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Behavioral disinhibition and nascent venturing: Relevance and initial effects on potential resource providers



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ABSTRACT

While relatively weak inhibition is often associated with unproductive behavior and pathologies, it may favor acting on entrepreneurial opportunities. Ultimately exploiting opportunities, however, goes well beyond individual action, requiring organizing/others. This raises the question of how others perceive and respond to disinhibition in an entrepreneurial agent. Triangulating from psychology and entrepreneurship literatures, behavioral disinhibition in an entrepreneur is hypothesized to have ambivalent, overall negative effects on potential resource providers. A randomized experiment tested the hypotheses. Results were significant, with moderate to large effect sizes. The findings suggest that behavioral proclivities facilitating individual entrepreneurial action may paradoxically undermine organizing. The work contributes to an emergent literature on ostensibly dark-side characteristics relevant to entrepreneurship, extends knowledge on entrepreneur behavior influencing potential resource providers, and highlights unresolved tensions relevant to opportunity pursuit (e.g., exploration/exploitation dilemmas).

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1. Executive summary

Entrepreneurship begins with an individual, requiring novel action under uncertainty and breaching behavioral bounds (e.g., established logic) (Baron, 2007; Gavetti, 2012; McMullen and Shepherd, 2006; Knight, 1921; Schumpeter, 1934). Yet entrepreneurs have almost exclusively been examined through the lens of relatively rational premeditated actors. Prior research has indeed made many contributions assuming that perspective (e.g., regarding heuristic decision making, high-optimism, differential goals, the rationality of effectual logic). Largely neglected however has been an alternative driver and underlying logic of entrepreneurial action, that of disinhibition (Lerner, 2010; Lerner and Fitza, 2012; Wiklund et al., 2014; Yu et al., 2016). Behavioral disinhibition is meaningful to entrepreneurship as it can bridge the chasm between uncertainty, established logic and the problem of what is logical *ex ante*, and individual action. Furthermore, considering entrepreneurial action as a possible consequence of disinhibition does not require implicit assumptions of premeditation—whether based on heuristics, intentioned goals, effectuation, or prospection. Interestingly, it also fits with popular suggestions of a positive link between behavioral disinhibition (e.g., hyperactivity, impulsivity, ADHD) and entrepreneurship (e.g., Archer, 2014; Tice, 2010).

This research introduces disinhibition in relation to entrepreneurship. It does not presume entrepreneurs are irrational or rational, nor that disinhibition is adaptive for entrepreneurship. On the contrary, it illuminates a paradox. While disinhibition may impel initiating entrepreneurial action, it often interferes with individual performance on activities requiring sustained attention to detail. Thus, in an entrepreneur, it compounds the importance of attracting supporting complementary others (and the risk of being one of myriad unsuccessful venturing attempts, apt to go empirically unobserved).

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Considering the need for any entrepreneur to organize support from others, this paper focuses on the hitherto unexamined effects of behavioral disinhibition on potential resource providers. Basic hypotheses are developed, non-specific to type of potential resource provider. Behavioral disinhibition by an entrepreneur is hypothesized to have ambivalent effects on third-party inferences about the entrepreneur (H1a/b), and adversely affect judgments about the likelihood of venture success (H2) and interest in supporting the venture (H3).

Results of a randomized experiment support the hypotheses. Behavioral disinhibition by an entrepreneur had highly significant, moderate to large effects (all GLM $p < .001$, $\eta_p^2 > .07$). Additional analyses considered potential effects of subject individual differences. Significant main and moderating effects were found for subject disinhibition. Respectively, those lower in disinhibition were less interested in supporting (joining) a venture, and entrepreneur disinhibition more adversely affected the interest of subjects lower in it. The findings suggest that fit with prototypical entrepreneurs notwithstanding, displaying behavioral disinhibition presents a friction in attracting support—especially with more complementary supporters.

The paper it adds to the entrepreneurship literature by expanding the collective understanding of individual factors significantly affecting potential resource providers. In relation to the organizational literature more generally, it offers disinhibition as a relevant construct and variable for future research (e.g., as a possible predictor of employee innovation behavior, of novel/frequent strategic initiatives, or of strategic coherence). Thus, while adding incremental knowledge, the contribution goes beyond a test of incumbent theory and variables. The work does not change a prevailing scientific view or offer a focused extension. Rather, its broad theoretical aperture and its basic hypotheses precisely tested with a randomized experiment, offer a novel basis for future research (e.g., on disinhibition as a logic driving entrepreneurial action, on social cognition, on obstacles to organizing/joint-production, on behavioral strategy). Besides adding to psychology literature focused on disinhibition, it foment an emerging literature on entrepreneurship, *dark-side* characteristics, and clinical psychology (e.g., Akhtar et al., 2013; Verheul et al., 2015; Wales et al., 2013; Wiklund et al., 2014).

Practically, the findings imply the following. Irrespective of its potential upside and fit with prototypical entrepreneurs, behavioral disinhibition by an entrepreneur adversely affects third-party inferences about the individual and venture—including interest in supporting. The work offers scientifically grounded insight and caution related to romanticized views on behavioral disinhibition and ADHD in entrepreneurship. Coupled with other research – on disinhibition, on its positive link with entrepreneurial intentions and behavior, on the nature of the entrepreneurial process – the findings suggest entrepreneurs would be wise to not romanticize but to down-regulate behavioral disinhibition when attempting to acquire support. Finally, the work suggests the opportunity and need for further research in relation to the effects of disinhibition in business venturing (e.g., according to stage, contextual, or configurational factors), and in relation to potential implications for entrepreneurship education and interventions.

2. Introduction

Without the occurrence of “action by individual entrepreneurs, there would simply be no entrepreneurship and no new ventures” (Baron, 2007: 167). There are however obstacles inhibiting entrepreneurial action. Initially, these largely relate to uncertainty and inertia. Uncertainty is inherent in the entrepreneurial opportunity itself (e.g., Knight, 1921; McMullen and Shepherd, 2006). This means entrepreneurial action requires an individual with relatively less concern for calculative expected value or logical prospection. Furthermore, there is also individual inertia and uncertainty in what to do. Entrepreneurship requires an individual to do something novel (McMullen and Shepherd, 2006), outside “accustomed channels,” “without those data for his decisions and those rules of conduct which are usually very accurately known to him”; “it is not only objectively more difficult to do something new than what is familiar and tested by experience, but the [typical] individual feels reluctance to do it” (Schumpeter, 1934: 84–86). Thus, some deviation from or disregard for conventional logic favors entrepreneurial action, with such serving to overcome the chasm of uncertainty and inertia. In essence, the would-be entrepreneur must be sufficiently uninhibited and act somewhat more on impulse than other economic agents.

Yet following individual action, an entrepreneur needs others to join the pursuit. Others' resources (e.g., human capital) are necessary for “the transformation of an [entrepreneur's] idea into an organization” (Aldrich and Martinez, 2001: 45). Thus, others represent potential resource providers, and business venturing requires others support the pursuit of uncertain opportunity (e.g., Parhankangas and Ehrlich, 2014; Zander, 2007; Zott and Huy, 2007). Accordingly, there are basic social psychological questions relevant to understanding nascent venturing. Among these are how characteristics and behaviors of a potential founder affect others' judgments (e.g., about the entrepreneur, about the likelihood of venture success, and about interest in supporting the venture). This is because potential resource providers' initial perceptions are a determinant of the occurrence (or non-occurrence) of more advanced evaluation and ultimate resource allocation/non-allocation (Clark, 2008; MacMillan et al., 1985; Maxwell et al., 2011).

While prior research has examined the effects of various entrepreneur characteristics and behaviors on the judgments of potential resource providers, the focus has largely been on ostensibly positive ones (e.g., human capital, passion, trust building actions). The fact that extant literature has yet to consider some particular characteristics is not necessarily a theoretical or practical problem. However, an unresolved tension exists in relation to ambivalent behavioral characteristics relevant to entrepreneurship. In particular, the behavioral proclivities adaptive for initiating action under uncertainty and challenging the status quo (i.e., relatively uninhibited impulse, cognition, and behavior) can also be counter-productive (e.g., Carver, 2005). In relation to venturing behavior and later venturing outcomes (e.g., firm formation, firm performance), the down-side such disinhibition stands to compound the importance and relevance of supporting others. Consequently, the social effects of such disinhibition are relevant to entrepreneurship theory and to understanding entrepreneurial behavior and organizing.

Following in the tradition of prior research examining the effects of particular entrepreneur characteristics (e.g., Baron et al., 2006; Matusik et al., 2008) and behaviors (e.g., Chen et al., 2009) on others, this work provides a focused examination of the

effects of behavioral disinhibition. Later discussed in detail, disinhibition is relevant to examine for various reasons including: its broad and ambivalent behavioral implications, its theoretical relevance to entrepreneurship, and recent empirical evidence of its positive connection to entrepreneurial intention and behavior (e.g., Lerner and Fitza, 2012; Rietdijk et al., 2015; Verheul et al., 2015; Wiklund et al., 2014; Yu et al., 2016).

This paper proceeds as follows. Potential resource providers' consideration of entrepreneurs is theoretically developed—first with a general focus on nascent venturing, and then specifically in relation to behavioral disinhibition. Thereafter, the research method, results, and conclusions are discussed in turn.

3. Potential resource providers and nascent entrepreneurs

To form an organization and exploit opportunities, entrepreneurial actors need others to support the pursuit—providing for example labor or financial capital (e.g., Zott and Huy, 2007). Potential resource providers are others who could provide resources to an aspiring founder. Resources are “input factors such as human capital (e.g., employees) ... needed to create organizations” (Zott and Huy, 2007: 70). This paper focuses in a general sense on potential resource providers (PRPs), rather than a particular type thereof.¹

In considering early stage entrepreneurs/ventures, there is limited if any objective substantive data for potential resource providers to assess; this is especially the case based on an initial contact (e.g., pitch) (Parhankangas and Ehrlich, 2014). Consequently, individuals' subjective impressions of an aspiring entrepreneur are relevant; they affect inferences about the entrepreneur's qualities, as well as inferences about the likelihood of venture success and potential interest in the venture (e.g., interest in evaluating it further and potentially supporting it with human or financial capital) (Maxwell et al., 2011). The issue is particularly acute prior to the existence of an organization—as there is not even a team to evaluate, much less a firm or business operations. Furthermore, the initial perceptions drawn determine whether an aspiring founder will even be given more serious consideration (e.g., Clark, 2008). Accordingly, the initial impression a would-be founder has on others is relevant to nascent organizing. In relation to entrepreneur characteristics affecting others' initial impressions, of particular importance are individually ambivalent characteristics relevant to venturing—especially those needing to be complimented.²

The next sections further elaborate the theoretical rationale in focusing on initial assessments and on entrepreneur factors affecting such. Thereafter, the *Behavioral Disinhibition and Hypotheses* section elaborates the ambivalent characteristic of disinhibition, followed by its likely effects in an entrepreneurial protagonist.

3.1. Potential resource providers: stages of consideration and types of factors considered

There are typically multiple stages of consideration before any definitive resource commitment—e.g., investors' prescreening, screening, and detailed evaluations (Clark, 2008; Maxwell et al., 2011). Such a filtering process is logical, given a potential resource provider's finite time, attention, and resources. Based on existing literature, the theoretical multistage consideration process is illustrated in Fig. 1. This paper focuses on the first stage—with the process shown taken as a premise for the broader theoretical discussion and contribution.³

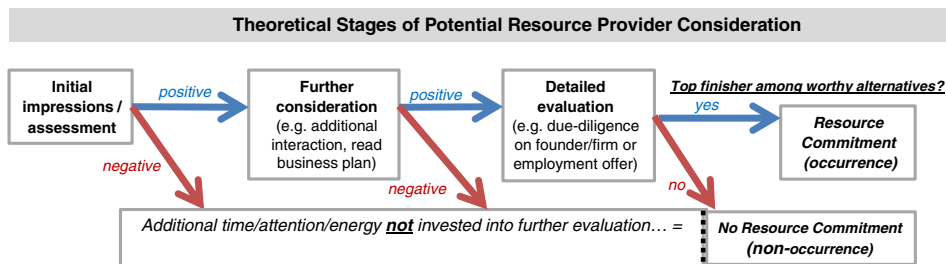


Fig. 1. Theoretical stages of resource provider consideration of nascent entrepreneurs/ventures.

¹ The general focus is motivated by a number of reasons. (1) Theoretically, and consistent with extensive social psychology research, the social psychological relationships developed seek generality and do not stand to differ according to type of PRPs. (2) Given the state of knowledge, the contribution is in developing and testing general parsimonious theory (vs. refining conditional theory, or deriving well-specified or generalizable parameter estimates). (3) The empirical research conducted was a randomized experiment, eliminating the possibility of omitted variable bias and endogenous confounds threatening generalization of the theory tested across PRPs. (4) Even if ignoring all the aforementioned and presuming differential reactions across different types of PRPs to entrepreneur disinhibition, the young sample used should make it more difficult to find the theorized negative relationships (i.e., stands to offer relatively conservative hypothesis testing, as more experienced human capital or professional investors could be expected to respond at least as negatively to entrepreneur disinhibition, versus show the opposite reaction favoring it).

² For example, unlike *physical attractiveness* (not positively linked to venturing, not theoretically relevant to venturing decision-making or follow-through) or being high in *human capital* or *locus of control* (not needing to be offset)—the ultimate adaptiveness of *behavioral disinhibition* in an entrepreneur is apt to depend on it being regulated and harnessed with supporting others.

³ While a positive first-stage assessment *does not* equate to ultimate *occurrence* (resource commitment), it is generally a necessary condition. Furthermore, with a negative first-stage assessment typically sieving further consideration, it *does* equate to *non-occurrence*. Thus, for the aspiring entrepreneur and the overall phenomenon, the initial perception is no less critical than later-stage perceptions (Clark, 2008; Maxwell et al., 2011). In relation to nascent venturing and resource acquisition, where *occurrences* (e.g., firm formation, acquiring human capital, VC financing) are less common and yet more readily observable than *non-occurrences*, understanding of factors influencing *non-occurrence* is of theoretical and practical concern (Dimov, 2010; Yang and Aldrich, 2012).

Prior research indicates various types of factors are relevant to potential resource providers (e.g., Grégoire et al., 2008; Maxwell et al., 2011; Shepherd, 1999). These can be broadly summarized as entrepreneur factors (e.g., observable or inferred aspects of the entrepreneur), characteristics of the nascent firm (e.g., the team, the business plan and strategy, organizational milestones), and factors related to the opportunity attractiveness.

In relation to nascent firm characteristics (and firm founders), the consideration thereof is only possible after there is a firm. That inherently excludes from consideration all those unsuccessful in firm formation. In relation to the opportunity, there is relatively extreme fuzziness and uncertainty at the pre-firm stage (Dimov, 2011; McMullen and Shepherd, 2006). Taken together, it suggests merit in research focusing on nascent entrepreneur factors.

Consistent with this, as recently summarized by Parhankangas and Ehrlich (2014: 543), existing literature on investment into start-up firms has “produced an impressive list of variables likely to affect business angels’ investment decisions (for a review, see MacMillan et al., 1985; Mason & Harrison, 2003; Maxwell et al., 2011; Sudek, 2007; Tyebjee & Bruno, 1984; Zacharakis & Meyer, 1998).” It has also been critiqued based on “the fact that [extant studies] give a disproportionate amount of their attention to ‘objective’ market- and product-related data, even though such information is rarely available at the time investors make their initial funding decision” (Parhankangas and Ehrlich, 2014: 543).

3.2. Nascent entrepreneur factors affecting potential resource providers

Existing literature indicates that various entrepreneur characteristics and behaviors affect potential resource providers’ judgments. These include relatively fixed entrepreneur characteristics like gender (Fay and Williams, 1993), physical attractiveness (Baron et al., 2006), and human capital (Bruns et al., 2008; Haines et al., 2003). They also include behavioral ones such as displays of preparedness (Chen et al., 2009) and use of visual symbols (Clarke, 2011). In terms of potential resource providers even investing time into further consideration of ventures, research indicates they make inferences about founders’ personal characteristics based on presentational aspects of a founder’s pitch (Clark, 2008; Grégoire et al., 2008). The literature also finds that those not judged favorably based on a brief pitch will not “[reach] even the traditional first screening stage of the investor decision-making process—the evaluation of their business plan” (Clark, 2008: 258). Furthermore, subjective social psychological judgments are used even when one could consider other less subjective information (e.g., resumes) (e.g., Clark, 2008).

In regards to entrepreneur factors potentially affecting resource providers, behavioral characteristics are of particular relevance. They are relatively more malleable and fit with calls for further inquiry into what the effects of differences in what entrepreneurs do. In addition to the aforementioned research, the literature has also indicated the relevance of other founder actions such as trust building behavior (Maxwell and Lévesque, 2014). Notwithstanding the importance of symbolic acts on potential resource providers, extant literature provides limited examination of more broad behavioral characteristics. To the extent a broad characteristic reflects an underlying behavioral disposition, it offers a psychologically grounded yet action oriented basis for the development of general theory. Also, a broad underlying behavioral characteristic may relate to multiple behaviors (e.g., improvisation, non-conforming, over-expressiveness), and thus could help integrate existing findings. We now focus specifically on one such characteristic.

3.3. Behavioral disinhibition and hypotheses

3.3.1. Disinhibition and reasons to examine it

Behavioral disinhibition refers broadly to unrestrained behavior, from cognitive and hedonic motivational origins (Carver and White, 1994; Nigg, 2000). It offers a behavioral lens, theoretically grounded and empirically validated in underlying cognition, motivation, and neuroscience (e.g., Carver and White, 1994; Nigg, 2000; Shackman et al., 2009). Behavioral disinhibition is commonly characterized by (hyper)activity, a proclivity to act on impulse, and attentional variation (see Appendix A for an extended review of the psychological literature). It is often pathologized, due to being maladaptive in structured contexts (e.g., the traditional classroom/work environment) and to norms favoring convergence and predictability. It can be understood as a prepotent reaction to being under-stimulated (Zentall and Zentall, 1983).

The broad characteristic of behavioral disinhibition is relevant to examine for a number of reasons. (1) It is behavioral in nature and allows examining the impact of differences in what entrepreneurial actors do. Also, representative of a dispositional individual difference, it affects behavior across contexts and time; yet its expression is malleable, subject to interventions and higher-order self-regulation (e.g., Vohs and Baumeister, 2011). (2) It presents a double-edged sword of relevance at the individual level. On the positive side, it facilitates creativity, exploration and initiating action under uncertainty; more ambiguously, it is associated with non-conformance and even disregard for existing norms/rules; on the negative side, it presents difficulties in self-organizing and self-regulation (Barkley, 1989; Barkley et al., 2008; Carver, 2005; Dickman, 1990; Hallowell and Ratey, 2011; Hartmann, 1997; Palladino, 2010; Weiss, 1997; White and Shah, 2006, 2011). Taken together, these suggest the particular importance of getting the support of others to help organize and follow-through. (3) It is of increasing interest in popular press (e.g., *The Economist*, 2012), and to entrepreneurship scholars (Dimic and Orlov, 2014; Hayek and Harvey, 2012; Verheul et al., 2015; Wiklund et al., 2014). (4) It fits with prototypical conceptions of entrepreneurs, and may be romanticized for entrepreneurship (Archer, 2014; Tice, 2010). (5) Given its connection to entrepreneurial intention and action with concurrent self-organizing challenges, its apt to have been missed in prior research based on a *truncation* problem—especially if adversely affecting potential resource providers (individuals failing to become founders are more likely, and often are entirely, excluded from observation) (Tornikoski and Newbert, 2007; Yang and Aldrich, 2012).

3.3.2. Disinhibition and entrepreneurial behavior

Disinhibition is theoretically relevant to entrepreneurship. Nascent entrepreneurship involves novelty, uncertainty, and action deviating from the status quo (McMullen and Shepherd, 2006). Would-be entrepreneurs must act more on impulse than other economic agents—as action unspecified by (or contrary to) existing rules/routines is necessary to proceed (Knight, 1921; Schumpeter, 1934). While an entrepreneurial pursuit or individual may be boundedly rational *ex post*, *ex ante* the individual cannot be inhibited by current frameworks or ways of doing things (the current logic/rational). Furthermore, opportunities are subject to exploitation by other agents; to the entrepreneur, “time is of the essence” with it “necessary to act swiftly” and “on the basis of what he or she thinks rather than objective information” (Zander, 2007: 1143–1146). Disinhibition should facilitate acting on opportunities—since hyperactivity, a proclivity to act more on impulse, and divergent attention facilitate novel perception and greater exploratory action (cf. Carson et al., 2003; Dew et al., 2008; Simon, 1981). Considering the adaptiveness of relatively unfettered even *quasi-random* action for scientific discovery (Fleming, 2007; Simonton, 2003), the relevance of such for entrepreneurship should be even greater, as a social phenomenon not subject to the immutable rules of the natural sciences (Sarasvathy, 2003).⁴

Empirically, popular press and emerging scholarly research offer indications of greater hyperactivity, impulsivity, and attentional variability in those with entrepreneurial intentions (Verheul et al., 2015), among those venturing while a student (Rietdijk et al., 2015), and in full-time entrepreneurs (Dimic and Orlov, 2014; Levander and Raccuia, 2001; Rietdijk et al., 2015; Tice, 2010). In a study of over 10,000 individuals, Verheul and colleagues (2015) find that such disinhibition predicts entrepreneurial intention and suggest the relative (better) fit with entrepreneurship than conventional employment. Qualitative research by Wiklund et al. (2014) “highlights impulsivity as a major driver of entrepreneurial action” and the potential adaptiveness of hyperactivity, impulsivity, and attentional variability (ADHD) for entrepreneurship. They find that to perceive and pursue opportunities “ADHD [behaviors] – despite their otherwise negative connotation – convey a different logic ... [befitting] entrepreneurial action” (Wiklund et al., 2014: 12).

In sum, theoretically and empirically disinhibition facilitates an individual initiating entrepreneurial action.⁵ Yet particularly in light of ambivalent intra-individual implications, what are its effects on others—i.e., on potential supporters?

3.3.3. Social effects of disinhibition in an entrepreneur

Scientific literature has yet to examine the inter-individual effects of behavioral disinhibition in an entrepreneur. Consequently, we draw on popular press, psychology literature, and entrepreneurship literature in hypothesizing its effects on observers.

4. Inferences about aspiring entrepreneurs

There is a growing number of cases of entrepreneurs so high in behavioral disinhibition as to report clinical ADHD. These include Richard Branson (of Virgin), Paul Orfalea (of Kinkos), and David Neeleman (of Jet Blue), to name a few (Branson, 2002; Hantula, 2006; Orfalea and Marsh, 2005; The Guardian, 2015; Wynbrandt, 2004).

Beyond high-profile cases, clinical levels of such disinhibition have been anecdotally suggested to be present in entrepreneurs and potentially even a plus. For example, as noted in The Economist (2012: 2), “Attention-deficit disorder (ADD) is another entrepreneur-friendly affliction.” In a Forbes piece entitled *ADHD: The Entrepreneur's Superpower*, Archer (2014) notes the upside of it for entrepreneurship. As Tice (2010) writes for Entrepreneur magazine:

Seasoned venture capitalist Jeffrey Bussgang of Flybridge Capital ... says, “There's a super-high correlation between ADD and entrepreneurs. I think it's because great entrepreneurs are impatient. When things are stable, they get bored. They're always looking to shake things up, because they need that stimulation and change.”

Atlanta-based professional interim chief financial officer Evan Rogoff, who's worked with dozens of startups through the years, chimes in, “Most entrepreneurs have ADD.”

While the representativeness of these and other popular suggestions remains a scientifically open question, regardless of the answer, the popular press provides prototypical conceptions of entrepreneurs (e.g., impatient, seeking stimulation and change, bored when stable, ADD). Such behavioral characteristics are also generally fitting with conceptions of creative individuals (e.g., Elsbach and Kramer, 2003; Feist, 1998). Prototype theory suggests that rather than a definitional model with necessary conditions (e.g., a bird is defined by having wings and feathers), some things are more representative of a category than others (e.g., a robin is a more prototypical bird than a penguin) (Rosch, 1975). Prototype theory makes no assumptions of whether those *perceived* to be more representative of a category are objectively so (e.g., in terms of representative numbers). The theory is also robust to whether a specific individual displaying / not-displaying prototypical characteristics is objectively a category member / non-member.

In relation to business venturing, the suggestion here is that individuals displaying the above type of behaviors fit more with prototypical creative entrepreneurial types than administrative managerial types. In other words, independent of how accurately

⁴ Action based on the pursuit of “‘interestingness’ or novelty” (rather than on more purposeful logic) may “provide the most suitable model of the social design process” (Simon, 1981: 162). Even if uncertainty is reduced and the environment not considered malleable, based on entrepreneurial agents inhabiting a multi-dimensional multi-peaked fitness landscape (Gavetti and Levinthal, 2000), a greater tempo in search and a reduced proclivity for conventional attention and action should facilitate perceiving and approaching distal less-competed peaks (Gavetti, 2012; Lerner and Crawford, 2015).

⁵ This does not imply that behavioral disinhibition or clinical ADHD is present in all entrepreneurial individuals, or that it is ultimately good (or bad) for entrepreneurship. For a deeper review of behavioral disinhibition and ADHD see Appendix A.

classifying a true population of entrepreneurs based on some objective definition, the aforementioned behavioral characteristics fit prototypical conceptions of entrepreneurial agents.

In terms of third-party evaluations of an entrepreneurial actor, behavioral disinhibition should positively align with creative types and negatively align with administrative types. Whereas suggestions of hyperactivity, impulsivity, and attentional variability would appear to fit with conceptions of more innovative, artistic, creative types (i.e., those who explore and *generate* new things), the same defining characteristics also seem contra-indicators of administrator types (i.e., those who structure and administer action) (cf. [Elsbach and Kramer, 2003](#)). Also, to the extent there is a closer mental association with *entrepreneurs* and creative visionaries (than for *managers* or *administrators*), behavioral disinhibition may facilitate perceiving an actor as more visionary than administrative (even when presenting the same opportunity), based on disinhibition seeming more consistent with entrepreneur prototypes.

Taken together, it would seem that behavioral disinhibition in an aspiring founder may positively affect third-parties' inferences about the individual's generative qualities, at the same time running contrary to inferences of more administrative qualities.⁶ We thus posit the following hypotheses:

Hypothesis 1. Behavioral disinhibition in an entrepreneur

- a. *positively affects others' beliefs of the entrepreneur's "generative" qualities: being creative, visionary, good at idea generation, and good at recognizing opportunities*
- b. *negatively affects others' beliefs of the entrepreneur's "administrative" qualities: being consistent, reliable, good at defining next steps, and good at implementing*

5. Venture-related beliefs: estimates of success likelihood and interest

The effect of behavioral disinhibition on others may not be limited to inferences about the entrepreneurial individual's qualities. It might also affect a third-party's assessment of whether a venture is likely to be successful and interest in supporting it.

Extant research indicates investors' considerations of ventures are affected by actual and inferred entrepreneur factors. For example, the human capital of the founder has been shown important, as have personality characteristics of the founder such as realism and a strong work ethic (e.g., [Fried & Hisrich, 1994](#); [Haines et al., 2003](#); [Mason & Stark, 2004](#)). Research by Chen and colleagues (2009) indicates that behavioral displays affect interest in potentially funding. They find that behavior leading to perceptions of founder preparedness is positively associated with interest in supporting financially, while displays/perceptions of emotive passion is not ([Chen et al., 2009](#)). Additional studies have found that investors and other stakeholders are influenced by behavioral symbols/actions implying legitimacy ([Clarke, 2011](#); [Zott and Huy, 2007](#)). Overall, extant literature suggests that potential resource providers are positively affected by entrepreneur behavior that would be expected in a corporate setting and established organizations—regulated expression, realism, preparation, and diligence.

This runs somewhat contrary to popular potentially romanticized views on disinhibition in entrepreneurship. Furthermore, it would seem to suggest behavioral disinhibition may in fact adversely affect third-parties' venture-related assessments/interest. In essence, behavioral disinhibition would seem to suggest relatively under-regulated action versus conventional prudence. A negative effect on third-party interest in supporting a venture (e.g., joining as an employee or investor) could also be posited based on prior psychology research. While not tested in relation to entrepreneurial actors or nascent venturing, the appearance or suggestion of behavioral disinhibition in an individual was found to reduce third-parties' liking of and interest to interact with the individual ([Canu et al., 2008](#); [Paulson et al., 2005](#)).

In sum, triangulating from existing entrepreneurship and psychology literature, it seems behavioral disinhibition by an entrepreneur may adversely affect others' inferences about the likelihood of venture success, and interest in supporting it (e.g., contributing one's human, social, or financial capital). Before further discussing why this may occur based on indirect effects, as simple main effects:

Hypothesis 2a. *Behavioral disinhibition in an entrepreneur undermines (reduces) others' judgments of the probability of venture success.*

Hypothesis 3a. *Behavioral disinhibition in an entrepreneur undermines (reduces) others' interest in supporting (e.g., joining) the opportunity pursuit/venture.*

Within the existing literature on nascent firm investment, a potential resource provider's consideration of founder characteristics or of venturing success likelihood is often left implicit. Appreciating there are many factors affecting a third-party's considerations, making explicit third-party inferences (about the entrepreneur and the likelihood of venturing success) allows a relevant parsing. For example, a potential resource provider may be relatively disinterested or averse to biotechnology ventures. Thus, a lack of interest may have nothing to do with beliefs about the entrepreneur or the perceived likelihood of venturing success.

Consequently, examining solely natural-setting interest or ultimate occurrences can interject endogeneity and omitted variable bias. In the field, "differences among opportunities are necessarily confounded with [entrepreneur] differences" ([Grégoire and Shepherd, 2012: 754](#)). Making explicit perceptions of entrepreneur qualities and estimates of venture success likelihood reduces such threats and adds clarity. It may also contribute to the development of general theory (on the effects of entrepreneur

⁶ This does not suggest that a particular entrepreneur cannot have both generative and administrative qualities.

behavior) since it facilitates non-conditional predictions and allows testing of possible mechanisms through which venture-related judgments are affected—i.e., via the effect on inferences about entrepreneur qualities.

In relation to behavioral disinhibition, indirect effects could be expected based on entrepreneur behavior affecting inferences about the entrepreneur's qualities – which affect the perceived probability of venturing success – which affect the interest in supporting. To the extent, administrative qualities are perceived as important for successfully exploiting an opportunity, presuming support for [Hypothesis 1b](#), behavioral disinhibition by an aspiring entrepreneur would undermine others' judgments related to the venture. Accordingly, we posit the following hypotheses:

Hypothesis 2b. The negative effect of entrepreneur disinhibition on others' judgments of venture success likelihood is indirect, mediated by inferences of the entrepreneur's (administrative) qualities.

Hypothesis 3b. The negative effect of entrepreneur disinhibition on others' interest in supporting a venture is indirect, mediated by inferences of venture success likelihood and of the entrepreneur's (administrative) qualities.

The general main effects and the indirect effects are shown below ([Figs. 2 and 3](#)).

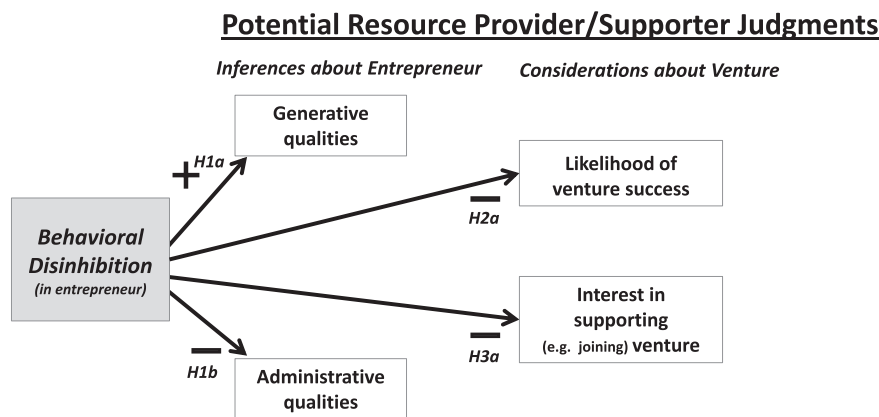


Fig. 2. Hypothesized main effects (only) model.

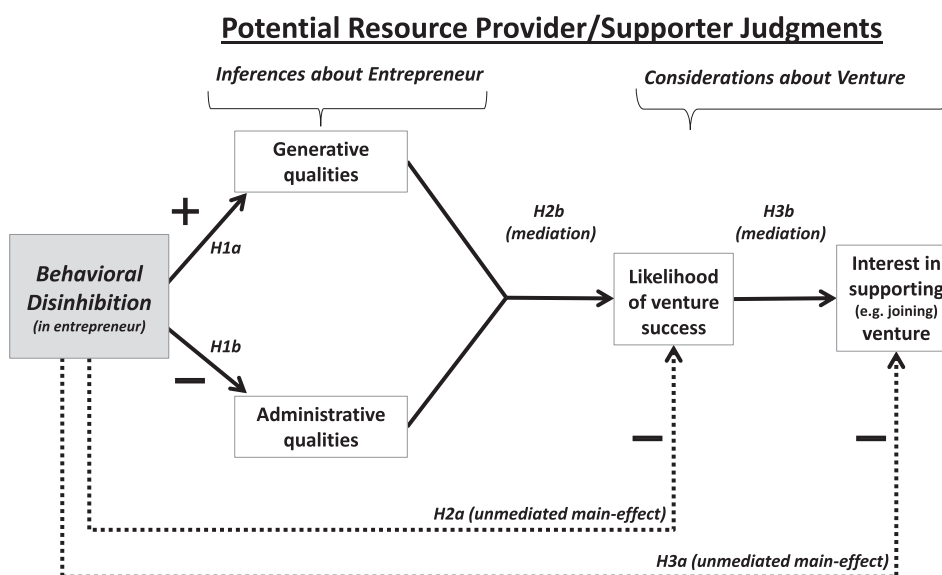


Fig. 3. Hypothesized indirect effects model.

6. Method

This section first discusses the research design, followed by the data collection and variables. Thereafter, the focal manipulation and then sample are elaborated.

6.1. Design

The hypotheses to be tested involve the effect of nascent entrepreneurs on typically unobservable judgments of potential resource providers. This raises a number of design issues. Research involving nascent stage phenomena such as venturing is particularly subject to winners' bias (e.g., [Hunt and Lerner, 2012](#); [Yang and Aldrich, 2012](#)) since it is the initially successful actors who primarily become and remain visible. For this particular research, given the possibility of behavioral disinhibition presenting an obstacle to attracting others and organizing, designs using actual founders would pre-select only the successful (those who have organized). Another design consideration was that cleanly capturing the effect of a broad behavioral characteristic on third-parties would be challenged in a field setting by endogeneity and omitted variable problems related to other differences in would-be founders, in their opportunities, and in third-parties. Conventional survey designs would be threatened by retrospective bias, and by common method if subjects were providing both the independent and dependent variables. Grounded designs would not be immune to the aforementioned, and hypothesis generation was possible based on extant literatures, as well as authors' industry experience and discussions with practitioners.

To overcome the various confounds and provide a precise causal test of the theorized effects, a randomized experiment was conducted. The design was a $2 \times 2 \times 2$ mixed factorial in which subjects evaluated two different aspiring entrepreneurs, with two associated opportunity pursuits, in two (counterbalanced) orders. This was modeled on prior entrepreneurship research using experimental designs where subjects evaluated two apparent entrepreneurs (e.g., [Baron et al., 2006](#); [Matusik, George, and Heeley, 2008](#)) and potential entrepreneurial pursuits (e.g., [Grégoire and Shepherd, 2012](#)). Given the relative novelty of the research, existing literature informed but could not offer applicable variable operationalizations. Thus, original research stimuli and data collection items were developed based on similar research. This facilitated precise alignment between empirical variables and theorized relationships/hypotheses.

6.2. Overview of research stimuli, experimental factors, and data collection

The experimentally controlled factors were 2 levels of entrepreneur disinhibition (within-subjects) \times 2 different entrepreneurial venture opportunities/ideas (within-subjects) \times 2 orders of presentation (between-subjects). The first factor was the independent variable of interest. The two levels of behavioral disinhibition are abbreviated as "+" and "−." The variable reflects the indication of behavioral disinhibition in the presenting entrepreneur, without presuming a clinical level or diagnosis of ADHD-type behavior in the + condition. This variable is discussed further in subsequent subsections and the Appendix.

The two other factors (*Opportunity* and *Order*) were prudent for proper experimental design. Two different opportunities were used for realism since it would be unrealistic that two different founders would present identical new venture ideas. The ideas presented were real based on commercialized products. One of the venture ideas was that used by Mueller and colleagues (2012) of a high-performance *running shoe* based on nanotechnology. The other was for a high-performance *jacket* using nanotechnology. The opportunity ideas were relatively similar to limit variance unrelated to the research hypotheses.⁷ The *Opportunity* was crossed (counterbalanced) with the focal independent variable, entrepreneur disinhibition. Following proper experimental protocol, *Order* of presentation was randomized and counterbalanced.

The experimental factors were presented as part of the research instrument. The instrument was organized as follows.

1. *Cover page*: an explanation and contextualization of the task.
2. *Study Stimuli 1 (Condition 1)*: the description of the first entrepreneur (randomized between the two disinhibition conditions), and the associated entrepreneurial idea/venture pursuit (randomized between the two opportunities).
3. *Data Collection Part 1*: questions where subjects considered the first entrepreneur, entrepreneurial pursuit/venture, and their interest in joining it.
4. *Study Stimuli 2 (Condition 2)*: the description of the second entrepreneur (counterbalanced), and the second associated (counterbalanced) entrepreneurial pursuit.
5. *Data Collection Part 2*: questions (similar to Condition 1) where subjects considered the second entrepreneur, entrepreneurial pursuit, and their interest in joining it.
6. *Data Collection Part 3*: questions where subjects estimated the likelihoods of venture success.
7. *Data Collection Part 4*: questions where subjects provided individual difference measures and other information.

⁷ Further details about the opportunity ideas are available from the author. They are not included here as potential opportunity effects were controlled by the design. Also, note that the argument being made and tested is not conditional on the ontology of opportunities or if re-conceptualized as *new venture ideas* ([Davidsson, 2015](#)).

6.3. Dependent variables

Following prior entrepreneurship research (e.g., [Baron et al., 2006](#); [Chen et al., 2009](#)), subjects considered the target individual and the associated entrepreneurial venture, including their interest in potentially supporting it.

6.3.1. Assessments of the aspiring entrepreneur

Based on [Baron et al. \(2006\)](#), and consistent with other entrepreneurship research (e.g., [Matusik et al., 2008](#)) and extensive social psychology research, subjects evaluated the potential founders with a number of items. Further specified in [Table 1](#), subjects indicated the extent to which they believed a number of general characteristics to describe the entrepreneur (e.g., “creative,” “reliable”). Subjects also indicated the extent they thought the entrepreneur was apt to be good at a number of activities (e.g., “recognizing entrepreneurial opportunities,” “implementing ideas all the way to a finished product”). Responses to items were summed into their corresponding variable (i.e., *generative* and *administrative* qualities), supported by *Cronbach* alpha estimates and factor analysis ([Table 1](#)).

6.3.2. Assessments of venture success likelihood

Hypothesis 2 posited that behavioral disinhibition in a potential founder affected others' perceptions of the likelihood of venture success. Accordingly, subjects estimated the *likelihood success* (0%–100%) for each of the ventures. A particular subject reported their estimated likelihood of success for the venture with the +disinhibition entrepreneur, and for the venture with the –disinhibition entrepreneur. Thus, the variable is necessarily subjective.

This might raise the question of individual differences affecting a subject's estimation. Based on the general hypotheses and randomized experimental design, any between-subject variance is not a problem. For example, individual differences in beliefs about nascent venturing (e.g., assumptions of overall mortality rates) or in what it means to be successful would not confound hypothesis testing. Rather, the design eliminates the threat of omitted variable bias, offering hypothesis testing across individual differences ([Colquitt, 2008](#)). The variable is not suggested to accurately predict or represent an ex post venturing outcome. Simply, the variable represents an individual's initial subjective belief, befitting hypothesis testing (H2a/b and H3b).

6.3.3. Interest in potentially supporting (joining) the entrepreneurial venture/pursuit

Hypothesis 3 suggested that behavioral disinhibition in an entrepreneur affects individuals' interest in potentially supporting the venture. To assess this, subjects indicated their relative interest in potentially joining each of the ventures as an employee or intern. Subjects provided three judgments, two using Likert scales, and a third indicating their interest as the likelihood of accepting a specified offer to join each of the ventures. Consistent with the reality of employment with startups, the offer indicated a salary below peer average + stock-options.

Like with the other dependent variables, heterogeneity in subject differences does not present an issue. Across subjects, sizable baseline differences in interest in joining any entrepreneurial venture would not be surprising. Similarly, other factors (e.g., the opportunity) potentially influencing an individual's interest in joining a venture do not present confounds. For this variable, the randomized within-subject design allows a straightforward and perfectly controlled examination of the hypothesized effect on initial interest in supporting.

[Table 1](#) summarizes the variables collected and associated items.

Table 1

Summary of dependent variable operationalizations.*

Variable	Summary of items (on 5-point Likert-type scales except when noted)
Inferences of generative qualities	The extent to which the would-be founder is believed to be (1) creative, (2) visionary, (3) good at generating ideas, and (4) good at recognizing opportunities. $\alpha = .73$.
Inferences of administrative qualities	The extent to which the would-be founder is believed to be (1) consistent, (2) reliable, (3) good at defining next steps, and (4) good at implementing. $\alpha = .78$.
Perceived likelihood of venture success	Estimated likelihood of venture success (0–100%).
Interest in supporting (joining) venture	Three items on the subject's interest in potentially joining the venture. (1) As interest/likelihood of accepting an offer to join the venture (0–100%), and Likert-scale interest in joining the venture as (2) an employee and (3) an intern. $\alpha = .82$

* Results of PCA factor analyses support the multi-item variables with both Promax and Varimax rotation. Individual items loaded to corresponding factors (loadings $\geq .7$).

6.4. Subject individual difference variables

A number of additional measures, beyond the scope of the immediate research hypotheses, were also collected. After completing the data collections composing the $2 \times 2 \times 2$ design, subjects provided individual differences. In particular, subjects completed measures of Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience (the Big 5) ([Goldberg, 1992](#)), uncertainty aversion ([Buhr and Dugas, 2002](#)), and disinhibition ([Kessler et al., 2007](#)). Used extensively in prior research, items respectively include “I feel comfortable around people,” “I sympathize with others' feelings,” “I am exacting

in my work,” “I get stressed out easily,” “I have a vivid imagination,” “Uncertainty makes me uneasy, anxious, or stressed,” and “[How often do you] feel overly active and compelled to do things, like you were driven by a motor?” Given the randomized design, these or other potentially moderating factors do not effect hypothesis testing or threaten spurious results. Simply, these variables were collected and available for supplemental analyses later described.

6.4.1. Procedure, manipulation, and sample

The research stimuli were provided to subjects in a written format. This was consistent with past entrepreneurship and other research where subjects are presented written descriptions for evaluating and making judgments, in the controlled research setting (e.g., [Baron et al., 2006](#); [Grégoire and Shepherd, 2012](#); [Kahneman and Tversky, 1979](#); [Matusik et al., 2008](#); [Shepherd, 1999](#)). It is also consistent with extensive research involving *thin slices* of relatively mundane information including behavior, from which subjects indeed draw conclusions (see [Ambady and Rosenthal, 1992](#)).⁸

For realism, the descriptions of the potential founders were crafted to present the information composing the disinhibition manipulation interspersed with other details (e.g., college degree, industry work experience, gender, approximate age, speaking ability)—as might be ascertained from a brief pitch event or similar situation. The indicators of disinhibition were based on existing literature and innocuous behavioral descriptions of the potential founder. Further details, discussion, and the specific stimuli used are provided as Appendix B.

The research stimuli, design, and instrument were tested before beginning the data collection. The testing ensured relatively balanced and reasonable descriptions, as well as the equivalence of the non-disinhibition descriptors necessary for realism and an initial holistic impression of the aspiring founders. The testing also confirmed the randomization and counterbalancing logics were properly specified in the electronic Qualtrics instrument subjects received.

The general target population was individuals who could be early stage potential resource providers to a would-be founder—say, facilitating the transition from a solo pursuit. Broadly, this includes any adult who might join the entrepreneurial pursuit, providing supporting labor/human capital for example. University students, particularly business students, sample part of this broad population. Such a sample represents to would-be founders an easily accessible, inexpensive, business-educated part of the total pool of potential start-up labor/followers.⁹ In line with this, as indicated by [Ouimet and Zarutskie \(2011: 1\)](#), “Young employees are an important ingredient in the creation [of] firms [and are] relatively more valuable in young, high growth, firms. [Also,] young firms disproportionately hire young employees.” The sample was composed of 147 upper-level business students enrolled in a large marketing course required for all business majors. Given the design and general theorized relationships, the sample is also in line with [Colquitt's \(2008: 616\)](#) suggestion of laboratory research “defined as studies involving undergraduate participants that occur in an environment [developed] for research purposes.” Finally, the sample stands to offer conservative hypothesis testing to the extent more experienced business professionals would react at least as negatively to disinhibition.¹⁰

Consistent with other experimental research: the study underwent and received university (IRB) approval, the sample was obtained from an established business school subject pool, and subjects were not paid or graded based on their participation/responses. Subjects had no incentive to respond one way or another and simply received one research participation credit for completing the research instrument. Additionally, the researcher did not have direct personal contact with or supervisory authority over the subjects. The sample was 66% male, with a mean age of 21. The majority were Juniors, with the remainder Seniors and Sophomores. The usable sample was 134, after dropping 13 cases indicative of careless responding ([Meade and Craig, 2012](#)). The context provided to sample explained that the exercise and their responses were important for understanding the entrepreneurs and ventures of actual interest to them. The instructions underscored there were no correct/incorrect answers.

Before moving on to the results, we remind that experiments test theorized relationships between variables. Their purpose is to precisely test *theoretical* relationships, which does not require a natural setting or embodying all the properties of the natural world objects of interest ([Zelditch, 1969](#)). In terms generalization, i.e., the subsequent application of the tested relationships to the natural world, the experiment was designed based on “knowledge about the domain of application” ([Zelditch, 1969: 539](#)) as is later discussed. Finally, the sample used is not suggested to proxy a different group (e.g., experienced business professionals or entrepreneurs). The sample represents itself—business-educated, relatively inexpensive, and accessible potential labor, who were or were soon to be seeking work opportunities.

⁸ Meta-analyses on the accuracy of thin-slice judgments indicate: (1) similar effect sizes based whether the information channel is written descriptions (*meta-analytic* $r = .29$) or face, body and speech ($r = .28$); (2) the *thinness* of the slice is of little concern (e.g., 30 seconds vs. 5-minutes of information); (3) that overall, effects are notable in both laboratory ($r = .32$) and field settings ($r = .47$) ([Ambady and Rosenthal, 1992](#)).

⁹ Unlike most employees, business students are or will soon be seeking employment opportunities. Also, students are typically the first recruits of would-be founders who start entrepreneurial pursuits while at university themselves. In comparison to older unemployed business-educated individuals, business students represent more mobile and flexible labor (e.g., more able to relocate, work extreme hours, and accept lower and less certain pay than once having a family/mortgage).

¹⁰ Note: an adjusted version of the experiment was also run on a small sample of mid to senior-level professionals/executives—with such individuals indeed showing negative responses to behavioral disinhibition (see Exhibit). Similarly, conducted at a large university in the United States, the primary sample stands to offer a conservative test relative to other national/cultural contexts less accepting of *unfettered* behavior in a vocational sphere.

7. Results

Paired *t*-tests and general linear modeling were used to test for main effects. This approach was selected since simple *between conditions* comparisons offer straightforward precise tests—given the randomized design (Colquitt, 2008).¹¹ After establishing main effects, additional analyses test for observer and indirect effects.

7.1. Experimental factors: manipulation check, opportunity, and order

It was important to check the experimentally controlled factors. Specifically, it was necessary to test that the behavioral descriptions were effective in establishing the focal independent variable (entrepreneurs differing in disinhibition). Also, it was prudent to check for potential *opportunity* or *order* effects, though beyond the scope of the six research hypotheses.

The manipulation of disinhibition was based on hyperactivity, impulsivity, and attentional variability embedded throughout the behavioral descriptions of the entrepreneurs (elaborated in detail in Appendix B). A manipulation check confirmed the stimuli yielded the two disinhibition conditions. Specifically, the entrepreneur of the + condition (*Andrew*) was seen as significantly higher in disinhibition overall and in each of the three behavioral components individually. In other words, *Andrew* was indeed observed to be significantly higher in the circumscribed behavioral disinhibition (paired *t*-test means: $1.1 > -0.5$, $t_{1,133} = 21.4$, $p < .001$; repeated-measures GLM: $F_{1,133} = 458.55$, $p < .001$). This supports the subsequently reported disinhibition conditions. Concurrently, based on the -2 to 2 scoring scale, the values (-0.5 vs. 1.1) show that the stimuli were not extreme characterizations at each pole. The check also indicates that the entrepreneurs subjects saw were not merely different in apparent decision-making styles—as subjects saw significant differences in all three disinhibition components (all $p < .001$).

In addition to the quantitative manipulation check, the stimuli were also qualitatively assessed. This was done by examining open-ended responses on what subjects' perceived as the entrepreneurs' *relevant strengths* and *relevant weaknesses*. The primary purpose was to assess balance in the portrayals—no entrepreneur is perfect and both potential founders presented trade-offs. Responses were consistent with relatively balanced descriptions. For example, perceived weaknesses of *Thomas*, the $-$ disinhibition entrepreneur, often involved concerns about speed, energy, and risk aversion.¹² This supports that subjects' perceived inherent trade-offs as would be expected with any founder, and that *Thomas* was not necessarily better. The open-ended responses also suggested the stimuli yielded the $+/-$ disinhibition conditions.

In relation to the other experimental factors, there were no confounding effects. This does not broadly imply that the opportunity idea is not (also) a factor potentially influencing judgments. Here, it simply means that not only did the design eliminate endogeneity between the entrepreneur and opportunity (inherent to non-experimental methods) but also that the (exogenous) opportunity ideas were sufficiently interchangeable so as to not complicate the hypothesis testing with an interacting factor. Accordingly, the study allows straightforward tests of the general hypothesized relationships, not conditional on the opportunity.

7.2. Variable means and standard deviations

All Likert-type items were on five-point scales, scored from -2 to 2 . The variable means according to behavioral disinhibition level ($+/-$ condition) are shown in Table 2. For convenience, the table lists the hypothesis number associated with the particular statistics.

7.3. Main effect hypothesis tests (H1a, H1b, H2a, H3a)

7.3.1. Inferences about the entrepreneur

The results indicate that behavioral disinhibition by an entrepreneurial agent led to inferences about the entrepreneur being significantly higher in generative qualities. In other words, the more disinhibited individual was believed to possess greater generative qualities ($t_{1,133} = 7.26^{***}$). This supports Hypothesis 1a.

The results also indicate that behavioral disinhibition adversely affected perceptions of an aspiring entrepreneur's administrative qualities. The more disinhibited entrepreneur was believed to be significantly lower in administrative qualities ($t_{1,133} = -14.99^{***}$), supporting Hypothesis 1b.

7.3.2. Evaluations of venture success likelihood and interest in joining pursuit/venture

In terms of a subject's assessment of venturing success likelihood, the results show following. The perceived likelihood of venture success was indeed significantly lower with an entrepreneur displaying behavioral disinhibition. Based on the randomized within-subject design, we observe *ceteris paribus* that the venture with the disinhibited entrepreneur was estimated to be 11.5% less likely to succeed [(58.3%–51.6%)/58.3%] ($t_{1,133} = -3.42^{***}$). This supports Hypothesis 2a. It does not imply that such ventures have a similar objectively lower likelihood of success, or that entrepreneur disinhibition is the only factor affecting

¹¹ With random assignment, "although there are still unmeasured variables, there is no longer an unmeasured variables problem (James, 1980)" (Colquitt, 2008: 616). Thus "randomization deals with the endogeneity problem that is so pervasive in management and entrepreneurship research (Antonakis et al., 2010)" (Frese et al., 2012: 36).

¹² Specific responses included "might move too slowly," "might not be 'fast' enough," "unable to act quickly and make fast decisions," "might not move quickly enough for entrepreneurial world," "might be too risk averse," "not a lot of energy/excitement, boring," and "lack of passion, energy."

Table 2Variable means, standard deviations, and *t*-tests.

Paired means (by disinhibition condition +/–)		Means		SDs		<i>t</i> -statistic
		(+)	(–)	(+)	(–)	
H1a	Generative qualities	1.19	0.73	0.540	0.674	7.26***
H1b	Administrative qualities	–0.07	1.11	0.695	0.617	–14.99***
H2a	Estimated likelihood of venture success	51.60%	58.28%	22.342	22.277	–3.42***
H3a	Interest to join venture/pursuit					
	As likelihood of accepting offer	36.38%	42.07%	23.637	23.763	–3.23***
	As joining as employee (Likert)	–0.04	0.27	1.259	1.287	–2.48*
	As joining as intern (Likert)	0.19	0.44	1.377	1.210	–2.41*

N = 134.* *p*-value significant at 0.05, two-tailed.*** *p*-value significant at 0.001, two-tailed.

the subjective judgments. Simply, these results indicate that behavioral disinhibition in an entrepreneur significantly undermines an individual's belief in the likelihood of venturing success—across individual differences, including in what is considered success.

Hypothesis 3a posited that behavioral disinhibition in an entrepreneur undermines others' interest in potentially supporting (joining) the entrepreneurial pursuit. This was empirically examined by *comparing* a subject's potential interest in offers to join the two entrepreneurial pursuits (from 0% to 100%). This was also tested by comparing a subject's interest of joining the two different ventures as an employee and as an intern on Likert scales. All three *t*-tests indicated disinhibition by an entrepreneur significantly undermined interest in potentially joining. Subjects were 13.5% less interested in the offer to join the venture of the disinhibited entrepreneur [(42.1%–36.4%)/42.1%] ($t_{1,133} = -3.23^{***}$). A subject's interest in joining as an employee or as an intern based on the Likert responses was also significantly lower with the disinhibited entrepreneur (respectively, $t_{1,133} = -2.48^*$, $t_{1,133} = -2.41^*$).

7.3.3. Tests of disinhibition effects with repeated-measures GLM

To test the robustness of the above results, and to provide an assessment of effect sizes accounting for repeated-measures, general linear modeling was conducted.

As **Table 3** shows, the GLM results replicate the results of the paired *t*-tests, indicating similar and highly significant effects (all *p*-statistics < .001). Additionally, the main effects are *moderate* to *large*, using a heuristic for gauging η_p^2 effect sizes of small = 0.01, medium = 0.06, and large > 0.14. The large effect of behavioral disinhibition on inferences of both generative and administrative qualities provides strong support for the hypotheses. It is fitting with a controlled setting where there is a strong and direct linkage. While the effect on generative qualities can be considered large, the effect on administrative qualities was even larger.

The relatively larger effects on the *inferences about the target entrepreneur's qualities* compared to *judgments about the likelihood of venture success* and of *interest in joining the venture* supports overall validity and is consistent with indirect effects (later discussed). It suggests that a difference observable in thin-slice behavioral information about a target, most strongly affect inferences about the target's qualities, with a lesser but still significant effect on judgments involving a target's venture.

7.4. Observer (subject) individual differences: potential effects and moderation

In terms of individual differences in observers, the randomized design eliminated the threat posed by subject individual differences and facilitates generalization across types of individuals (Colquitt, 2008). Nonetheless, additional analyses tested the role of subject differences. For example, does an individual's openness to experience significantly affect interest in supporting/joining

Table 3

Results of general linear modeling (GLM) repeated-measures analyses.

	Dependent variable	Type III sum of squares	df	Mean square	<i>F</i>	Significance (<i>p</i>)	Partial eta squared (η_p^2)
Independent variable (entrepreneur disinhibition)	Generative qualities	27.50	1	27.50	52.75	<.001	.284
	Administrative qualities	185.71	1	185.71	224.73	<.001	.628
	Estimated likelihood of venture success	5964.45	1	5964.45	11.68	.001	.081
	Interest in joining venture	4344.54	1	4344.54	10.53	.001	.073
Error	Generative qualities	69.33	133	0.52			
	Administrative qualities	109.91	133	0.83			
	Estimated likelihood of venture success	67923.55	133	510.70			
	Interest in joining venture	54888.46	133	412.70			

N = 134. Entrepreneur behavioral disinhibition specified as within-subject independent variable.

either venture, or specifically that of the +disinhibition entrepreneur? Beyond the scope of the general theorized relationships, the supplemental analyses offer a basis for further understanding the relevance of behavioral disinhibition.

Multiple regression and mixed-model analyses found no significant direct or moderating effects of subject openness to experience, extraversion, agreeableness, emotional stability, conscientiousness, or uncertainty aversion. These factors did not significantly affect an individual's interest in joining either venture, or significantly moderate the effect of entrepreneur disinhibition (all $p > .1$).

However, a significant effect for subject disinhibition was found. In particular, subjects scoring lower in disinhibition were significantly less interested in joining overall (fixed-effects main effect: $t_{1,126} = -2.07, p = .04$).¹³ Also, subject disinhibition appeared to moderate the effect of entrepreneur disinhibition, such that the negative effect of entrepreneur disinhibition was even larger in individuals who are lower in disinhibition (fixed-effects interaction: $t_{1,132} = -2.00, p = .048$, entrepreneur disinhibition remaining significant at $p < .01$).

These results provide additional support for inquiry into disinhibition. Both entrepreneur disinhibition and subject disinhibition were significant predictors of individuals' interest in supporting a venture. Additionally, both entrepreneur and subject disinhibition mattered *more than* other subject factors such as uncertainty aversion, openness to experience, extraversion, and other differences. Finally, behavioral disinhibition in an entrepreneur more adversely affected the interest of seemingly more complimentary others (those lower in disinhibition).

7.5. Indirect effects

We now test for indirect effects as posited in [Hypothesis 2b](#) and [Hypothesis 3b](#). The following model was specified in SPSS AMOS, encompassing the possible effects ([Fig. 4](#)).

Path analysis results are consistent with H2b and H3b. Specifically, the effect of entrepreneur disinhibition on estimates of venture success likelihood and on interest in joining is indirect, mediated by the direct effect on beliefs about the entrepreneur's administrative qualities (as well as generative qualities). The regression weights of [Table 4](#) show the appropriate valence and significance of the hypothesized relationships ([Fig. 3](#)). Similarly, [Table 5](#) shows the estimated direct versus indirect effects, consistent with [Table 4](#) and the hypotheses.

Mixed-model analyses were also consistent with indirect effects ([Table 6](#)). Hierarchical linear models were run, allowing within-subject random effects. Results are shown below.

The significant positive regression weights ([Table 4](#)), effects ([Table 5](#)), and coefficients ([Table 6](#)) for administrative qualities as well as generative qualities, suggest both are positively connected to expectations of venture success and interest in joining. Considering this, with the previously reported indirect and main effects of disinhibition ([Tables 5 and 3](#), respectively), the results suggest the following. The mechanism through which entrepreneur disinhibition undermines an individual's expectations of venture success and their interest in joining, is via its large negative effect on beliefs about administrative qualities. That large negative effect more than offsets the potentially counterbalancing positive effect related to generative qualities.

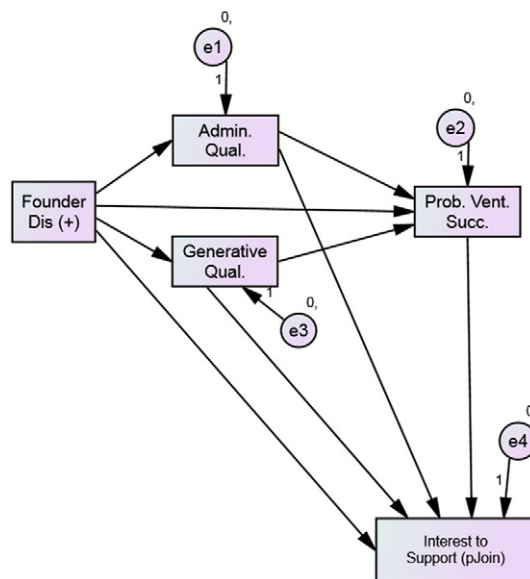


Fig. 4. Potential direct and indirect effects model in AMOS.

¹³ Statistics based on modeling with the aforementioned subject variables. Results were similar ($p < .01$) when run without the additional subject variables.

Table 4
AMOS path analysis results—regression weights.

Regression path			Estimate	SE	CR	p
Administrative qualities	←	Founder disinhibition (+)	−1.177	.080	−14.700	<.001
Generative qualities	←	Founder disinhibition (+)	.453	.074	6.092	<.001
Estimated probability of venture success	←	Generative qualities	10.361	2.035	5.090	<.001
Estimated probability of venture success	←	Administrative qualities	9.281	1.891	4.907	<.001
Estimated probability of venture success	←	Founder disinhibition (+)	−.443	3.455	−.128	.898
Interest join	←	Probability of venture success	.343	.064	5.380	<.001
Interest join	←	Founder disinhibition (+)	−.663	3.601	−.184	.854
Interest join	←	Administrative qualities	4.588	2.058	2.229	.026
Interest join	←	Generative qualities	5.866	2.222	2.640	.008

N = 134. Results similar with bootstrapping (2000 samples).

Table 5
AMOS results—direct and indirect effects [indirect shown in brackets].

	Founder disinhibition (+)	Generative qualities	Administrative qualities	Estimated probability of venture success
Generative qualities	0.453			
Administrative qualities	−1.177			
Estimated probability of venture success	−0.443 [−6.228]	10.361	9.281	
Interest in joining	−0.663 [−5.031]	5.866 [3.556]	4.588 [3.185]	0.343

N = 134. Results similar with bootstrapping (2000 samples).

Table 6
Mixed-model analysis results with nested variables.

	Model1	2	3
Variable (parameter)	B coefficients		
Intercept	42.474***	14.369***	10.436**
Generative qualities	9.499***		5.054**
Administrative qualities	7.991***		3.904**
Estimated probability of venture success		0.475***	0.405***
Founder disinhibition (+)	−1.571 ^{n.s.}	−2.522 [†]	−0.686 ^{n.s.}
Dependent variable	Estimated probability of venture success	Interest in joining	Interest in joining

All tests two-tailed. N = 134 subjects. Estimation with restricted maximum likelihood; results equivalent with maximum likelihood. Results similar when modeling with robust standard errors.

** Significant at 0.01.

*** Significant at 0.001.

In sum, the results suggest behavioral disinhibition in an entrepreneur adversely affects an individual's interest in supporting a venture and assessments of the likelihood of venture success. Furthermore, it illuminates *why*—via considerably undermining inferences about the entrepreneur's administrative qualities.

8. Discussion and conclusions

Entrepreneurs, like most other groups, are not presumed to be a homogeneous in nature. Any individual possess myriad characteristics. The relevance and adaptiveness of any characteristic depends on the activity in question. In relation to entrepreneurship, behavioral disinhibition presents something of a dilemma. At the *individual level*, it reasons and appears to facilitate (initiating) entrepreneurial action, yet it also stands to interfere with attention to mundane detail and focused exploitation. Thus, the inter-individual effects of disinhibition are relevant to venturing, especially compared to unambivalent entrepreneur characteristics (e.g., human capital) or others that do not affect entrepreneur behavior (e.g., physical attractiveness).

Following prior work examining the effect of other entrepreneur characteristics and behaviors (e.g., [Baron et al., 2006](#); [Chen et al., 2009](#); [Matusik et al., 2008](#)), this research focused on behavioral disinhibition—something known in psychology and common to varying degrees across individuals. Disinhibition was found to have an overall adverse effect on potential resource provider considerations.

This adds to the entrepreneurship literature by expanding the collective understanding of individual factors significantly affecting potential resource providers. Also in relation to entrepreneurship and other organizational literature, the work introduces disinhibition as a theoretical lens or empirical variable for future research. Thus, while adding incremental knowledge, it goes beyond

a test of incumbent theory and variables. The work does not change a prevailing scientific view or offer a fine-grained extension. Rather, its broad theoretical aperture offers a novel basis for future research and theory development (e.g., on social cognition and obstacles to organizing/joint-production central to opportunity pursuit).

Another contribution is that the research conducted is among the first scholarly examinations of behavioral disinhibition in relation to entrepreneurship—the first testing its social effects. Besides adding knowledge to psychological literature focused on disinhibition, it provides scientifically grounded insight relevant to a seemingly romanticized view common in the popular press. Furthermore, it responds to [Verheul et al.'s \(2015\)](#) call for research examining its impact post entrepreneurial intentions. More generally, it adds to an emerging literature on entrepreneurship, *dark-side* characteristics, and clinical psychology (e.g., [Akhtar et al., 2013](#); [Dimic and Orlov, 2014](#); [Hmieleski and Lerner, 2015](#); [Verheul et al., 2015](#); [Wales, et al., 2013](#); [Wiklund, et al., 2014](#)).

In connection with [Verheul et al. \(2015\)](#), other recent findings (e.g., [Lerner and Verheul, 2016](#); [Yu et al., 2016](#)), and intra-individual implications of behavioral disinhibition established in psychology, the findings imply an asymmetry and potential paradox. Consistent with popular press and celebrity cases, behavioral disinhibition by an aspiring entrepreneur led to inferences of the individual being more creative, more visionary, and better at recognizing opportunities. However, these positive effects were materially eclipsed by the adverse effect of behavioral disinhibition on beliefs of the individual's administrative qualities—undermining perceptions of whether a venture is likely to be successful and of interest in potentially supporting it. Furthermore, entrepreneur disinhibition most adversely affected the supporting interest of seemingly complementary others, those lower in it. The findings thus suggest that fit with prototypical entrepreneurs notwithstanding, displaying behavioral disinhibition is apt to be counter-productive in attracting support. Yet considering the potential person-fit with entrepreneurship (e.g., [The Guardian, 2015](#); [Verheul et al., 2015](#)) and the countervailing self-organizing challenges disinhibition can present ([Barkley, 1997](#); [Carver, 2005](#)), it would be particularly important that those higher in it attract complementary individuals (e.g., executive assistants and other labor to help enact the vision and follow-through on details). Thus, that which may facilitate initiating entrepreneurial action may paradoxically hamper organizing.

The notion that a disposition or person suited to start a venture may not be the best to mature and manage a firm is not new. Firm founders are often *transitioned* in favor of professional managers ([Wasserman, 2003](#)). In relation to behavioral disinhibition, part of the motivation for the research was the question as to whether disinhibition is apt to interfere with reaching the point where an aspiring founder *could* transition (e.g., to new pursuits). Specifically, understanding that those (persons and characteristics) better suited for perceiving and initially acting on opportunities may be less suited for more mundane and conforming tasks of organizing—does disinhibition interfere with getting others involved (*so as* to reach a point where the aspiring founder can be complimented or move-on)? While requiring (and an opportunity for) future research, the findings are consistent with this; behavioral disinhibition adversely affects observers' initial inferences and supporting interest, and thus stands to present an obstacle in attracting others, necessary for organizing and reaching a point where the initiator can move-on.

In terms of the research conducted, the results go beyond testing the theory that even relatively young potential supporters/followers favor seemingly more managerial types. Based on the research design, the *only* difference between the two aspiring founders were the carefully specified differences reflecting the three facets of behavioral disinhibition. In addition to face validity, a manipulation check confirmed subjects picked up the three facets of Andrew versus Thomas (hyperactivity, attentional variability, quick decision making somewhat on impulse). Otherwise, both Andrew and Thomas were equivalent (e.g., knowledgeable, self-confident, of similar age, educational attainment, gender, and prior industry experience). Furthermore, they were both presented *as entrepreneurs*, and neither was suggested to be a manager. Thus, to the extent Thomas was perceived to be a manager, it reflects the perceiver's subjective inferences and categorizations drawn from thin-slice behavioral information ([Ambady and Rosenthal, 1992](#)), consistent with prototype theory and the premise of this paper.

As to whether this paper's theory applies to natural entrepreneurial settings ([Zelditch, 1969](#)), the following suggest it can: (1) existing literature's support for prototype theory in relation to naturally occurring vocationally situated third-party assessments (e.g., [Elsbach and Kramer, 2003](#)); (2) entrepreneurship literature supporting the overall theory of focal actor behaviors and characteristics affecting third-party assessments (e.g., [Zott and Huy, 2007](#)); and (3) additional “descriptive knowledge about the domain of application” ([Zelditch, 1969: 539](#)) from entrepreneurship literature, as well as from the authors' first-hand descriptive knowledge (experience as an entrepreneur, a first employee of a start-up, a pitch observer, an instructor) and disinterested others consulted with (e.g., the executive director of an entrepreneurship center; an entrepreneurship scholar with first-hand experience as a start-up employee, as a founder, and as an investor). These, as well as the reasons previously mentioned for the general consideration of potential resource providers, support the case that the theory (abstract relationship between variables) tested can be applied to the entrepreneurial domain (see [Zelditch, 1969](#)).

8.1. Strengths and limitations

We recognize that the understanding of complex phenomena influenced by various factors cannot come from any particular study. Rather, understanding is derived from a body of scientific investigations. Similarly, developing comprehensive theory that is predictive and valid is a scientific process, beyond the scope of any piece of research.

The research reported here is a step in further understanding. It advances knowledge by theoretically developing the potential relevance of a broad behavioral factor on potential resource providers abstractly, and precisely establishing the basic theorized relationships with a randomized experiment. Consistent with prior research on founder factors affecting potential resource providers, we did not remove the entrepreneurial *Hamlet* but examined others' assessments of and reactions to the protagonist.

This is particularly meaningful at the earliest stages of venturing. For only if others join will there even be a founder and nascent organization to observe and consider. This applies not only to business angels and VCs but also to researchers. This paper adds to collective knowledge, complimenting other entrepreneurship studies where research subjects are firm founders, firm investors, firm teams, or young firms.

Future research will be necessary to more extensively understand the effect of behavioral disinhibition on others, on ultimate resource acquisition, and on venturing outcomes. However, as a starting point and compared to settings in which effects might be confounded by myriad factors (e.g., differences in founder's human capital, in other founder characteristics, in presentation content, in recruitment or other business strategies, in the opportunities pursued), the findings imply that disinhibition itself presents an organizing friction—per undermining others' initial perceptions of the entrepreneur and venture, including interest in potentially supporting. Furthermore, the findings provide insight as to *why* such occurs (it undermines inferences of particular entrepreneur qualities and about the likelihood of venture success).

To the extent individuals higher in disinhibition readily initiate entrepreneurial pursuits but encounter greater difficulty in engaging the support of others, such pursuits are apt to be abandoned or fail before successful founding. This has theoretical, methodological, and empirical implications. Research designs using actual firm *founders* would have started with only the initially successful.

The reported research, in concert with other research indicating a link between disinhibition and entrepreneurial intention and behavior, implies that extant theories of entrepreneurship may be based on an oversampling of initial-survivors and conventional logics (e.g., reasoned purposeful action)—unwittingly truncating more disinhibited actors and logics (e.g., impulse-driven action in response to under-arousal and unfiltered environmental stimuli). This contributes to developing theory suggesting disinhibitory underpinnings of entrepreneurial action (e.g., Lerner, 2010, 2015; Lerner and Fitza, 2012; Wiklund et al., 2014; Yu et al., 2016), with eventual venturing outcomes moderated by higher-order executive abilities. Such theory fits with other research on higher-order self-regulation in entrepreneurs (e.g., Bryant, 2007, 2014; Hmieleski and Baron, 2008; Nambisan & Baron, 2013). With future research, it could help explain popular observations of high-profile and serial entrepreneurs—who may effectively channel disinhibition (presumably through developed higher-order executive control abilities or other strategies involving environmental design/manipulation). Finally, it adds to research on start-up resource mobilization, particularly that in which the entrepreneur shapes others' perceptions and actions (Huy and Zott, 2010).

In relation to the conducted research, the randomized experimental design offers the gold standard of causal inference because there is no possibility of reverse causality, endogenous selection-to-condition, or common-method bias (Colquitt, 2008). The randomized design provided the “critical advantage [of identifying] causal relationships and rule[ing] out alternative explanations. [It serves] to uncover general relationships [and thus] helps to build theory by making more elegant, parsimonious predictions.” In regards to generalizability, the “underlying links among constructs likely apply to other people (because of randomization) in other contexts (because of the artificiality of the laboratory context)” (Chatman and Flynn, 2005: 437).

Yet any design presents trade-offs and a controlled experiment is no exception. The information provided to subjects was crafted and tested to reflect the mundane reality that could be expected at the initial stage of social-sphere opportunity pursuit (e.g., at a short-pitch event)—meaning subjects had little to go on. However, that is theoretically emblematic of the scant info available at the time of forming initial perceptions. Empirically, it stands to increase the threat of null-findings; if the information provided was too limited, it would be insufficient to cause significantly different inferences about the two entrepreneurs/ventures, consistent across individuals. Yet multiple, significant results were found.

In relation to the use of written stimuli, it is not known whether an alternate format would have yielded equivalent results. However, the manipulation check and opened-ended responses provide support for the written stimuli. Considering this, as well as its consistency with prior research and that subjects can and do draw similar conclusions from written or audio/visual information channels (Ambady and Rosenthal, 1992), the use of written stimuli is as much a limitation as would have been video or live stimuli. Limitations of the latter would have included interjecting potential interactions with innumerable other factors (e.g., physical attractiveness, height, attire, etc.). The use of written stimuli readily allows future research to replicate and extend this work (e.g., by using the same or adapted stimuli in other samples or to examine other effects). It also offers a tested experimental manipulation that can be used by other researchers.

Nonetheless, the design presents a limitation on how far the results can be generalized *beyond* the point of initial consideration. The research is however germane to establishing a basic relationship. Among other reasons, if the would-be founder is not considered to be of sufficient interest based on his initial presentation, subsequent interaction, bi-directional information flows, and deeper evaluation does not stand to occur (e.g., Clark, 2008).

On a related note, the dependent variable of interest in supporting (joining) could be considered as suboptimal relative to ultimate resource commitment behavior. Ultimately dichotomous occurrence/non-occurrence would be ideal, if able to capture the non-occurrences. In practice, this would be emblematic of capturing the entire multistage process illustrated in Fig. 1. Yet in relation to the phenomena, the question was whether behavioral disinhibition by a potential founder undermines an individual's *relative interest* in joining an opportunity pursuit. The relevance of this was previously discussed based on critical-path logic as well as based on confounds realistically inherent once attempting to capture a chain of often unobservable events spread over space and time, subject to endogeneity, survivor and other biases. Thus, the contribution is not in deriving a generalizable mean probability of ultimately joining. Rather it is in testing and establishing the theorized relationship—whether behavioral disinhibition by an entrepreneur negatively affects an individual's *interest* in potentially supporting (e.g., joining) a pursuit. Given the research design, the within-subject comparison precisely tests the hypothesis. While the results show a statistically significant relationship, robust to three of three operationalizations and different statistical tests, future research will be necessary to

assess how practically meaningful the significant relationship is. Overall, the work's focused examination of third-party interest as a dependent variable is consistent with prior entrepreneurship studies (e.g., [Baron et al., 2006](#); [Chen et al., 2009](#); [Shepherd, 1999](#)), and other organizational literature considering the effect of individual characteristics or behaviors on third-party inferences and judgments (e.g., [Elsbach and Kramer, 2003](#); [Matusik et al., 2008](#)).

One last consideration relates to the sample. The empirical design provided a controlled examination using young business-educated individuals. While there is no reason to expect the general causal relationships uncovered would not apply to older more experienced others, generalizing means, relative differences, and effect sizes would not be prudent. The negative overall effect however stands to represent a lower-bound, relative to more experienced individuals—consistent with an adjusted version of the experiment run on a small sample of working professionals. Thus, generalizability to other populations seems a primarily question of *how large* is the effect (i.e., the magnitude of the theoretical relationship). Finally, at the level of underlying epistemology, an experiment's empirical results are not generalized—but rather the theoretical relationships tested ([Zelditch, 1969](#)).

In sum, the research conducted was appropriate for establishing a previously untested causal relationship. This suggests the opportunity and need for future research using alternative methods and incorporating additional variables, for example to understand conditional effects. The results also suggest the need for further examination of the popularly suggested, potentially romanticized, upside of behavioral disinhibition and clinical ADHD in entrepreneurship. Finally, based on the considerable prevalence of behavioral disinhibition (e.g., [Bozionelos and Bozionelos, 2013](#)) and its relevance to *behavioral bounds* ([Gavetti, 2012](#)) or exploration/exploitation tensions, the findings suggest the opportunity and potential contribution of future organizational research incorporating disinhibition.

8.2. Potential practical implications for future research

The findings can be interpreted to suggest potential practical implications. As one example, based on [Fig. 1](#), aspiring entrepreneurs higher in disinhibition should be careful not to romanticize it or the creative side of entrepreneurship. To engage others and ultimately exploit opportunities, the findings imply aspiring entrepreneurs would be wise to regulate their social-sphere behavior to avoid displaying disinhibition (and to assuage concerns about administrative qualities) when presenting an entrepreneurial pursuit. Down-regulating behavioral disinhibition might be facilitated in various ways, as simple as an energetic walk or brief mindfulness/meditation prior to an engagement or training general self-regulatory capacities ([Vohs and Baumeister, 2011](#)). Furthermore, strengthening self-regulatory capacities would facilitate *channeling* the productive potential of excess energy (hyperactivity), quick decision making and action (impulsive tendencies), and cognitive restlessness (attentional variability).

When considered in concert with the existing psychology literature and recent studies showing disinhibition's positive connection to individual entrepreneurial intention/behavior, the findings suggest the opportunity for future research related to practical implications. For example, programs designed to foster entrepreneurship might be enhanced if considering disinhibition. To the extent there are already disinhibited individuals with entrepreneurial intent, pursuing opportunities, and struggling to get traction—to harness their potential value creation, programs that support focused execution would be of importance, not incentives to increase entry or financial grants (cf. [Hunt, 2015](#)). Programs could offer tailored mentoring, detailed checklists, follow-up reminders, and or direct administrative support. In terms of entrepreneurship education, it might be enhanced by considering the learning styles and strengths/weaknesses of students higher in disinhibition. This is based on psychology literature, on business students higher in disinhibition showing greater interest in joining a venture (found in this study), on evidence of a self-selection of such individuals toward entrepreneurship (e.g., [Lerner, 2010](#); [Lerner and Fitza, 2012](#); [Rietdijk et al., 2015](#); [Verheul et al., 2015](#); [Yu et al., 2016](#)), and on classroom observations (many of the most entrepreneurial students also more disinhibited). It is also fitting with action-based learning, and the value of exposing students to the pain-staking, at times mundane, reality of entrepreneurship.

Conclusion

In relation to policy, practice, and theory focused on nascent firms, the effect an aspiring entrepreneur has on others' initial perceptions and judgments is many steps removed from ultimate resource commitments let alone more complex molar phenomena. However, the ultimate micro-foundations of individual action, firm formation, and eventual venturing outcomes are preceding unobservable psychological phenomena.

This paper contributes to entrepreneurship literature by illuminating a novel behavioral factor relevant to entrepreneurial action and significantly affecting potential resource providers. It suggests the opportunity for future research involving the broad factor of behavioral disinhibition.

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Supplementary Material: Appendices and Exhibit

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1. **APPENDIX A – Disinhibition and ADHD**
2. **APPENDIX B – Focal Research Stimuli/Manipulation**
3. **EXHIBIT – Testing with a Secondary Executive Sample**

APPENDIX A – Disinhibition and ADHD

This appendix first outlines scientific usage of the term disinhibition, then focuses on behavioral disinhibition. A well-researched and circumscribed behavioral disinhibition is then reviewed, that of attention deficit/hyperactivity disorder (ADHD).

In scientific discourse the terms *inhibition* and *disinhibition* are often used side by side and in different ways according to the type of research. The term (dis)inhibition can for example be used to describe neural activity, basic individual behavior, general social behavior, online behavior, sexual behavior, or under/over regulated behavior. Scholars use the word disinhibition to convey a focus on that side of the (dis)inhibitory coin. Thus disinhibition is a versatile concept, which with related terms has “been used in diverse ways, at varying levels of abstraction” (Carver, 2005: 313; Nigg, 2000).

Behavioral disinhibition refers broadly to unrestrained behavior, from cognitive and hedonic motivational origins (Carver & White, 1994; Nigg, 2000). It offers a behavioral lens, theoretically grounded and empirically validated in underlying cognition, motivation, and neuroscience (e.g., Carver & White, 1994; Nigg, 2000; Shackman et al., 2009). In terms of the cognitive perspective and underpinnings, behavioral disinhibition results from relatively weak executive system¹ functioning (Nigg, 2000). Behavior is less restrained based on reduced cognitive inhibition and control (Nigg, 2000). The relative absence of neuro-cognitive inhibition unfetters attention and thought – and means prepotent (cued, immediately reinforcing) behavioral impulses will be expressed (absent resource consuming higher-order self-regulation). In regards to the motivational underpinnings, behavioral impulses are generated from bottom-up (limbic-cortical) systems: the Behavioral Activation System (BAS) and the Behavioral Inhibition System (BIS) (Carver & White, 1994; Corr, 2004; Gray, 1982; Nigg, 2000). The BAS reflects reward sensitivity and appetitive motivation; the BIS reflects punishment sensitivity and aversive motivation. From this perspective, behavioral disinhibition comes from uninhibited appetitive impulses (Nigg, 2000; Patterson & Newman, 1993; van den Bos et al., 2009).

The neuro-executive (cognitive) and psychophysiological (motivational) perspectives underpinning behavioral disinhibition are complementary (Nigg, 2000). They are concerned with relatively unfettered behavior, starting from the perspective of executive functions (or *cognitive control capabilities* as discussed by Laureiro-Martinez [forthcoming, Organization Science]) and lower-order motivational drives. Behavioral disinhibition offers relative parsimony – engaging unfettered individual behavior based on underlying cognitive and motivational processes (e.g., attentional orientation toward proximal reinforcement).

Yet given the term’s usage in various literatures and perspectives, is necessary to operationally circumscribe it. Attention Deficit/Hyperactivity Disorder (ADHD) squarely reflects behavioral disinhibition; ADHD is well established, offering a broad and circumscribed behavioral disinhibition (grounded in the executive functions and appetitive impulses) (Barkley, 1997; Barkley & Murphy, 2010; 2011; Barkley, Murphy, & Fischer, 2008; Nigg, 2000). It represents a specified established constellation of behavioral tendencies relatively common to varying degrees in adults, known to affect organizational behavior (e.g. Bozionelos & Bozionelos, 2013) and germane to the entrepreneurial process (e.g. Verheul et al, 2105; Wiklund et al., 2014). Independent of clinical level or diagnosis, ADHD-type behavioral disinhibition provides a specified lens.

¹ In the psychology and neuroscience literature, the *executive functions* are the basic cognitive abilities such as working memory and attention, necessary for higher-order cognition and other non-reflexive behavior (Miller & Cohen, 2001). The term *executive* refers to the supervisory CEO-type role of directing, integrating, coordinating, and executing various functions within the individual. Here, the metaphysical executive resides primarily within the prefrontal cortex. This theoretical executive receives input from and orchestrates lower-order systems, integrates information, and deploys attentional and other resources. The purpose of this executive is to ultimately assemble and execute adaptive organized behavior. Thus executive functioning underpins much individual behavior. Disinhibition in lower-order cognitive systems (e.g., low latent inhibition) provides greater inputs for potential use by the theoretical executive, yet add to cognitive load and may come at a cost to overall executive functioning.

In relation to circumscribing behavioral disinhibition, we refer to ADHD disinhibition without presuming the level of hyperactivity, impulsivity, or selective focus inattention would qualify for clinical diagnosis. Simply, with greater levels of disinhibition, individual behavior is more hyperactive, impulsive, and distractible. Thus the behavioral disinhibition is in terms of observable behavior and specified. Furthermore, it is grounded in underlying cognitive disinhibition that is seemingly germane to creative pursuits (Carson et al., 2003; White & Shah, 2006; 2011) and absent in the exclusively BAS/BIS motivational perspective.

The consideration of ADHD behavioral disinhibition independent of clinical diagnosis is consistent with other scholarly research considering it in an organizational context (e.g. Halbesleben et al., 2013) or in relation to entrepreneurial intentions and early venturing behavior (e.g. Verheul et al., 2015). It is also consistent with research involving other constructs that can qualify for clinical diagnoses (e.g. Akhtar et al, 2013; Chatterjee & Hambrick, 2007; Wales, Pankaj, & Lumpkin, 2013).

ADHD is defined by impulsive, hyperactive, and inattentive behavior (American Psychiatric Association, 2000; 2013; Barkley, 1997; Barkley et al., 2008). While a full discussion of clinical diagnostic criteria and what makes a level of behavior clinically significant is beyond the current scope, for clinical ADHD the impulsive, hyperactive, and inattentive behavior must be pervasive, enduring, and to an age inappropriate frequency and magnitude. Adult ADHD is well established in scientific literature (e.g., Barkley, Murphy & Fischer, 2008; Kessler et al., 2005; 2007) and affects to organizations and vocational behavior (e.g., Biederman & Faraone, 2006; Bozionelos & Bozionelos, 2013; de Graf et al., 2008; Halbesleben et al., 2013; Kessler et al, 2009; Patton, 2009).² With ADHD, like many other constructs, individuals fall across a relative spectrum (from contra-indicated or absent to high) (Kessler et al., 2005; 2007).

In terms of the effects of clinical ADHD, the psychology literature has shown linkages to deficits in rule governed behavior and to individual persistence and follow-through on uninteresting tasks (e.g., Barkley, 1989; Barkley, Murphy & Fischer, 2008).³ There is also considerable evidence of individual and organizational costs of inadequately managed ADHD (Biederman & Faraone, 2006; Halbesleben et al., 2013; Kessler et al., 2009; Klein et al., 2013). Concurrently, there have been popular and practicing clinician suggestions of positive linkages including a connection with creativity (e.g. Hallowell & Ratey, 2011; Hartman, 1997; 2002; Palladino, 2010; Weiss, 1997). Supporting evidence from scholarly research is emerging, attributing the creative proclivity to relatively less fettered thought and action (i.e. lower inhibition) (White & Shah, 2006; 2011). A key question in relation to venturing is whether the individual higher in ADHD disinhibition (regardless of clinical status) has or can develop complementary resources/support (e.g., administrative, executive, or secretarial assistance).

² In terms of validity and prevalence, “[clinical] ADHD is one of the best-researched disorders, and the overall data on its validity are far more compelling than for many medical conditions (Cantwell, 1996; Hinshaw, 1987; Munoz-Millan & Casteel, 1989)” (Goldman et al., 1998: 1102). At a clinical level, it is “one of the most prevalent mental [conditions] among American adults” (Patton, 2009: 326; Kessler et al., 2005). The prevalence of clinical ADHD in the adult workforce is notable, affecting around 4.5% of US workers and 3.5% of workers in a ten country sample (de Graaf et al., 2008). Rates are estimated to be significantly higher in other populations – with for example findings of 15.6% of university students screening positive (see Verheul et al., 2013 at ssrn.com/abstract=2149387). Yet most adults with clinical ADHD are unaware they have it (e.g. Nadeau, 2005).

³ This further suggests the relevance of the research related to securing the support of complimentary others. It also ties broadly with the inquiry into the relevance of ADHD behavior and logic on entrepreneurial action within existing firms/founders and theory broadly (Wiklund, Patzelt, & Dimov, 2014).

APPENDIX B – Focal Research Stimuli/Manipulation

This appendix offers additional detail on the design of the focal experimental stimuli. At the end, the specific research stimuli used for the two disinhibition conditions are provided.

The development of the research stimuli was guided by general considerations related to experimental design overall, and specific considerations related to the particular research question. Starting with the general considerations: there have been increasing calls by scholars of entrepreneurship and organizations for experiments (e.g. Colquitt, 2008; Chatman & Flynn, 2005; Frese et al, 2012). The power of the experimental method comes from, and requires, carefully setting-up actual *ceteris paribus* tests (e.g. Colquitt, 2008). In relation to the research question of this paper, it was necessary that that the only difference in the would-be founders was disinhibition; thus the manipulation of this factor was necessary and is now described.

For realism, and allow an initial holistic impression of the aspiring founders, the descriptions of the would-be founders were crafted to present the information composing the disinhibition manipulation interspersed with other attributes/details (e.g. college degree, work experience in relevant industry, gender, age, speaking ability) – as might be ascertained from a brief pitch event or similar situation. To ensure *ceteris-paribus*, the non-disinhibition attributes of the potential founders were equivalent. Given random assignment of subjects to experimental conditions, heterogeneity in subject-variables does not threaten hypothesis testing; on the contrary, it helps uncover general relationships allowing straightforward predictions (Chatman & Flynn, 2005). In terms of the experimental manipulation, the indicators of disinhibition were based on existing literature (see Appendix A) and innocuous behavioral descriptions of the potential founders.

The innocuous behavioral descriptions were used to avoid use of explicit terms (e.g. *impulsive*) and labels including *ADHD*, which would be less realistic in a nascent entrepreneurial setting. For example, it would be unrealistic that entrepreneurs interested in attracting others would self-declare being inattentive, impulsive, hyperactive, or ADHD. Also, explicitly describing an entrepreneur as “*inattentive, impulsive, and hyperactive*” was considered unrealistic.⁴ Description with the term *disinhibition* was also considered unnatural in relation to an entrepreneurial setting.

In terms of the validity of the manipulation, cues of ADHD behavioral disinhibition are realistically observable. For example, would-be founders with higher levels would manifest greater motor activity (e.g., moving considerably while presenting, never standing still), pick-up on off-task environmental stimuli (e.g., an audience member’s Hawaiian shirt) and show associated signs of distraction, and respond more on impulse to questions. These are based on the defining characteristics of ADHD disinhibition (see Appendix A). Conversely, would-be founders with low or lacking levels would not appear impulsive but seem to act according to plan. They would show relatively stable attention (i.e., not show the executive functioning issues of distractibility or hyper-focus). Finally, they would not appear overly active. Concurrent with direct behavioral displays, indications or contra-indications of such disinhibition could be present in the information presented by the would-be founder and in personal statements.

Based on these considerations, the manipulation was designed around descriptions reflecting disinhibition. The manipulation was interspersed throughout the text, with other information that was effectively equivalent across the conditions. Quotes supporting the disinhibition +/- conditions were included. This provided subjects with richer behavioral descriptions, balancing realism with more narrow manipulation. The quote for the +condition was from ADHD+ entrepreneur Paul Orfalea. The quote for the -condition

⁴ An established validated scale of ADHD-behavioral indicators (ASRSv1.1; Kessler et al 2005; 2007) was consulted. Given the scale items, it was unrealistic that an entrepreneur would publically self-declare the item statements or an overall scale score.

suggested contra-indicators, a steady-pace (opposed to hyperactivity) and acting on specified criteria (opposed to more impulsive action). The specific text is provided in Table A-1.

The descriptions and statements of the entrepreneurs were tested and refined to ensure a relatively balanced depiction of both targets and realism. This was done with research faculty, doctoral candidates, entrepreneurship practitioners, undergraduate business students, and working professionals. The entire instrument was subsequently tested on business students and working professionals before the data collection began. Discussions with these individuals indicated the instructions were understood, the context and the entrepreneurs described were considered to be realistic and actual, the manipulation was successfully imbedded such that it was not obvious or artificial, and subjects critically considered the overall task and data collection questions.

The basis for the validity of the manipulation is grounded in the psychology literature with said disinhibition indicated by hyperactivity, impulsivity, and distractibility. However, for the manipulation to be considered valid, it must also be appropriately perceived. Thus, whether the differential +/- stimuli were an effective manipulation depends on whether the interspersed statements actually led subjects to perceive the +target as more (hyper)active, impulsive, and distractible. This was confirmed by the reported manipulation check.

In concluding, besides aspiring entrepreneurs differing in disinhibition, no assumptions are made about other factors (e.g. related to the entrepreneur, the observer, or the opportunity) – in relation to the dependent measures or venturing more broadly. Rather, the randomized experimental design allows (and requires) *ceteris paribus* testing. In crafting and testing the described entrepreneurs, it was appreciated that presenting aspiring founders devoid of anything except high/low disinhibition information would not be realistic and would eliminate the possibly of more holistic initial assessments. Thus additional domain relevant information about the potential founders was built in, including basic human capital (bachelor's degree education, industry experience), other attributes that might be observed (e.g. gender, ~age, speaking ability), and founder quotes. These attributes were equivalent across the two entrepreneurs (conditions), so as to not compromise the experimental rigor establishing *ceteris paribus* and an ultimate causal test. In terms of the opportunity/new venture idea, it may also influence judgments about the venture (likelihood of success, interesting in supporting/joining), and potentially even in relation to the entrepreneur. That is why it was important that the particular opportunity was not endogenous but rather a counter-balanced exogenous variable.

Thus the research stimuli and design serve as a basis for future research and theory building by offering a controlled setting for establishing the hypothesized relationships. With a random assignment experimental design, “although there are still unmeasured variables, there is no longer an unmeasured variables problem (James, 1980)” (Colquitt 2008: 616). Accordingly, “randomization deals with the endogeneity problem that is so pervasive in management and entrepreneurship research (Antonakis et al., 2010)” (Frese et al., 2012). Experimental designs offer the “critical advantage [of identifying] causal relationships and rule[ing] out alternative explanations” and “[help] uncover general relationships... Thus, experimental research helps to build theory by making more elegant, parsimonious predictions” (Chatman & Flynn, 2005: 437).

Focal Research Stimuli

Table A-1: Descriptions of Entrepreneurs (presented at separate times; see Methods section).

+disinhibition target (+condition)
Andrew appears 35 years old. He has a bachelor's degree and prior work experience in Sports & Athletic Equipment [when associated with the running shoe opportunity] ⁵ . Observing him give a presentation and in talking with him, he is a high energy person, never sitting still. He seems knowledgeable and is well spoken. He appears to make decisions quickly somewhat on impulse. He seems to pick-up on things around him, which may distract him if needing to sustain a narrow focus. He comes across as self-confident. He mentions, “Too many business people attempt to manage by spreadsheet alone. I think you’ve got to be out in the world, looking for new opportunities to exploit. The world doesn’t stand still. Why would you?”
-disinhibition target (-condition)
Thomas has a bachelor's degree and appears 34 years old. His prior work experience is in the Outdoor Gear Industry [when associated with the jacket opportunity]. Observing him give a presentation and in talking with him, he appears to plan before acting. He speaks well and appears knowledgeable. He seems consistent in his attention, not appearing easily distracted or hyper-focused. He appears self-assured. He notes, “Some people say business moves faster every day. Nonetheless, I believe in a steady pace according to specified criteria.”

Table A-2: Summary of Key Differences (Manipulation) and Similarities between Stimuli

Indicators in +target	Contra-indicators in -target
<ul style="list-style-type: none"> • He seems to pick-up on things around him, which may distract him if needing to sustain a narrow focus. • He appears to make decisions quickly somewhat on impulse. • He is a high energy person, never sitting still. • He mentions, “Too many business people attempt to manage by spreadsheet alone. I think you’ve got to be out in the world, looking for new opportunities to exploit. The world doesn’t stand still. Why would you?” 	<ul style="list-style-type: none"> • He seems consistent in his attention, not appearing easily distracted or hyper-focused. • He appears to plan before acting. • He notes, “Some people say business moves faster every day. Nonetheless, I believe in a steady pace according to specified criteria.”
Equivalent information across conditions:	
<ul style="list-style-type: none"> • Bachelor's degree • Age: mid-thirties • Work-experience in industry related to opportunity • Knowledgeable • Self-confident • Well spoken 	<ul style="list-style-type: none"> • Bachelor's degree • Age: mid-thirties • Work-experience in industry related to opportunity • Knowledgeable • Self-assured • Speaks well

⁵ The structure and content of first two sentences of both conditions were counterbalanced between subjects.

EXHIBIT – Testing with a Secondary Executive Sample

For reasons previously discussed, there was no apparent reason to expect that more experienced professionals would not also react negatively to behavioral disinhibition. None the less, the experiment was also tested on a small sample of business professionals/executives.

Sample Characteristics and Context

The sample consisted of mid to senior-level employees at diverse organizations, enrolled in a part-time executive Masters in Business Innovation program. The average age was 41.6 (median=44), with 16.8 years of work experience. Positions held ranged from “team leader” and “manager” to directors, “Sales VP” and “CEO”. Half of the sample reported having worked in innovation, and investing company resources into innovation or entrepreneurial projects. Twenty-one observations were received, based on the within-subject design and missing data from the one respondent who did not complete the second condition.

This secondary sample was not sized to offer statistical significance testing at $p < .05$. None the less, while $p < .05$ values are unlikely with small samples (and generalizing any resultant statistics would not be appropriate), the small secondary sample does offer a point of comparison to the primary sample – in terms of means and the valence of relationships.

The context provided to secondary sample explained that the exercise and their responses were important to provide practitioner input related to innovation and entrepreneurship. Also, they would receive and evaluate the two descriptions (of entrepreneurial individuals/projects), reflecting basic info from a brief initial presentation (what could be observed and inferred from a short presentation and brief initial conversation with the presenting individual). The sample was informed that their (individual) “responses were confidential and would not be shared with the executive class or your organization.”

The experimental design was equivalent to the primary sample, with adjustments to wording befitting the more senior sample. Specifically, this sample considered their interest in supporting the entrepreneurial project as peer or co-founder. For example, subjects were asked “If you received an offer from the individual to join the project full-time as a co-founder (with stock-options and a salary equivalent to your current pay), what is the likelihood you might accept it?”

To consider the *mundane realism*, something germane to all controlled experimental research, at the end of the exercise subjects were presented the following question: “how much do you feel the descriptions provided were reasonable -- e.g. for first impressions or different types of people you interact with?” All subjects indicated the portrayals were “somewhat” to “very reasonable”.

Results

In regards to the senior professionals responses to behavioral disinhibition, assessments of the various founder qualities, likelihoods of success, and of interest in joining the pursuit appeared qualitatively similar to the primary sample (i.e. relatively similar means, trends, and open-ended responses). To quantitatively examine the valence of the relationship of disinhibition on the dependent variables, paired samples *t*-tests and repeated-measures GLM analyses were also run. Consistent with the primary sample results, and the idea of older individuals being at least as adverse to disinhibition, a negative effect on administrative qualities was found – and even was significant at $p = .015$ (despite the low statistical power of the small sample). Also, consistent with the primary sample, there was a negative trend between disinhibition and experienced professionals assessments of the likelihood of success and of interest in joining the pursuit; again, in spite of the small sample, both *p*-values were significant at $p = .08$ (one-tailed, based on it testing if the negative relationship was also seen here, and on sample size). With a secondary sample half the size of the primary sample, highly significant *p*-values would be seen.

Supplemental Materials accompanying: Lerner, D.A., 2016. Behavioral Disinhibition and Nascent Venturing: Relevance and Initial Effects on Potential Resource Providers. *Journal of Business Venturing*. doi: 10.1016/j.jbusvent.2015.11.001 6

While the secondary executive sample was not sufficiently large to allow indirect models, the above results would be consistent with mediation. In fact, it could be argued they are suggestive of mediation, with the large negative effect on administrative qualities sufficiently material as to drive nearly significant ($p = .08$) effects on later DVs, when only general trends might be expected given the sample size.

Though further research will be necessary, results from the secondary sample are highly consistent with the overall premise: that while disinhibition may have an upside for initiating opportunity pursuit and might be romanticized by the popular press for entrepreneurship, to engage others and ultimate exploit opportunities, aspiring entrepreneurs (or other strategic agents) would be wise to not romanticize but to regulate their social sphere behavior and address administrative concerns.

Supplemental Materials accompanying: Lerner, D.A., 2016. Behavioral Disinhibition and Nascent Venturing: Relevance and Initial Effects on Potential Resource Providers. *Journal of Business Venturing*. doi: 10.1016/j.jbusvent.2015.11.001 7