b (p)*
t_0	MBAs screening of venture applications (N = 396 ventures)	DV: Program officials' decision to invite a venture to interview (at t_1)		DV: Program officials' decision to invite a venture into program (at t_3)	
	Constant	-.331 (.001)	-.386 (.001)	-1.773 (<.001)	-1.959 (<.001)
	VIA score (4 items on 1-7 scale, α=.923)	.741 (<.001)	.455 (<.001)	.908 (<.001)	.462 (.018)
	Overall assessment of founder(s)' capabilities (1 item, r_{VIA} =.647**)		.322 (<.001)		.489 (<.001)
	Year contrast (+/- .5; r_{VIA}= -.024)		.497 (.027)		.677 (.024)
	-2 Log likelihood	491.8	474.9	337.2	319.1
	Nagelkerke R^2	.159	.208	.151	.217
t_2	Experts assessing ventures after 10-min interview with founders (N = 63 ventures)	**Model 3a**	**Model 3b**	**Model 4a**	**Model 4b**
		DV: Program officials' decision to invite a venture into program (at t_3)		DV: Mentors' decision to 'retain' and 'mentor forward' a venture into the program (at t_5)	
	Constant	-1.015 (.002)	-1.018 (.002)	-1.477 (<.001)	-1.483 (<.001)
	VIA score (4 items on 1-7 scale, α=.896)	1.288 (.002)	1.172 (.023)	1.229 (.005)	1.093 (.048)
	Eval founders (4 items on 1-7 scale, α=.877, r_{VIA} =.668**)		.168 (.717)		.197 (.698)
	-2 Log likelihood	65.315	65.181	58.752	58.599
	Nagelkerke R^2	.269	.271	.228	.232
t_6	MBAs reporting after working for two months with founders on a venture mandate (N = 65 ventures)	**Model 5a**	**Model 5b**	**Model 6a**	**Model 6b**
		DV: Mentors' decision to 'retain' and 'mentor forward' a venture into the program (at t_7)		DV: Mentors' decision to 'retain' and 'mentor forward' a venture into the program (at t_9)	
	Constant	1.366 (<.001)	1.512 (<.001)	.354 (.170)	.458 (.111)
	VIA score (4 items on 1-7 scale, α=.858)	.687 (.084)	.959 (.036)	.590 (.091)	.964 (.023)
	Founder(s)' relevant business experience (1 item, r_{VIA} = -.124n.s.)		.397 (.119)		.593 (.010)
	Founder(s)' coachability (1 item, r_{VIA}= .217n.s.)		-.367 (.276)		-.431 (.141)
	Year contrast (+/- .5; r_{VIA}= .061n.s.)		.842 (.253)		.919 (.144)
	-2 Log likelihood	64.647	60.830	85.204	75.357
	Nagelkerke R^2	.072	.156	.061	.242

Notes: Results of binary logistic regressions using SPSS (please see online appendix for descriptive statistics). Owing to program changes, we could not collect all data every year. As a result, Models 1 and 2 rest on data from years 1 and 2; Models 3 and 4 on year 1 data; and Models 5 and 6 on data from years 2 and 3. The table reports unstandardized parameter estimates (*b*), with *p*-values in parentheses. We mean-centered all predictors before conducting the analyses. To address the presence of unequal and multiple number of raters across venture cases, MBA assessments at t_0 and t_6 are venture-centered, whereas experts' assessments at t_2 are rater-centered, and then venture-centered.

Table 5.

Final VIA items and examples of accompanying instructions and response scales

Instructions and materials from Study 4

[First ESE measure] The following statements are about **YOUR ability to perform the tasks** associated with starting a business; they are **NOT about a particular business idea**. (…) **To what extent do you agree with the following statements?** [followed by eight items]

- - -

[First VIA measure] The following statements are about the **qualities of THE IDEA itself.** They do **NOT** concern whether or not it fits with your abilities and interests.

How confident are you that…	Not at all	Very little	Little	Somewhat	Much	Very much	Completely
(1) …a person with the right knowledge and motivation should be encouraged to act on this idea.	( )	( )	( )	( )	( )	( )	( )
(2) …someone could turn this idea into a successful business.	( )	( )	( )	( )	( )	( )	( )
(3) …this idea is a good business opportunity for the right person or team.	( )	( )	( )	( )	( )	( )	( )
(4) …if someone were to fail with this idea, it would be due to other factors than the idea itself.	( )	( )	( )	( )	( )	( )	( )

- - -

Below we repeat the exact same business idea description, **adding some additional information *in italics***. Please read the description carefully. [see Online Appendix Figure A3 for manipulation]

- - -

[Second VIA measure, after manipulation] The following statements are about the **qualities of THE IDEA itself**, considering **all the information about it that you now have**. They do **NOT** concern whether or not the idea fits to your abilities and interests. [VIA measure repeated]

- - -

[Second ESE measure, after manipulation] The following statements are again about **YOUR ability to perform the tasks** associated with starting a business; they are **NOT about the above idea or any other particular business idea**. [ESE measure repeated]

- - -

Instructions prior to VIA task in Study 6, Phase 1

The following statements are about THE BUSINESS IDEA behind your venture (**name of venture**). By "business idea", I mean "applying your technology to develop and sell the product/service you are working on to the particular users/clients you've identified".

With these questions, I want to poll **your honest views about THE BUSINESS IDEA you are currently pursuing**, in and of itself, SEPARATE from what you think of your entrepreneurial skills, those of your team or your team's overall suitability for pursuing this particular venture.

To do this, it helps if you "push aside" the above assessment of your and the team's abilities. Focus on THE IDEA ITSELF. Try to distance yourself from it, **looking at it as someone else might**. Better yet, imagine hearing about this idea for the first time, knowing everything you already know about this idea (how it works) but not being involved yourselves in working on it. [followed by VIA measure]

Note: The complete set of instructions and scale anchors is available upon request.

Figure 1.

Extension of McMullen and Shepherd's (2006) third- vs. first-person assessment logic

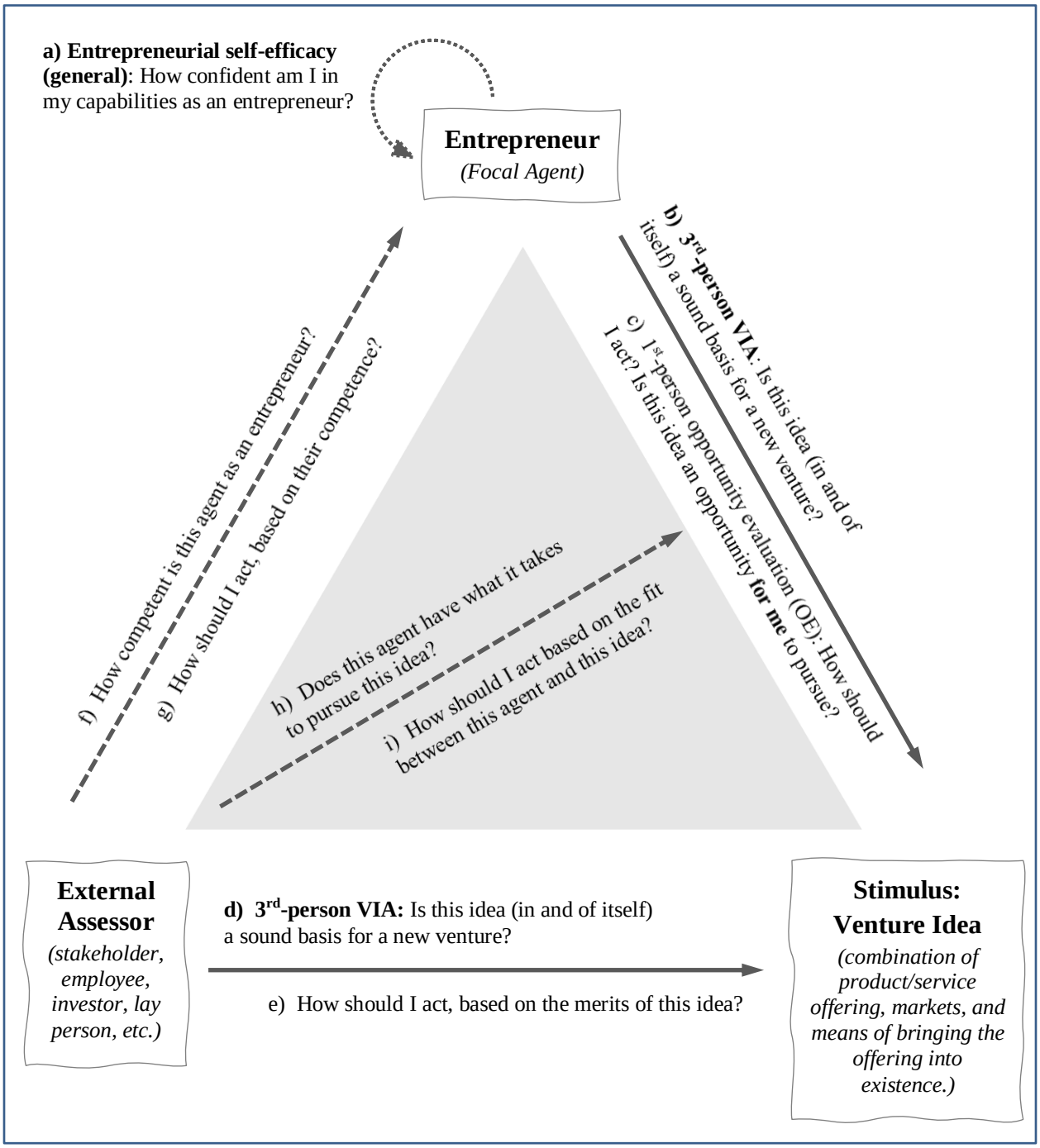
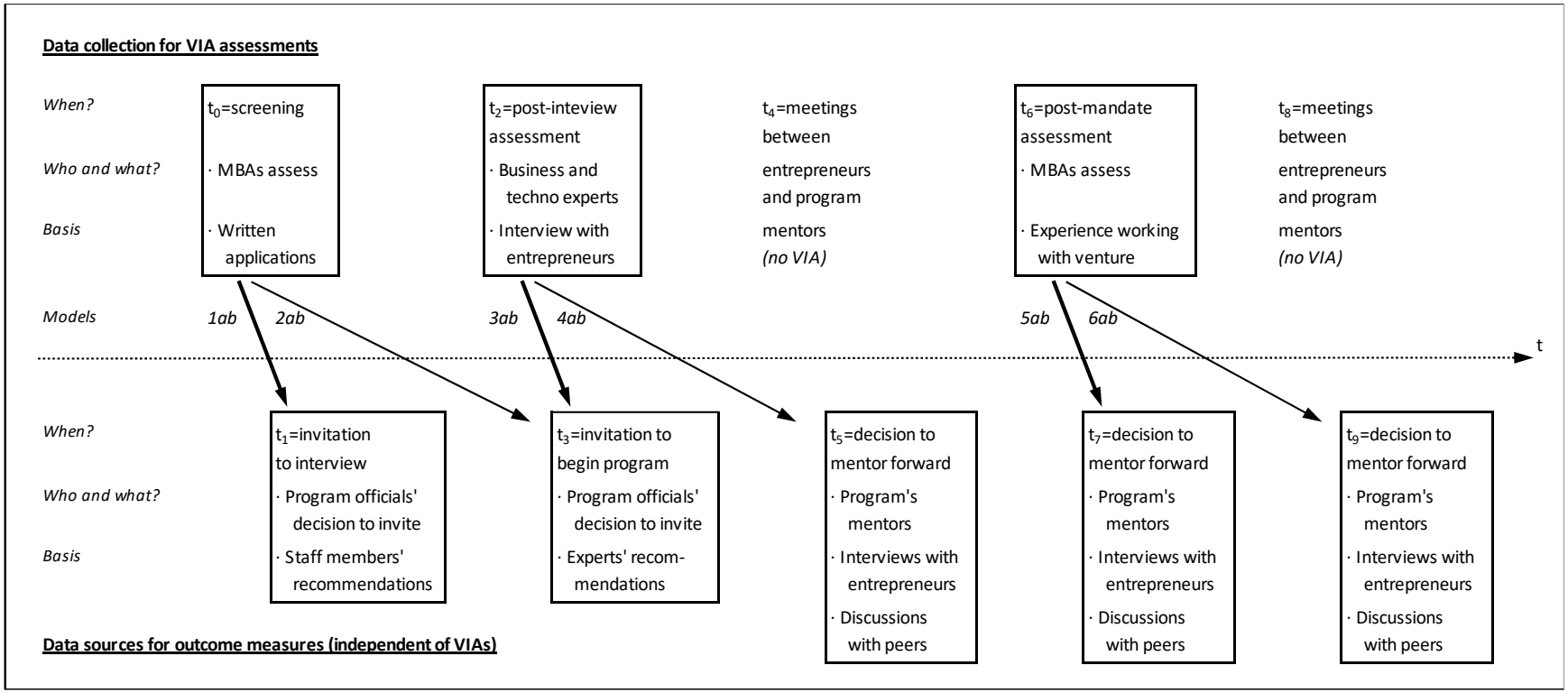


Figure 2.

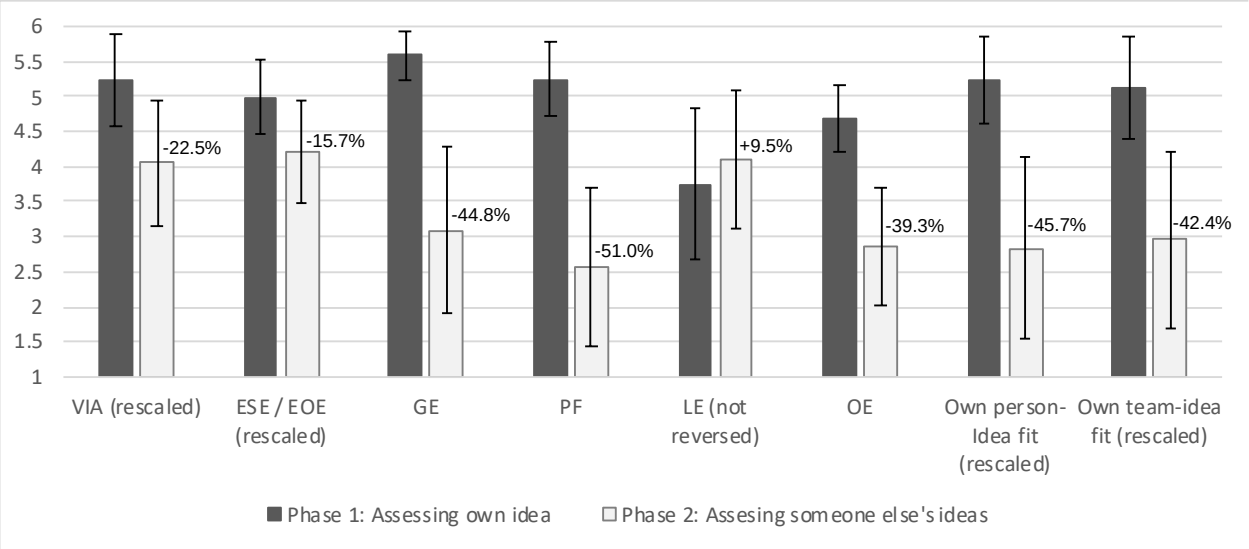
Study 5's Data Collection Events and Sources of Outcome Measures.



Note: Key sources of information for each data collection event for VIAs. MBAs' assessments at t_0 rested solely on their reading of 5-page application forms completed by entrepreneurs seeking entry into the program. The assessments by business and technology experts at t_2 rested on 12-minute interviews. MBAs' assessments at t_6 built on their experience working on a two-month consulting mandate for a single venture. The program's mentors making decisions at t_5, t_7 and t_9 consist of entrepreneur-operators who have successfully funded, grown and possibly sold technology-based ventures, as well as early-stage equity investors into such ventures (angels, venture-capitalists and other public or private equity fund managers).

Figure 3.

Study 6 - Mean values and standard deviations for main measures

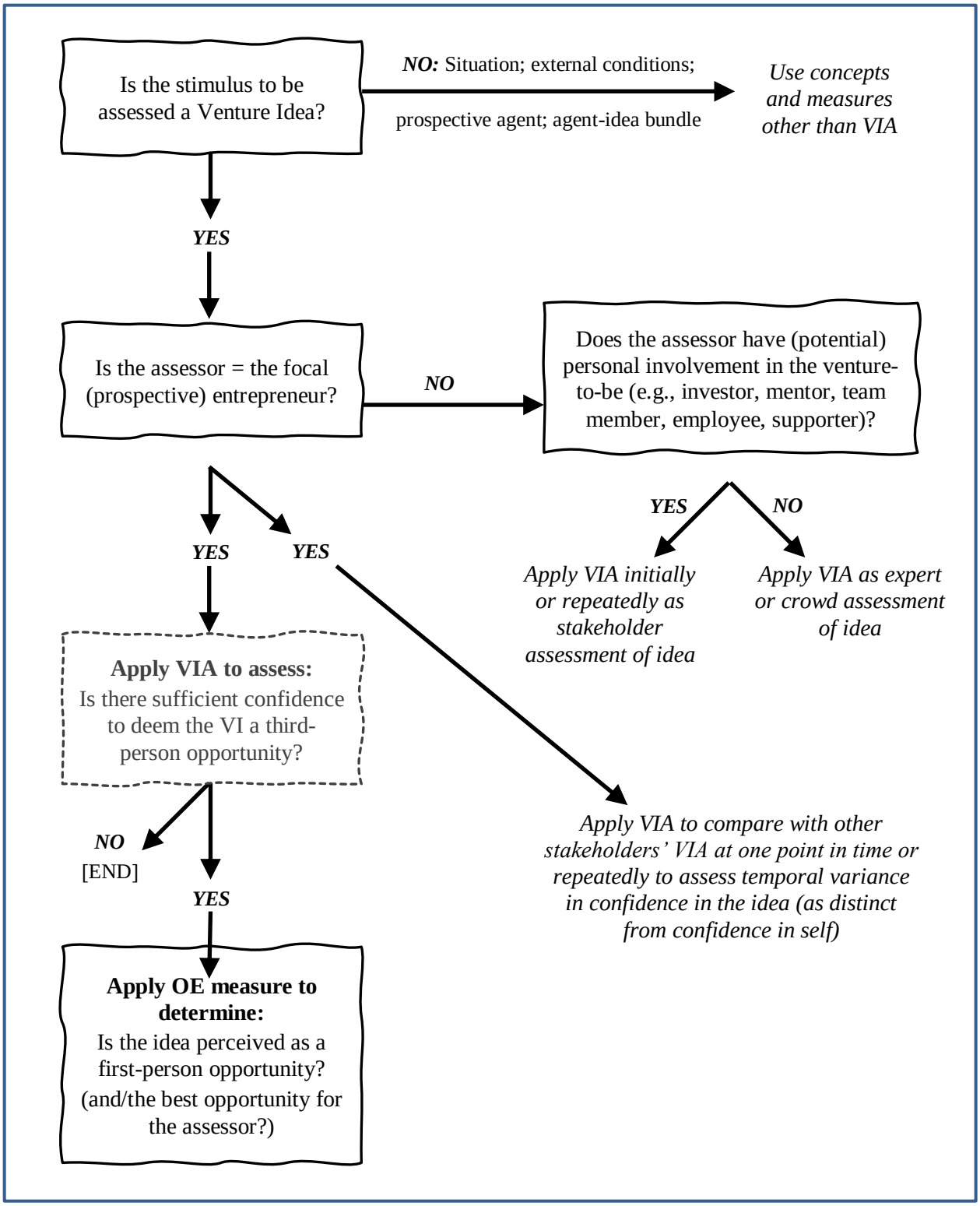


Note: Please see supplementary online appendix, Table A15 for Study 6's descriptive statistics, as well as for additional discriminant validity analyses (in Table A16 through A19).

Phase 1: N = 40 self-assessments of 25 own ventures by 40 entrepreneurs; Phase 2: N = 125 assessments of 4 other entrepreneurs' ideas and teams by 40 entrepreneurs. VIA = Venture Idea Assessment; ESE/EOE = Entrepreneurial Self/Other Efficacy; GE = Gain Estimation; PF = Perceived Feasibility; LE = Loss Estimation (not reversed); OE = Opportunity Evaluation (full measure, Scheaf et al. 2020). To ease visual comparison, we re-scaled all measures to match OE scores' 1-6 format (note that this modifies the % changes from the raw data). Consistent with Scheaf et al. (2020), we reverse scored the LE items prior to calculating summated OE scores.

Figure 4.

Where the VIA Concept and Measure Apply



SUPPLEMENTARY ONLINE APPENDIX

Table A1.

Constructs and items used for validation against other constructs (for VIA items see manuscript, Table 5)

	Source
Entrepreneurial Self-Efficacy (Studies 2-5, Study 6 Phase 1)	
I am confident that I can identify the need for a new product or service.	MPMS
Overall, my skills and abilities will help me start a business.	CF
If I work hard, I can successfully start a business.	CF
I am confident that I can perform financial analysis. *	CGC
I am confident that I can make decisions under uncertainty and risk.	CGC
My past experience will be very valuable in starting a business.	CF
I am confident that I can determine a competitive price for a new product or service.	MPMS
I am confident I can put in the effort needed to start a business.	CF
One-item assessment of own-team's entrepreneurial capabilities (Study 6, Phase 1)	
Let's turn to THE TEAM you form with the top key people with whom you are developing this venture. How well equipped is your current team to successfully turn ideas into viable businesses? *(1-7 scale anchored 1 = 'Important deficiencies' and 7 = 'Extremely well)*	Own
Perceived 1st-person Feasibility (PF; All five in Study 2; the first three in Study 3)	
Applying this idea constitutes a feasible opportunity for me.	GSSL
This idea is sufficiently developed for me to be able to turn it into a working business.	GSSL
I am sure I would be able to start my own business based on this idea.	Own
I think I would be very overworked if I built a business based on this idea.	Own
I do not think it would be very hard to start my own business based on this idea.	Own
Perceived 1st-person Desirability (PD; All five in Study 2; the first three in Study 3)	
A successful outcome is likely to follow if I were to try to implement this idea.	Own
If I tried to start a business based on this idea, I would probably make a lot of money from it.	Own
Starting a business based on this idea would bring more advantages than disadvantages to me.	Own
If I had the opportunity and resources, I'd like to start a firm based on this idea.	Own
Starting and running a business based on this idea would entail great satisfactions for me.	Own
Overall assessment of founder(s)' capabilities net of idea (Study 5, t_0)	
All in all, what is your overall assessment of the inherent quality of the founder(s) - independent of the idea?	Own
Expert's assessment of founders (Study 5, t_2)	
Now please focus on the entrepreneur(s), separate from your evaluation of the business, technology or product(s)/service(s) s/he/they are developing. With this in mind, how confident are you that...	Own
…the entrepreneur(s) has(have) the knowledge and experience to bring this venture to success?	
…the entrepreneur(s) has(have) 'the right attitudes' to do well in this program?	
…the entrepreneur(s) show(s) leadership?	
…the entrepreneur(s) has(have) good people skills?	

(Continued on next page)

Table A1. (continued)

Overall assessment of founder(s)' relevant business experience and coachability (Study 5, t_6)	
Leaving aside your evaluation of the venture's technology and business model, what do you think of the (main) entrepreneur with respect to his/her business experience?	Own
How coachable is this entrepreneur?	Own
(First-person) Opportunity Evaluation (Study 6, all phases)	
14 items capturing Gain estimation (6), Perceived feasibility (4) and Loss estimation (4)	SLWHW
See Scheaf et al. (2020; Table A1) for full details and instructions.	
One-item assessment of other-team's entrepreneurial capabilities (Study 6, Phase 2)	
I would first like you to focus on the entrepreneur(s) pursuing this project, that is, the core team leading this venture. I am curious to know what you think of THIS TEAM's entrepreneurial capabilities to successfully start a new business (not just their current venture, but also for any other new business start-ups, in general). With this in mind, how well equipped is this team to successfully turn ideas into viable businesses?	Own
Assessment of other-team's entrepreneurial efficacy (Study 6, Phase 2)	
Based on the impressions you've formed so far, **how would you rate…** 1= extremely low; 7 = extremely high)	
This team's overall abilities to identify the need for new products / services (in general)?	≅ MPMS
This team's overall skills to launch a new start-up (in general)?	≅ CF
This team's ability to "work hard" to start a new business (not just the current one)?	≅ CF
This team's abilities to make decisions under risk and uncertainty?	≅ CGC
This team's overall level of relevant business experience to start a new venture (in general)?	≅ CF
This team's scientific competences (e.g., education + achievements, realizations, etc.)	Own
This team's "relational abilities" to successfully launch a new business?	Own
Assessment of "fit" between self/own team's abilities vs. own team's idea (Study 6, Phase 1)	
Now that you've answered questions about your abilities and your business idea, let's put the two together! To what extent do YOUR abilities, knowledge, resources and skills (or those of your team) effectively MATCH what you think is needed to develop your business idea?	Own
Your PERSONAL abilities, knowledge, resources and skills?	
Those of your TEAM?	
Assessment of "fit" between other-team's abilities vs. other team's idea (Study 6, Phase 2)	
Now that you've answered questions about the team's abilities and their business idea, separately, let's bring the two together!	Own
To what extent do this team's abilities, knowledge, resources and other skills effectively MATCH what you think is needed to develop their CURRENT business idea?	
Assessment of "fit" between own-team's abilities vs. other team's idea (Study 6, Phase 2)	
Same focus on what it would mean FOR YOU to pursue this other idea for yourself, personally.	Own
To what extent do YOUR abilities, knowledge, resources and skills (or that of your team) effectively MATCH what you think is needed to develop this particular business idea?	
Your PERSONAL abilities, knowledge, resources and skills?	
Those of your TEAM?	

Note: The listed items are the adapted versions worded as in our studies. Unless otherwise noted, respondents recorded their answers on 7-point scales anchored "not at all" (1) and "completely" (7). Sources: CGC = Crick et al. (1998); CF = Cassar & Friedman, (2009); GSSL = Grégoire et al. (2010); MPMS = McGee et al. (2009); SLWHW = Scheaf et al. (2020). The complete set of instructions and scale anchors is available upon request.

* = Item dropped in Study4 due to poor intercorrelation.

STUDY 2

Figure A1.

Definitions and Instructions for Study 2

Please read the following definitions. Please take your time to reflect on these definitions and to identify the main characteristics and differences of the four concepts.

[VIA] Opportunity confidence	**Entrepreneurial self-efficacy**	**Perceived feasibility**	**Perceived desirability**
A person's subjective evaluation of the quality of a given business idea as the basis to start a business – independent of his or her own abilities or motivation to act on this idea.	The strength of a person's belief that he or she is capable of successfully performing the roles and tasks of an entrepreneur.	The strength of a person's belief that a given business idea can feasibly be enacted by him- or herself.	The strength of a person's belief that pursuing a given business idea would likely lead to desirable outcomes for him- or herself.

In the following, we will present specific statements that reflect one or several of these concepts. Do NOT expect the statements to be neatly and equally distributed across the concepts; they are organized randomly. Please note that some of the statements refer to a particular business idea that would have been presented before presenting those statements. Please rate for each question to what extent the degree of agreement/disagreement with the statement would reflect each of the four concepts. Please use a scale from 1 (not at all) to 5 (completely) for responses. Please do NOT answer the questions as such.

Example:	*Our question to you:* To what extent would the degree of agreement / disagreement with the statement reflect each of these concepts? (1 = not at all; 5 = completely)			
1. ►	**Opportunity confidence [VIA] ▼**	**Entrepreneurial self-efficacy ▼**	**Perceived feasibility ▼**	**Perceived desirability ▼**
This is a nonsense statement used only as an example…	**5**	**1**	**3**	**1**

► This respondent believes that the statement *"This is a nonsense statement used only as an example…"* reflects *[VIA] opportunity confidence* **completely** (s/he answered **"5"**) and also reflects *perceived feasibility* **to some extent (3)** but does **not** reflect *entrepreneurial self-efficacy* and/or *perceived desirability* **at all (1)**.

Note: Study 2 is the only study in the series that shares a concept label with participants. At this stage of the research and building on Davidsson (2015), we were using the label "Opportunity Confidence". Because we collected the data in a document-based survey distributed via email, we could not implement a strategy that would control for the 24 possible orders of definitions (4x3x2x1) across columns. We acknowledge that this prevents us from ruling out order effects. Nevertheless, it would seem unlikely that the order of presentation of the definitions would eliminate the differences we report in the main paper (Table 2).

STUDY 3

Figure A2.

Between-subjects Experimental Manipulation in Study 3

Business Idea 1

The idea is to create an app which functions as an online appointment aggregator for the hair and beauty industry. The considered first location is New York City. The app should make the process of discovering, browsing, and booking appointments at salons, spas, and barbershops seamless and digital. By using the app, people would be able to schedule a grooming appointment as easy as booking a hotel, restaurant, or taxi.

In the US, there are 1.3 million hair and beauty businesses, but currently less than 1% of appointments are made online. The app tries to change that by moving one of the oldest industries in the world into the digital age.

Business Idea 2

A new technology makes it possible to "fold" an image into a single vertical beam, using a device that takes very little space. Special glasses can "unfold" the image (which can be ever-changing like a movie or computer game) from anywhere around the beam. The idea is to use this technology to create a new type of multi-player games that combine the idea of computer games with traditional board games. Playing interactively around a table (rather than using separate devices or cramming up in front of a flat screen) all players would see the same image and be able to control action within the game in three dimensions with a mouse-like device.

The market for games for consoles, computers and mobile devices is huge and even the market for traditional board games is very large—and growing. As to caveats, the technology is new and largely untested in commercial applications, and the "unfolding" glasses need to be thick (like a prism) and are difficult to combine with regular, vision-correction eye-glasses.

Table A2.

Descriptive Statistics and Correlations for Study 3

Variables (unit/range)	*Mean*	*stdev*	*Cronbach's alpha*	*AVE*	*CR*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
1. Age (years)	34.99	10.39	--									
2. Gender (F = 1)	.47	.50	--			.016						
3. Education level (1-4)	1.85	.76	--			.107	.019					
4. Entrepreneurial experience (0/1)	.27	.44	--			.207 **	.052	.008				
5. Entrepreneurial self-efficacy (ESE) (1-7)	4.80	1.26	.94	.701	.929	.125 *	.056	.088	.378 **			
6. Venture Idea Manipulation (Idea 2 = 1)	.49	.50	--			.021	-.020	-.020	-.040	-.110		
7. Four-item VIA	5.21	1.20	.90	.730	.887	.063	-.086	-.105	.144 *	.301 **	-.260 **	
8. PF+PD (1st-person idea attractiveness	3.78	1.57	.94/.95	.784	.945	-.089	-.074	-.042	.198 **	.449 **	-.331 **	.572 **

Note: N = 317; AVE = Average Variance Extracted; CR = Composite Reliability (both derived from Table A3); Levels of statistical significance: * indicates $p < .05$; ** indicates $p < .01$.

Table A3.

Results of Exploratory Factor Analysis for Study 3 – Orthogonal Rotation (N = 317).

Scaling and item numbering may deviate from other analyses in the paper.

	Communalities		**Rotated Component Matrix Components**			**Average Variance Extracted**	**Composite Reliability**
	Initial	Extraction	1	2	3		
VIA_1	1.000	.797			.833	.686	.857
VIA_2	1.000	.862			.876		
VIA_3	1.000	.874			.890		
VIA_4	1.000	.538			.701		
PF_1	1.000	.859		.873		.711	.913
PF_2	1.000	.846		.877			
PF_3	1.000	.869		.887			
PD_1	1.000	.839		.828	.347		
PD_2	1.000	.769		.777	.360		
PD_3	1.000	.840		.813	.384		
ESE_1	1.000	.674	.763			.670	.916
ESE_2	1.000	.827	.894				
ESE_3	1.000	.722	.818				
ESE_4	1.000	.648	.786				
ESE_5	1.000	.722	.827				
ESE_6	1.000	.727	.838				
ESE_7	1.000	.716	.814				
ESE_8	1.000	.696	.804				

Extraction Method: Principal Component Analysis. Varimax Rotation.

Total Variance Explained

Component	**Initial Eigenvalues**			**Extraction Sums of Squared Loadings**			**Rotation Sums of Squared Loadings**		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.804	48.909	48.909	8.804	48.909	48.909	5.700	31.668	31.668
2	3.395	18.859	67.768	3.395	18.859	67.768	4.782	26.569	58.237
3	1.628	9.045	76.813	1.628	9.045	76.813	3.344	18.576	76.813

Extraction Method: Principal Component Analysis.

Note: VIA = Venture Idea Assessment; PF = Perceived Feasibility; PD = Perceived Desirability; ESE = Entrepreneurial Self-Efficacy. The PF and PD items are both addressing perceived "first-person attractiveness" of the assessed idea and load on the same factor.

Results: The analysis identifies three orthogonal factors that correspond to ESE, PF+PD and VIA, respectively. Some cross-loadings in the .35-.38 range appear for PD items on the VIA factor (Component 3) although the loadings on the "own" factor are far higher. This is not surprising when concepts that are expected to correlate (third-person and first-person attractiveness) are forced into an uncorrelated factor structure. Since correlated factors are expected, oblique rotation is arguably more appropriate. We report such an analysis below, and in this analysis, there are no cross-loadings >.30.

Table A4.

Results of Exploratory Factor Analysis for Study 3 – Oblique Rotation (N = 317).

Scaling and item numbering may deviate from other analyses in the paper.

	Pattern Matrix [a] **Component**			**Average Variance Extracted**	**Composite Reliability**
	1	2	3	***(AVE)***	***(CR)***
PF_1	.931			.784	.945
PF_2	.956				
PF_3	.965				
PD_1	.846				
PD_2	.818				
PD_3	.779				
ESE_1		.749		.701	.929
ESE_2		.925			
ESE_3		.843			
ESE_4		.808			
ESE_5		.848			
ESE_6		.867			
ESE_7		.826			
ESE_8		.820			
VIA_1			.851	.730	.887
VIA_2			.899		
VIA_3			.925		
VIA_4			.728		

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Component Correlation Matrix

Component	1	2	3
1			
2	.431		
3	.515	.260	

Results: The .431 and .515 correlations above respectively translate into 18.6% and 26.5% of shared variance between VIA and the other two constructs. These values are much lower than the AVE values of .784, 701 and .730, thus supporting the measures' discriminant validity (cf. Fornell & Larcker, 1981; Voorhees et al., 2016).

Table A5.

Confirmatory factor analysis output for Study 3; Measurement model for VIA and ESE (N = 317).

Scaling and item numbering may deviate from other analyses in the paper.

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	78
Number of distinct parameters to be estimated:	25
Degrees of freedom (78 - 25):	53

Result (Default model)

Minimum was achieved — Chi-square = 147.539
Degrees of freedom = 53 — Probability level = .000

Correlation: ESE <---> VIA .324

Estimates (Group number 1 - Default model)
Scalar Estimates (Group number 1 - Default model)
Maximum Likelihood Estimates
Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
VIA_1	<---	VIA	1.000				
VIA_2	<---	VIA	1.072	.045	23.614	***	
VIA_3	<---	VIA	1.103	.048	23.191	***	
VIA_4	<---	VIA	.793	.064	12.408	***	
ESE_1	<---	ESE	1.000				
ESE_2	<---	ESE	1.189	.065	18.352	***	
ESE_3	<---	ESE	1.031	.064	16.187	***	
ESE_4	<---	ESE	1.073	.073	14.660	***	
ESE_5	<---	ESE	1.065	.066	16.238	***	
ESE_6	<---	ESE	1.198	.073	16.480	***	
ESE_7	<---	ESE	1.026	.064	16.106	***	
ESE_8	<---	ESE	1.106	.070	15.905	***	

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate	AVE	CR
VIA_1	<---	VIA	.869	.711	.875
VIA_2	<---	VIA	.927		
VIA_3	<---	VIA	.917		
VIA_4	<---	VIA	.623		
ESE_1	<---	ESE	.781	.670	.916
ESE_2	<---	ESE	.901		
ESE_3	<---	ESE	.820		
ESE_4	<---	ESE	.758		
ESE_5	<---	ESE	.822		
ESE_6	<---	ESE	.831		
ESE_7	<---	ESE	.817		
ESE_8	<---	ESE	.809		

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	25	147.539	53	.000	2.784
Saturated model	78	.000	0		
Independence model	12	3035.578	66	.000	45.994

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.083	.924	.888	.628
Saturated model	.000	1.000		
Independence model	1.015	.258	.123	.218

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.951	.939	.968	.960	.968
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.803	.764	.777
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	94.539	62.107	134.625
Saturated model	.000	.000	.000
Independence model	2969.578	2792.902	3153.560

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.467	.299	.197	.426
Saturated model	.000	.000	.000	.000
Independence model	9.606	9.397	8.838	9.980

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.075	.061	.090	.002
Independence model	.377	.366	.389	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	197.539	199.684	291.512	316.512
Saturated model	156.000	162.693	449.194	527.194
Independence model	3059.578	3060.608	3104.685	3116.685

Note: VIA = Venture Idea Assessment; ESE = Entrepreneurial Self-Efficacy; AVE = Average Variance Extracted; CR = Composite Reliability. The .324 estimated correlation implies 10.5% of shared variance between VIA and ESE, i.e., much lower than the AVE values of .711 and .670, thus supporting the measures' discriminant validity.

Table A6.

Confirmatory factor analysis output for Study 3; Structural model with VIA and ESE predicting PF+PD (first-person attractiveness) (N = 317)

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	171
Number of distinct parameters to be estimated:	42
Degrees of freedom (171 - 42):	129

Result (Default model)
Minimum was achieved
Chi-square = 269.735
Degrees of freedom = 129
Probability level = .000

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)
Maximum Likelihood Estimates
Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
PF+PD	<---	SE	.371	.070	5.299	***	
PF+PD	<---	VIA	.792	.073	10.858	***	
VIA_1	<---	VIA	1.000				
VIA_2	<---	VIA	1.075	.045	23.904	***	
VIA_3	<---	VIA	1.099	.047	23.170	***	
VIA_4	<---	VIA	.794	.064	12.473	***	
ESE_1	<---	ESE	1.000				
ESE_2	<---	ESE	1.184	.064	18.444	***	
ESE_3	<---	ESE	1.026	.063	16.243	***	
ESE_4	<---	ESE	1.070	.073	14.730	***	
ESE_5	<---	ESE	1.061	.065	16.321	***	
ESE_6	<---	ESE	1.193	.072	16.551	***	
ESE_7	<---	ESE	1.024	.063	16.207	***	
ESE_8	<---	ESE	1.102	.069	15.987	***	
PD_1	<---	PF+PD	1.000				
PD_2	<---	PF+PD	.949	.036	26.250	***	
PD_3	<---	PF+PD	.992	.034	29.229	***	
PF_3	<---	PF+PD	.874	.041	21.329	***	
PF_2	<---	PF+PD	.850	.041	20.719	***	
PF_1	<---	PF+PD	.914	.042	21.893	***	

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	42	269.735	129	.000	2.091
Saturated model	171	.000	0		
Independence model	18	5515.039	153	.000	36.046

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.108	.911	.882	.687
Saturated model	.000	1.000		
Independence model	1.160	.193	.098	.173

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.951	.942	.974	.969	.974
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.843	.802	.821
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	140.735	97.440	191.793
Saturated model	.000	.000	.000
Independence model	5362.039	5122.615	5607.800

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.854	.445	.308	.607
Saturated model	.000	.000	.000	.000
Independence model	17.453	16.968	16.211	17.746

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.059	.049	.069	.071
Independence model	.333	.326	.341	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	353.735	359.109	511.609	553.609
Saturated model	342.000	363.879	984.772	1155.772
Independence model	5551.039	5553.342	5618.699	5636.699

Note: Please see Table A5 note for explanation of acronyms. To account for PF+PD consisting of two sub-concepts, we conducted the analyses with correlated error terms among the PF items.

Table A7.

Study 3 – Regression Results for VIA's Discriminant Validity with ESE (cf. Table 3 in the manuscript)

	Dependent variables			
	ESE difference, before vs. after manipulation		ESE after manipulation	
	Model 5	***Model 6***	***Model 7***	***Model 8***
Predictor variables	*b (p)*	*b (p)*	*b (p)*	*b (p)*
Constant	-.055 (.774)	-.054 (.781)	.470 (.094)	.468 (.101)
Age (years)	.000 (.981)	.000 (.991)	.000 (.945)	.000 (.947)
Gender	.100 (.279)	.102 (.273)	.116 (.200)	.116 (.202)
Education level	-.010 (.874)	-.007 (.914)	.019 (.764)	.019 (.763)
Entrepreneurial experience (EXP)	.010 (.930)	.006 (.961)	.114 (.332)	.116 (.343)
ESE (before manipulation)			.897 (<.001)	.897 (<.001)
Venture Idea Manipulation		.048 (.599)		.006 (.944)
F	.319 (.864)	.309 (.906)	127.319 (<.001)	105.012 (<.001)
Adj. R^2	-.027	-.035	.861	.860

Note: OLS regression using SPSS. *N* = 103 (the third of the sample whose ESE was assessed both before and after VI manipulation). VIA = Venture Idea Assessment; ESE = Entrepreneurial Self-Efficacy. The columns display unstandardized regression coefficients (*b*) and associated probabilities (*p*-values; exact "significance levels"). We mean-centered all continuous predictors before conducting the analyses and used contrast codes (-.5 vs. +.5) for the dichotomous predictors (gender; female = +.5); entrepreneurial experience (entrepreneurial experience = +.5), business idea (second idea = +.5).

Table A8.

Results of Exploratory Factor Analysis (EFA) including all the tentative VIA items in Study 3 (N = 317)

Component	1	2
(VIA_r5)	**.774**	
(VIA_r6)	**.811**	
(VIA_r7)	**.860**	.329
(VIA_r8)	**.842**	.313
(VIA_r9)	**.829**	.384
VIA_1	.399	**.783**
VIA_2	.466	**.795**
VIA_3	.391	**.839**
VIA_4		**.810**

Note: N = 317. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. The EFA results show that even if they are intimately related (as evidenced by the cross-loadings and [separately] a .665 correlation between the corresponding, summated indices), the items targeting an idea's downsides yield their own factor—and this seems more pronounced for items VIA_r5 and VIA_r6 that have the same "confidence" stem as the final VIA items (VIA_1-4). Wording of the "downside" items (see also Table 2 in the manuscript) are as follows. **How confident are you that…**(VIA_r5) …this idea would not go very far if someone tried it? (VIA_r6) …even the best suited entrepreneur would likely not be able to succeed with this idea? **To what extent do you agree with the following statements?** (VIA_r7) I believe that no one should be advised to start a business based on this idea; (VIA_r8) I do not believe this idea could be successfully implemented even by the best suited entrepreneur; (VIA_r9) I doubt that any person at all could turn this idea into a successful business. We considered a range of combinations of 3-9 items (not just upside- vs. downside frames) across different types of analyses and criteria in arriving at the conclusion that our final 4-item VIA had the best validation results overall.

Table A9.

Results of Regression Analyses Contrasting the Criterion Validity of Upside- and Downside-framed measures of VIA (N = 317)

Correlations between "upside" et "downside" measures of VIA as summated indices = .665 (p <.001)

	Four-item "upside" VIA	Five-item "downside". VIA (Rev)	First-person attractiveness (PF+PD)		
	Model 1	***Model 2***	***Model 3***	***Model 4***	***Model 5***
Predictor variables	*b (p)*	*b (p)*	*b (p)*	*b (p)*	***b (p)***
Constant	5.211 (<.001)	5.535 (<.001)	3.808 (<.001)	3.825 (<.001)	3.804 (<.001**)**
Age (years)	.005 (.411)	.017 (.020)	-.024 (<.001)	-.026 (<.001)	-.023 (<.001)
Gender	-.253 (.042)	-.270 (.062)	-.179 (.172)	-.250 (.082)	-.186 (.158)
Education level	-.215 (.009)	-.298 (.002)	-.019 (.824)	-.061 (.524)	-.030 (.732)
Entrepreneurial experience (EXP)	.073 (.635)	-.163 (.362)	.174 (.281)	.258 (.144)	.156 (.333)
Entrepreneurial self-efficacy (ESE)	.263 (<.001)	.117 (.061)	.379 (<.001)	.496 (<.001)	.372 (<.001)
Venture Idea Manipulation	-.560 (<.001)	-.416 (.004)	-.567 (<.001)	-.771 (<.001)	-.566 (<.001)
Four-item "upside" VIA			.565 (<.001)		.625 (<.001)
Five-Item "downside" VIA				.268 (<.001)	-.079 (.241)
F	8.521(<.001)	4.810 (<.001)	39.40 (<.001)	25.43 (<.001)	34.69 (<.001)
Adj. R^2	.106	.067	.460	.351	.460

Note: Comparison of Models 1 and 2 reveal statistically significant evidence that both the "upside-framed" and "downside-framed" capture the effects of Study 3's venture-idea manipulation: b = -.560 (p<.001) in Model 1 vs. b =-.416 (p =.004) in Model 2. However, Model 1's adjusted R^2 (.106) is larger than Model 2's (.067). Along with the greater magnitude of the coefficient this suggests that the four-item upsides-framed VIA measure better captures the difference in overall assessment of Venture Idea 1 vs. Venture Idea 2.

Comparisons of Models 3-4 show that the upside-framed VIA measure is a better predictor of first-person Opportunity Evaluation (as measured by personal feasibility and desirability items), with a larger proportion of explained variance (adjusted R^2 = .460 in Model 3 vs. .351 in Model 4). Moreover, Model 5 reveals that the predictive validity of the upside-framed VIA measure dominates that of the downside-framed measure. The latter is no longer assigned a statistically significant effect when both measures are entered together and does not add to R^2 (cf. Model 3).

STUDY 4

Figure A3.

Within-subjects Experimental Manipulation in Study 4

[Original idea description given to all before first VIA assessment]:

Business Idea

A new technology makes it possible to "fold" an image into a single vertical beam, using a device that takes very little space. Special glasses can "unfold" the image (which can be ever-changing like a movie or computer game) from anywhere around the beam. The idea is to use this technology to create a new type of multi-player games that combine the idea of computer games with traditional board games. Playing interactively around a table (rather than using separate devices or cramming up in front of a flat screen) all players would see the same image and be able to control action within the game in three dimensions with a mouse-like device.

The market for games for consoles, computers and mobile devices is huge and even the market for traditional board games is very large—and growing.

Experimental condition 1, negative. The original text repeated, immediately followed by:

The technology is patented and licensable for specific applications. However, it is new and largely untested in commercial applications. The "unfolding" glasses need to be thick (like a prism) and are difficult to combine with regular, vision-correction eye-glasses.

Experimental condition 2, positive. The original text repeated immediately followed by:

The technology is patented, and no similar patents existed previously. Focus group concept tests with potential users have been strongly favorable.

Table A10.

Descriptive Statistics and Correlations for Study 4

Variables (unit/range)	*Mean*	*stdev*	*Cronbach's alpha*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1. Age (years)	36.43	15.29	--								
2. Gender (F = 1)	0.30	0.46	--	.180							
3. Education (1-6)	4.10	1.13	--	.555 **	.137						
4. Ent experience (1-53 ventures)	5.78	10.97	--	.412 **	-.127	.151					
5. VIA before (1-7)	5.12	1.42	.90	-.202	-.026	-.219	-.032				
6. VIA after (1-7)	5.08	1.47	.92	-.293	-.090	-.245	-.113	.889 **			
7. ESE before (1-7)	5.94	0.77	.84	.221	-.137	.092	.304	.141	.066		
8. ESE after (1-7)	5.94	0.74	.84	.150	-.173	.037	.240	.249	.207	.939 **	
9. Venture idea manipulation (-.5/.5)	0.025	0.51	--	-.083	-.142	-.049	-.200	.036	.257	.197	.183

Note: N = 40; Levels of statistical significance: * indicates $p < .05$; ** indicates $p < .01$

Table A11.

Results of Exploratory Factor Analyses (EFAs) for Study 4 (N = 40)

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.256	38.688	38.688	4.256	38.688	38.688	3.906	35.505	35.505
2	2.948	26.797	65.485	2.948	26.797	65.485	3.298	29.980	65.485
3	.847	7.698	73.182						
4	.741	6.737	79.919						
5	.628	5.708	85.627						
6	.479	4.358	89.985						
7	.383	3.483	93.468						
8	.283	2.573	96.041						
9	.214	1.945	97.986						
10	.150	1.368	99.354						
11	.071	.646	100.000						

Extraction Method: Principal Component Analysis. Varimax rotation

Communalities

	Initial	Extraction
ESE1 (Before)	1.000	.549
ESE2 (Before)	1.000	.469
ESE3 (Before)	1.000	.495
ESE5 (Before)	1.000	.533
ESE6 (Before)	1.000	.626
ESE7 (Before)	1.000	.767
ESE8 (Before)	1.000	.600
VIA 1 (Before)	1.000	.866
VIA2 (Before)	1.000	.877
VIA3 (Before)	1.000	.871
VIA4 (Before)	1.000	.550

Extraction Method: Principal Component Analysis.

Rotated Component Matrix[a]

	Component		AVE	CR
	1	2		
ESE7 (Before)	.833		.550	.777
ESE6 (Before)	.777			
ESE8 (Before)	.762			
ESE1 (Before)	.726			
ESE5 (Before)	.706			
ESE3 (Before)	.703			
ESE2 (Before)	.673			
VIA3 (Before)		.933	.825	.916
VIA2 (Before)		.923		
VIA1 (Before)		.919		
VIA4 (Before)		.736		

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations
Loadings <.30 suppressed

Results after manipulation are near identical (2 factors; 69% variance explained; ESE item loadings .69-.87 on F1; VIA loadings .77-.96 on F2; no side-loadings >.30; communalities .48-.93)

We excluded item ESE4 – "I am confident that I can perform financial analysis" because of poor fit.

Note: VIA = Venture Idea Assessment; ESE = Entrepreneurial Self-Efficacy. PF and PD items were not included in Study 4. Results should be interpreted with care due to the small sample size. For the same reason, we did not conduct CFA analyses for this study. The orthogonal solution without cross-loadings > .30 supports the measures' discriminant validity.

Table A12.

Study 4 Regression Results for Criterion Validity

	Dependent variables							
	VIA (after manipulation)				ESE (after manipulations)			
	Model 1		***Model 2***		***Model 3***		***Model 4***	
Predictor variables	*b*	*(p)*	*b*	*(p)*	*b*	*(p)*	*b*	*(p)*
Constant	5.037	(<.001)	5.046	(<.001)	5.931	(<.001)	5.931	(<.001)
Age	-.009	(.381)	-.010	(.257)	-.001	(.787)	-.001	(.795)
Gender (F = +.5)	-.191	(.444)	-.068	(.765)	-.064	(.515)	-.070	(.487)
Education level	.017	(890)	.022	(.840)	-.017	(.706)	-.018	(.704)
Entrepreneurial experience	-.008	(.501)	-.001	(.952)	-.003	(.530)	-.003	(.479)
VIA index (before manipulation)	.897	(<.001)	3.559	(<.001)				
ESE index (before manipulation)					.920	(<.001)	.927	(<.001)
Idea manipulation (pos vs. neg)			.620	(.004)			-.038	(.682)
F	28.841	(<.001)	31.581	(<.001)	53.552	(<.001)	43.567	(<.001)
Adj. R^2	.781		.825		.871		.868	

Note: OLS regression using SPSS. $N = 40$. The columns display unstandardized regression coefficients (*b*) and associated probabilities (*p*-values; exact "significance levels"). We mean-centered all continuous predictors before conducting the analyses and used contrast codes (-.5 vs. +.5) for the dichotomous predictors (gender; idea manipulation).

STUDY 5

Table A13.

Descriptive Statistics and Correlations for Study 5's scale consistency (individual-level analyses)

Time, Data source and variables	*Mean (stdev)*	*1*	*2*	*3*	*4*	*5*
t_0 MBAs screening of venture applications (N = 815 assessments of 396 venture ideas)						
1. VIA score (4 items on 1-7 scale α=.923)	4.644 (1.322)					
2. Overall assessment of founder(s)' capabilities (single item, 1-10 scale)	6.807 (2.063)	.599**				
3. Year contrast (+/- .5)	.088 (.493)	-.021	-.057			
4. DV: Program officials' decision to invite a venture to interview (at t_1)	.433 (.496)	.282**	.275**	.088*		
5. DV: Program officials' decision to invite a venture into program (at t_3)	.185 (.389)	.236**	.246**	.098**	.546**	
t_2 Experts assessing ventures after 10-min interview with founders (N = 67 assessments of 63 venture ideas)						
1. VIA score (4 items on 1-7 scale α=.860)	5.134 (1.035)					
2. Eval founders (4 items on 1-7 scale α=.890)	5.369 (1.138)	.604**				
3. DV: Program officials' decision to invite a venture into program (at t_3)	.299 (.461)	.375**	.306*			
4. DV: Mentors' decision to 'mentor forward' a venture into the program (at t_5)	.224 (.420)	.296*	.260*	.823**		
t_6 MBAs reporting after working for two months with founders on a venture mandate (N = 114 assessments of 65 venture ideas)						
1. VIA score (4 items on 1-7 scale, α=.847)	5.440 (.835)					
2. Founder(s)' relevant business experience (single item, 1-7 scale)	5.018 (1.395)	-.044				
3. Founder(s)' coachability (single item, 1-7 scale)	5.456 (1.235)	.285**	.134			
4. Year contrast (+/- .5)	-.193 (.463)	.048	-.118	.186*		
5. DV: Mentors' decision to 'mentor forward' a venture into the program (at t_7)	.768 (.424)	.145	.106	-.039	.051	
6. DV: Mentors' decision to 'mentor forward' a venture into the program (at t_9)	.571 (.497)	.225*	.191*	-.006	.078	.635**

Note: VIA = Venture Idea Assessment; DV = Dependent Variable. The means reported above include multiple ratings for the same venture ideas. Levels of statistical significance: * indicates p <.05; ** indicates p <.01

STUDY 5

Table A14.

Descriptive Statistics and Correlations for Study 5's regression analyses (idea-level analyses)

Time, Data source and variables	*Mean (stdev)*	*1*	*2*	*3*	*4*	*5*
t_0 MBAs screening of venture applications (N = 396 venture ideas)						
1. VIA score (4 items on 1-7 scale α=.946)	4.644 (1.082)					
2. Overall assessment of founder(s)' capabilities (single item, 1-10 scale)	6.806 (1.687)	.647 **				
3. Year contrast (+/- .5)	0.0732 (.495)	-.024	-.079			
4. DV: Program officials' decision to invite a venture to interview (at t_1)	0.43 (.496)	.341 **	.337 **	.093		
5. DV: Program officials' decision to invite a venture into program (at t_3)	0.18 (.386)	.287 **	.300 **	.102	.541 **	
t_2 Experts assessing ventures after 10-min interview with founders (N = 63 venture ideas)						
1. VIA score (4 items on 1-7 scale α=.896)	5.145 (1.037)					
2. Eval founders (4 items on 1-7 scale α=.877)	5.444 (1.064)	.668 **				
3. DV: Program officials' decision to invite a venture into program (at t_3)	0.32 (.469)	.426 **	.320 *			
4. DV: Mentors' decision to 'mentor forward' a venture into the program (at t_5)	0.25 (.439)	.343 **	.179	.777 **		
t_6 MBAs reporting after working for two months with founders on a venture mandate (N = 65 venture ideas)						
1. VIA score (4 items on 1-7 scale, α=.858)	5.426 (.766)					
2. Founder(s)' relevant business experience (single item, 1-7 scale)	4.890 (1.427)	-.124				
3. Founder(s)' coachability (single item, 1-7 scale)	5.528 (1.090)	.217	-.034			
4. Year contrast (+/- .5)	-0.008 (.504)	.061	-.173	.245*		
5. DV: Mentors' decision to 'mentor forward' a venture into the program (at t_7)	0.78 (.414)	.221	.131	-.050	.067	
6. DV: Mentors' decision to 'mentor forward' a venture into the program (at t_9)	0.58 (.497)	.215	.269 *	-.079	.081	.622 **

Note: VIA = Venture Idea Assessment; DV = Dependent Variable. The means reported above refer to the venture-centered assessments. Levels of statistical significance: * indicates p <.05; ** indicates p <.01

STUDY 6

Table A15.

Descriptive statistics – Study 6

Phase 1 *(self-assessments by 40 high-tech entrepreneurs from 25 ventures)*

Variables	*Mean (stdev)*	*Cronbach's alpha*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1. VIA (4 items)	6.075 (.762)	.685								
2. ESE (own) (8 items)	5.784 (.621)	.724	.316*							
3. Team capabilities	5.410 (.808)	--	.114	.344*						
4. Scheaf et al. (2020) GE (6 items)	5.587 (.354)	.572	.445**	.246	.102					
5. Scheaf et al. (2020) PF (4 items)	5.250 (.525)	.590	.344*	.236	.197	.293				
6. Scheaf et al. (2020) LE (4 items, r-scored)	3.256 (1.076)	.853	.021	.151	.248	.027	.309			
7.Scheaf et al.. (2020) OE (14 items)	4.698 (.476)	.734	.253	.261	.284	.376*	.674**	.874**		
8. Own person-own idea fit	6.075 (.730)	--	.174	.461**	.364*	.160	.251	.065	.181	
9. Own team-own idea fit	5.950 (.846)	--	.185	-.009	.181	.129	.231	-.176	-.016	.380*

Phase 2 *(125 assessments of other ventures by 40 high-tech entrepreneurs)*

Variables	*Mean (stdev)*	*Cronbach's alpha*								
1. VIA (4 items)	4.665 (1.034)	.819								
2. Team capabilities	4.861 (1.101)	--	.418**							
3. Team efficacy (7 items)	4.847 (.841)	.820	.393**	.701**						
4. Scheaf et al. (2020) GE (6 items)	3.087 (1.184)	.914	.457**	.294**	.348**					
5. Scheaf et al. (2020) PF (4 items)	2.572 (1.126)	.853	.253**	.075	.104	.689**				
6. Scheaf et al. (2020) LE (4 items, r-scored)	2.902 (.975)	.751	.136	.288**	.117	.195*	.125			
7.Scheaf et al.. (2020) OE (14 items)	2.854 (.829)	.884	.386**	.284**	.258**	.865**	.830**	.541**		
8. Own person-own idea fit	3.208 (1.520)	--	.164	.073	.085	.570**	.622**	-.024	.544**	
9. Own team-own idea fit	3.344 (1.465)	--	.164	.138	.204*	.317**	.258**	.018	.275**	.536**

Note: VIA = Venture Idea Assessment; ESE = Entrepreneurial Self-Efficacy; OE = Opportunity Evaluation; GE = Gain Estimation; PF = Personal Feasibility; LE = Loss Estimation (GE, PF and LE are OE subscales); AVE = Average Variance Extracted. Respondents answered all survey responses on 7-point Likert scales, with the exception of Scheaf et al.'s (2020) items: respondents answered these items on a 6-point scale. Consistent with Scheaf et al. (2020), we reverse scored the LE items prior to calculating OE scores, so that all items share similar valence across OE dimensions. Levels of statistical significance: * indicates $p < .05$; ** indicates $p < .01$.

Table A16.

Results of Study 6's CFA Model comparisons of VIA with Scheaf et al. (2020)'s GE dimension

Phase 2 data		**Two correlated concepts (r = .541)**			**Single concept**			*Corr with VIA **
Items	*Items' wording*	*Factor loadings*	*Squared multiple correlations*	*AVE (CR)*	*Factor loadings*	*Squared multiple correlations*	*AVE (CR)*	
VIA_1	A person with the right knowledge and motivation should be encouraged to act on this venture idea (**name of venture**)?	1.000	.686	.557	.455	.214	.467	.864 **
VIA_2:	This venture idea (**name of venture**) is a good business opportunity?	.951	.663	(.737)	.544	.328	(.804)	.810 **
VIA_3:	Someone could turn this venture idea (**name of venture**) into a highly-scalable business?	.840	.580		.401	.199		.820 **
VIA_4:	If someone failed with this venture idea (**name of venture**), it would be due to other factors than the idea itself?	.746	.298		.325	.085		.745 **
Scheaf et al. (2020)'s GE dimension								
GE_1	I see large potential gains for myself in pursuing **name of venture**.	1.000	.779	.582	1.000	.768		.430 **
GE_2	The potential upside in pursuing **name of venture** will be large for me.	.860	.618	(.830)	.855	.603		.353 **
GE_3	Pursuing **name of venture** will result in big profits for me.	.928	.733		.923	.714		.374 **
GE_4	I want to learn more about pursuing **name of venture**.	.849	.679		.853	.676		.382 **
GE_5	I love working on making **name of venture** a reality.	.827	.646		.837	.652		.433 **
GE_6	Pursuing **name of venture** is enjoyable for me.	.735	.431		.739	.431		.327 **
	X^2 (df)	92.486 (34)			220.707 (35)			
	X^2/df	2.720			6.306			
Fit	X^2 difference (p-value)	**128.221 (<.001)**						
	CFI	.923			.754			
	RMSEA	.118			.207			

Note: N = 125 evaluations of other team's ventures; VIA * = summated average score of all VIA items. For explanation of acronyms, see Table A15; AVE = Average Variance Extracted; CR = Composite reliability. Levels of statistical significance: * indicates p <.05; ** indicates p <.01.

Results: The .541 (p <.01) correlation between the two constructs translates into 29.2% of shared variance. In turn, AVE values of .557 and .582 indicate that on average, the constructs' items "capture" almost twice the amount of unique variance than what the two constructs share among them (Fornell & Larcker, 1981; Voorhees et al., 2016). Owing to the small sample size and two indicators that do not seem to perform as expected (VIA_4 and GE_6), the fit of the two-correlated-concept solution meets the X^2/df<3 threshold, but the CFI and RMSEA values are outside the values indicating acceptable fit. Here and below, we remind readers that RMSEA is known to be biased in analyses of small models and using small samples (cf. Fan & Sivo, 2007; Kenny et al., 2015). The two models reveal statistically significant evidence (p <.001) that a single-concept solution has a much worse fit than the two-correlated-concept solution. Interestingly, the fifth results column shows that the VIA items' squared multiple correlations with the single construct are much lower than those for the GE items, suggesting that the VIA items share much lower levels of common variance with the single concept than the GE items. Moreover, the right-most column reveals that that the item-total correlations among the VIA items are much larger in magnitude than that between the GE items with a summated-average score of these VIA items. All in all, these empirical results support VIA's empirical separation and discriminant validity from the GE items.

Table A17.

Results of Study 6's CFA Model comparisons of VIA with Scheaf et al. (2020)'s LE dimension

Phase 2 data		**Two correlated concepts (r = -.161)**			**Single concept**			*Corr with VIA **
Items	*Items' wording*	*Factor loadings*	*Squared multiple correlations*	*AVE (CR)*	*Factor loadings*	*Squared multiple correlations*	*AVE (CR)*	
VIA_1	A person with the right knowledge and motivation should be encouraged to act on this venture idea (**name of venture**)?	1.000	.715	.558	-.219	.034	.240	.864 **
VIA_2:	This venture idea (**name of venture**) is a good business opportunity?	.906	.628	(.738)	-.345	.089	(.377)	.810 **
VIA_3:	Someone could turn this venture idea (**name of venture**) into a highly-scalable business?	.823	.581		-.188	.030		.820 **
VIA_4:	If someone failed with this venture idea (**name of venture**),it would be due to other factors than the idea itself?	.743	.309		.030	.000		.745 **
Scheaf et al. (2020)'s LE dimension								
LE_1	For me, the potential for financial loss (and other personal costs) in pursuing **name of venture** is high.	.472	.177	.445	.505	.194		-.162
LE_2	The overall riskiness of pursuing **name of venture** is high for me.	.613	.245	(.588)	.654	.269		-.139
LE_3	The size of the potential financial loss (and other personal costs) in pursuing **name of venture** is large for me.	.953	.618		.950	.591		-.021
LE_4	For me, the exposure to financial loss (and other personal costs) in pursuing **name of venture** is sizeable.	1.000	.741		1.000	.712		-.094
	X^2 (df)	55.889 (19)			236.653 (20)			
	X^2/df	2.942			11.833			
Fit	X^2 difference (p-value)	**180.764 (<.001)**						
	CFI	.893			.369			
	RMSEA	.125			.296			

Note: N = 125 evaluations of other team's ventures; VIA * = summated average score of all VIA items. For explanation of acronyms, see Table A15; AVE = Average Variance Extracted; CR = Composite reliability. Levels of statistical significance: * indicates p <.05; ** indicates p <.01.

Results: With a value -.161, evidence is not significant (p =.072) for the correlation between VIA and LE. In this context, the AVE value of .558 indicates that on average, the VIA items "capture" more than 50% of the average variance associated with its respective items. By contrast, the LE items fall below this threshold, with an AVE value of .445 (Fornell & Larcker, 1981; Voorhees et al., 2016).

Owing to the small sample size and three indicators that do not seem to perform as expected (VIA_4, but especially the LE_1 and LE_2 items), the fit of the two-correlated-concept solution meets the X^2/df<3 threshold, but the CFI and RMSEA values are outside the values indicating acceptable fit. Nevertheless, comparing the two model formulations reveals statistically significant evidence (p <.001) that a single-concept solution (where all items load onto a single latent concept) has a much worse fit than the two-correlated-concept solution. Interestingly, the fifth results column shows that the VIA items' squared multiple correlations with the single construct are much lower than those for the LE items, suggesting that the VIA items share much lower levels of common variance with the single concept than the LE items. Moreover, the right-most column reveals that that the item-total correlations among the VIA items are much larger in magnitude than that between the LE items with a summated-average score of these VIA items.

All in all, these empirical results support VIA's empirical separation and discriminant validity from the LE items.

Table A18.

Results of Study 6's CFA Model comparisons of VIA with Scheaf et al. (2020)'s PF dimension

Phase 2 data		**Two correlated concepts (r = .195)**			**Single concept**			*Corr with VIA **
Items	*Items' wording*	*Factor loadings*	*Squared multiple correlations*	*AVE (CR)*	*Factor loadings*	*Squared multiple correlations*	*AVE (CR)*	
VIA_1	A person with the right knowledge and motivation should be encouraged to act on this venture idea (**name of venture**)?	1.000	.710	.559	.179	.030	.327	.864 **
VIA_2:	This venture idea (**name of venture**) is a good business opportunity?	.900	.615	(.739)	.172	.030	(.559)	.810 **
VIA_3:	Someone could turn this venture idea (**name of venture**) into a highly-scalable business?	.834	.591		.267	.080		.820 **
VIA_4:	If someone failed with this venture idea (**name of venture**),it would be due to other factors than the idea itself?	.761	.321		.320	.075		.745 **
Scheaf et al. (2020)'s PF dimension								
PF_1	I have what it takes to pursue **name of venture**.	1.000	.817	.598	1.000	.769		.122
PF_2	I am well equipped to pursue **name of venture**.	.873	.763	(.780)	.901	.748		.187 *
PF_3	At this point in my life, it is easy for me to go after **name of venture**.	.721	.519		.827	.557		.323 **
PF_4	At this point in my life, I have no barriers preventing me from pursuing **name of venture**.	.540	.291		.611	.322		.214 *
	X^2 (df)	68.990 (19)			244.393 (20)			
	X^2/df	3.631			12.220			
Fit	X^2 difference (p-value)	**175.403 (<.001)**						
	CFI	.894			1.971			
	RMSEA	.146			.301			

Note: N = 125 evaluations of other team's ventures; VIA * = summated average score of all VIA items. For explanation of acronyms, see Table A15; AVE = Average Variance Extracted; CR = Composite reliability. Levels of statistical significance: * indicates p <.05; ** indicates p <.01.

Results: The .195 (p =.03) correlation translates into 3.8% of shared variance between the two concepts. In turn, AVE values of .559 and .598 indicate that on average, the constructs' items "capture" close to fifteen times the amount of unique variance than what the two constructs share among them (Voorhees et al., 2016).

Owing to the small sample size and two indicators that do not seem to perform as expected (VIA_4 and PF_4), the fit of the two-correlated-concept fails to meet the threshold values indicating acceptable fit. Nevertheless, comparing the two model formulations reveals statistically significant evidence (p <.001) that a single-concept solution (where all items load onto a single latent concept) has a much worse fit than the two-correlated-concept solution. Interestingly, the fifth results column shows that the VIA items' squared multiple correlations with the single concept are much lower than those for the PF items, suggesting that the VIA items share much lower levels of common variance with the single construct than the PF items. Moreover, the right-most column reveals that that the item-total correlations among the VIA items are much larger in magnitude than that between the PF items with a summated-average score of these VIA items.

All in all, these empirical result supports VIA's empirical separation and discriminant validity from the PF items.

Table A19.

Results of Study 6's CFA Model comparisons of VIA with Scheaf et al. (2020)'s complete instrument

Important Note to Readers:

Because of the small sample size for these analyses, we advise caution in drawing firm conclusion for these analyses. We await the Associate Editor's guidance regarding the suitability of publishing these results online.

	Construct correlations			**Four correlated concepts**			**Single concept**		
Items	VIA	GE	LE	*Factor loadings*	*Squared multiple correlations*	*AVE (CR)*	*Factor loadings*	*Squared multiple correlations*	*AVE (CR)*
VIA_1				1.000	.674	.552	.413	.170	.353
VIA_2				.987	.703	(.731)	.495	.262	(.776)
VIA_3				.832	.559		.390	.183	
VIA_4				.719	.273		.333	.087	
GE_1	.548			1.000	.761	.650	1.000	.742	
GE_2				.875	.624	(.878)	.880	.617	
GE_3				.935	.726		.941	.718	
GE_4				.863	.686		.864	.670	
GE_5				.845	.657		.845	.642	
GE_6				.754	.444		.759	.438	
LE_1	-.179	-.019		.473	.177	.445	-.302	.099	
LE_2				.615	.247	(.589)	-.336	.101	
LE_3				.949	.615		-.015	.000	
LE_4				1.000	.742		-.068	.005	
PF_1	.205	.720	-.100	1.000	.774	.605	.680	.378	
PF_2				.892	.737	(.788)	.636	.396	
PF_3				.833	.569		.764	.506	
PF_4				.926	.341		.600	.331	
Fit			X^2 (df)	296.957 (129)			623.976 (135)		
			X^2/df	2.302			4.622		
			X^2 difference (p)			**327.019 (p<.001)**			
			CFI	.869			.620		
			RMSEA	.102			.171		

Note: N = 125 evaluations of other team's ventures. For explanation of acronyms, see Table A15.

Results: As with prior analyses, VIA's AVE value of .552 is larger than VIA's shared variance with Scheaf et al.'s (2020) dimensions of GE, LE and PF (30.0%, 3.2% and 4.2% respectively), as implied by VIA's estimated correlations of with these dimensions.

Despite the small sample size for conducting such analyses, the fit of the four-correlated-concept solution meets the X^2/df<3 threshold, but the CFI and RMSEA values are slightly outside the values indicating acceptable fit. Nevertheless, and though we advise caution in drawing firm conclusion for these analyses, comparing the two model formulations reveals statistically significant evidence (p <.001) that a single-concept solution (where all items load onto a single latent concept) has a much worse fit than the four-correlated-concept solution.