THE MODERATING ROLE OF VOLITIONAL CONDITIONS AND TRAIT SELF-CONTROL ON THE ENTREPRENEURIAL INTENTION-ACTION RELATIONSHIP

Marco van Gelderen  
Massey University, margeld@dds.nl

Teemu Kautonen  
Anglia Ruskin University & Aalto University

Matthias Fink  
Johannes Kepler University

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THE MODERATING ROLE OF VOLITIONAL CONDITIONS AND TRAIT SELF-CONTROL ON THE ENTREPRENEURIAL INTENTION-ACTION RELATIONSHIP

Marco van Gelderen, Massey University, NZ
Teemu Kautonen, Anglia Ruskin University & Aalto University, UK
Matthias Fink, Johannes Kepler University Linz, NZ

ABSTRACT

This paper studies when and why entrepreneurial intentions are followed by actions. We study the interplay of motivation, represented by intention strength, with volitional conditions and trait self-control. We hypothesize that while encountering volitional conditions may inhibit the translation of intentions into actions, a high level of self-control can ameliorate these negative effects. The empirical analysis of survey data from the adult population in Austria and Finland, with a 12-month gap between the measurement of intentions and actions, supports these hypotheses.

INTRODUCTION

We all know people who have intentions to start their own business but who take little action to turn their intentions into a reality. It is not just anecdotic evidence that points to failures to act on entrepreneurial aspirations: research on nascent entrepreneurship in the United States shows a number of people lingering for long periods in the “still trying” phase (Reynolds, 2000; Gartner and Carter, 2003). There is no conflict between intention and lack of action if acting on entrepreneurial aspirations is deliberately postponed or, alternatively, if newly emerged constraints or changed preferences lead to the abandonment of the intention. However, if no action is taken in spite of continuing intentions, intentions and actions are at odds. A lack of action then means that potentially fruitful entrepreneurial initiatives will not be realized. This article addresses the following research question: What explains whether entrepreneurial intentions are followed by actions?

In entrepreneurship research, the dominant theories to predict and explain the starting of new, independent ventures are Ajzen’s Theory of Planned Behaviour (1991, 2011) and Shapero and Sokol’s Entrepreneurial Event Theory (1982). Both regard start-up behaviors as intentional, and whether entrepreneurial action is taken is hypothesized to be a function of intention strength. Although numerous studies have examined the formation of entrepreneurial intentions, there is a lack of robust research on the intention-action link in the context of new venture creation (Schlaegel and Koenig, 2012).

Sizeable research evidence from other domains has emerged suggesting that the formation of an intention is not always a sufficient condition for action to take place. For instance, in a meta-analysis of meta-analyses, Sheeran (2002) found that across a variety of behavioral domains,
intentions predict on average 28% of variation in subsequent behavior. While in terms of effect sizes this is a strong effect (Sheeran, 2002), it also shows that a sizeable amount of variation in behavior is left unpredicted. Tentative evidence from entrepreneurial contexts offers comparable results (Goethner et al., 2012; Kautonen et al., 2013).

This article contributes to our understanding of whether and why entrepreneurial intentions are followed by actions by studying volitional constructs in addition to motivation. Our research is guided by the view that while forming an intention is primarily motivational (what the individual wants to achieve), the regulation of the translation of goals into action is also volitional (how individuals exert their will to attain what they desire) (Gollwitzer, 2001; Karoly, 1993). To represent motivation, our research includes intention strength as a predictor of entrepreneurial action. Volitional factors are incorporated in the study in two different ways: as a trait (self-control), and as a type of situation in which volitional issues are likely to emerge (volitional conditions). An analysis of two waves of survey data from the adult population in Austria and Finland suggests that self-control helps to convert entrepreneurial intentions into action, and to overcome the impeding effects on action of volitional conditions. Hence, the principal contribution of our study is in showing the important role of self-control.

**Motivation, Volition and the Entrepreneurial Intention-Action Gap**

**Intention Strength**

Intention refers to “a person’s readiness to perform a given behavior” and motivational models regard taking action to reach an objective as a function of intention strength (Ajzen, 1991 and 2011; Shapero and Sokol, 1982). The entrepreneurship literature provides limited evidence on the impact of business start-up intention on subsequent behavior. To our best knowledge, only two studies of intentions to start a new business have also measured subsequent behavior (Goethner et al., 2012; Kautonen et al., 2013). Although these studies point to a positive and significant effect of intentions on behavior, they suffer from limited sample sizes (Kautonen et al., 2013) or non-random sample attrition (Goethner et al., 2012). However, there is ample evidence from meta-analyses conducted in other research domains showing intention strength to be a significant predictor of subsequent behavior (Armitage and Conner, 2001; Downs and Hausenblas, 2005; Sheeran, 2002; Webb and Sheeran, 2006). Based on this evidence, we propose:

**H1. The strength of the intention to take action to start a new venture exerts a positive effect on subsequent taking of action to start a new venture.**

While evidence from various domains shows that intention strength has a strong effect on behavior (Sheeran, 2002), the aforementioned meta-analytic reviews also show that a sizeable amount of variation in behavior is left unpredicted. Therefore, we seek further explanation to the intention-behavior relationship from a second research stream: research on volition. Gollwitzer and colleagues posit that processes of goal striving are governed by a set of psychological principles that are distinct from processes of goal setting (Achtziger & Gollwitzer, 2008; Oettingen, Bulgarella, Henderson & Gollwitzer, 2004). In addition to being a function of motivation, goal striving entails the volitional issue of behaving with respect to set goals and thus of how a person moves most effectively towards a chosen goal (Gollwitzer, 2001). Volition concerns the translation of existing goals into action and, specifically, the regulation of these processes (Brandstatter, Heimbeck,
From a self-regulatory perspective, forming a strong intention is only a prerequisite for successful goal attainment as there are a host of subsequent implemental problems that need to be solved (Gollwitzer & Sheeran, 2006). The following sections introduce two volitional factors (volitional conditions and trait self-control) and develop hypotheses as to how these affect the translation of entrepreneurial intentions into actions.

**Volitional Conditions**

The finding of sizeable intention-action gaps in a variety of domains has spurred much research that conceptualizes and investigates the reasons why people do not follow up on their intentions. Based on a broad set of literature reviewed below, we identify four volitional conditions that we believe can play a major role in the conversion of entrepreneurial intentions into actions.

**Competing Intentions, Demands, and Habits**

People have multiple goals organized within a goal hierarchy (Austin and Vancouver, 1996). Entrepreneurial intention research typically measures intentions with regard to a single goal: starting a new venture. Other goals are usually not explicitly studied, although their influence may implicitly be accounted for by measures of the perception of feasibility, a determinant of intention strength. Intentions with respect to other aims and ambitions demand their share of an individual’s limited resources. Not only competing goals, but also obligations and habits vie for time, attention and other resources. For example, leisure, hobbies, family demands and social activities can all have great pull. Goals, demands and habits also compete in terms of time frame and urgency. Starting an independent business is often a medium range goal, and may serve to achieve higher level, long-range life goals such as self-actualization or becoming rich. Higher-level goals, although considered of utmost importance, are often not in the foreground of attention (Frese, 2007). Short-term goals may have more regulatory power, with procrastination of entrepreneurial actions as a result (Steel, 2007).

**Action Aversion**

Starting a business requires conducting numerous diverse activities, and chances are that at least one is unfavorable to the entrepreneurial intention. People may feel aversion toward such activities as bookkeeping, finding out about and dealing with governmental regulations, doing acquisition, raising finance, and recruiting and managing employees. Entrepreneurial intentions are typically measured with regard to the venture. The different level of analysis of intentions and actions can mean that, in spite of perceived desirability and feasibility on the level of the opportunity or the venture, there can be actions involved that arouse aversion or apprehension. In order to avoid the aversive feelings that these tasks bring about, people sometimes delay these activities (Steel, 2007; Van Eerde, 2003).

**Action Uncertainty**

Inaction and procrastination can further occur as a consequence of action uncertainty. Perceived feasibility at the business or opportunity level does not necessarily mean knowing what to do at the action level. The person intending to start a business may not know where to start and how to go about with the start-up process. Uncertainty about courses of action may be a function of entrepreneurial experience. Experienced entrepreneurs may possess entrepreneurial action scripts such as arrangement and ability scripts (Mitchell, Smith, Morse, Seawright, Peredo & McKenzie, 2002; Mitchell, Smith, Seawright & Morse, 2000). Arrangement scripts concern the
resources, relationships and assets needed to engage in entrepreneurial activity. Ability scripts are thoughts and mental frameworks concerning the skills, knowledge and capacities needed to create a new venture. Those with developed entrepreneurial action scripts can get into action quickly, without much cognitive processing, whereas the inexperienced entrepreneur needs to consider each step along the way. A lack of skills and knowledge can mean that taking action involves a high expenditure of time, energy and cognitive capacity. This can cause the inexperienced aspiring entrepreneur to avoid experimentation and procrastinate (cf. Frese, 2007 and 2009, for applications of action theory to entrepreneurship).

Action Fear

Finally, the time frame between intention formation and its realisation gives rise to another phenomenon that can cause stalling. As the prospect of an uncertain, risky event approaches in time, fear tends to increase (Loewenstein, Weber, Hsee & Welch, 2001). The urge to back out is augmented by the tendency to think about practical considerations and loss implications as the moment of action draws near (Loewenstein et al., 2001). Fear may trigger automatic avoidance responses (Gable, Reis & Elliott, 2000) and at the same time lead to reflection (Baumeister et al., 2007). Such questions as “do I really want to give up my job,” and “do I really want to invest a sizeable amount of my hard-earned savings,” may emerge. Fear also shifts the focus on the magnitude of outcomes as opposed to their probabilities (Loewenstein et al., 2001). Fear can energize and propel some aspiring entrepreneurs into action, for example, when they become afraid of missing out on an opportunity (Markman, Baron & Balkin, 2005). However, fear of loss or failure and anticipatory feelings of regret may lead others to become more cautious when the time arrives to implement one’s intentions. With increased attention for the immediate loss implications of risky and uncertain courses of action, inaction may be preferred over action.

Our review indicated that encountering any of these volitional conditions places demands on self-regulatory capacities. We therefore expect people with entrepreneurial intentions who encounter any of these conditions to be less likely to take action. In other words, whether volitional conditions are encountered moderates the relationship between intention strength and subsequent action:

H2. Encountering the following volitional conditions weakens the effect of intention strength on taking action to start a new venture:
   a. Action uncertainty
   b. Action aversion
   c. Action fear
   d. Competing goals, demands and habits

Trait Self-Control

Self-control is the individual’s ability to alter their states and responses, including the exertion of control over thoughts, emotions, impulses and desires, and performance. Self-control is regarded as a capacity to change and adapt the self so as to produce a better, more optimal fit between self and the world (Tangney et al., 2004). It is further considered to be the deliberate, conscious, effortful subset of self-regulation (Baumeister et al., 2007). Self-control is central to people’s ability to achieve their goals, get along with others socially, and achieve goals that may require sacrifices or exertions (Ahlquist and Baumeister, 2012; Baumeister et al., 1994).
Research has demonstrated the benefits of good self-regulation. Mischel, Shoda, and Peake (1988) and Shoda, Mischel, and Peake (1990) demonstrated that children’s ability to resist one marshmallow now for two marshmallows in the near future predicted SAT scores and interpersonal success later in life. Wolfe and Johnson (1995) found that self-control was the only one among 32 personality variables that contributed significantly to the prediction of grade point average among university students. Moreover, Tangney et al. (2004) find evidence for linear effects such that more self-control is better. Analyses designed to test for curvilinearity failed consistently to find empirical support. Therefore, we expect those high in self-control to be more likely to translate their intentions into actions and to be able to ameliorate the potential negative effects of the four volitional conditions on the intention-action relationship. Against this backdrop:

**H3.** Self-control moderates the relationship between intention strength and taking action to start a new venture such that the effect of intention strength is stronger when self-control is high.

**H4.** High self-control ameliorates the potential negative effects of the four volitional conditions on the intention-action relationship.

**METHOD**

**Development of Survey Instruments**

We conducted a postal survey targeting the adult population (20–64 years of age) in Austria and Finland in two waves (2011 and 2012). Two countries were included in the research design to facilitate the robustness of the findings. The survey instruments were developed in English and subsequently translated into German and Finnish. The initial questionnaires were tested on small convenience samples of Austrian and Finnish participants. Next, the German and Finnish versions were translated back into English, the results were compared, and adjustments made (as prescribed by Hui and Triandis, 1985). Further, a bilingual team member examined the final German and Finnish versions in order to ensure that the items carried the same connotations in both languages. Additionally, in wave 1, a pilot test resulting in 200 responses confirmed that the survey instrument worked as expected.

**Measures**

**Intention and Action**

Our operationalizations of the dependent variable, taking action to start a new venture, and intention strength follow Ajzen’s (2011) instructions for developing intention and action measures. Following these instructions, the measurement items for intention and action were matched with respect to the target behavior and time frame.

In the context of new venture creation, it is more appropriate to speak of entrepreneurial actions than behavior, as (entrepreneurial) actions are considered to be intentional (Bird, 1988; Greve, 2001) and even complex higher-level goals such as starting a new venture (Newbert, 2005) require individual actions to be completed if they are to be achieved. Therefore, we ask for intentions to engage in *activities* to start a new venture; and as outcome variable, we ascertain whether and how much action has been taken, rather than whether a venture has successfully been established. This is common research practice when the intentions and actions are studied relating to goals that
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comprise multiple behaviors. One example is research on finding employment (Caska, 1998; Van Hooft, Born, Taris, Van der Flier, & Blonk, 2004), which measures actions taken to find a job, not whether employment has been found.

Similarly, we set a uniform timeframe for our study by having all items refer to a one-year period. Thus, the intention items refer to taking steps to start a new venture in the next 12 months, and behavior was assessed after those 12 months had passed. The choice of the 12 month timeframe is the result of a trade-off between two considerations. Investigators using the TPB are urged to let as little time elapse between intentions and actions as is required for the intention to have effect (Ajzen, 1985). On the other hand, a timeframe that is too short provides results that are limited in practical utility (Randall & Wolff, 1994). Moreover, starting a business is not something that most people do overnight, and having too short a timeframe could result in not polling respondents who intend to start a venture in the medium term. However, there may be respondents who took action but formed their intentions within the one year time frame.

Based on these principles, intention strength was measured in wave 1 with three items inquiring whether the individual intended to engage in activities aimed at starting a business in the next 12 months. Similarly, the measurement scale for behavior comprised three items, measured in wave 2, which addressed the amount of effort, time and money the individual had invested in business start-up activities in the 12 months following wave 1. The full details of all items are available from the authors.

Volitional Conditions

We developed a set of items to capture the four volitional conditions based on the experiences gained in a previous study (Van Gelderen, Kautonen and Tornikoski, 2010). We further tested the resulting scales with a small convenience sample of university students, in order to develop a preliminary understanding of their psychometric properties. Based on these tentative analyses, we amended the sets of items and compiled efficient scales for inclusion in the wave-2 survey. The scale items refer to having encountered conditions in which volitional issues may arise in the 12 months following the measurement of intention strength.

Trait Self-Control

The measure for trait self-control adopted for this study is the brief, 13-item version of the self-control measure in Tangney et al. (2004) (Brief Self-Control Scale, BSCS). Those authors report good psychometric properties for the BSCS. This scale was administered in wave 1.

Control Variables

A dummy variable indicating whether the individual is female controls the potential effect of the common and consistent finding of a lower entrepreneurial propensity among women (e.g. Kelley et al., 2010). The respondent’s age in years in a quadratic specification adjusts the models for the well-known inverse U-shaped effect of age on entrepreneurial activity (Lévesque and Minniti, 2006). A dummy variable controls the influence of previous entrepreneurial experience as a measure of past behavior (Conner & Armitage, 1998), which is conceptually related to the volitional conditions as those with experience are either less likely to encounter these conditions or more effective in dealing with them. Wave 2 also included two variables that captured reasons to intentionally postpone taking action upon entrepreneurial intentions: saving money and/or collecting experience before commencing start-up activities, and unexpected changes in the work environment.
or life situation because of which starting the intended business was delayed. Both items were measured on a six-point Likert-style rating scale. Finally, a country dummy adjusts for potential differences between Austrian and Finnish respondents.

**Data Collection**

In the first wave of the survey, we sent out 10,000 questionnaires in Finland and 15,000 in Austria to respondents selected randomly in a representative range of regions. Full details of the sampling procedure are available from the authors upon request. The postal survey generated a total of 2263 responses in Finland and 1024 responses in Austria (response rates: 23% and 7%, respectively). Due to the ex-ante difficulty in specifying the target age range in the Austrian heuristic sampling approach, the actual usable sample of Austrian individuals between 20 and 64 years of age comprises 766 respondents. Thus, the initial total sample amounts to 3029 individuals aged 20–64 years of whom 25% are Austrians.

Since this article addresses the translation of intentions into actions, the focus of the empirical analysis is on those respondents who reported at least some level of intention to engage in business start-up activities in the next 12 months and who were not already self-employed or engaged in business gestation activities. A total of 759 respondents (20% Austrian) met these criteria and 204 of them participated in the postal follow-up survey 12 months later (21% Austrian). The response rate in wave 2 is thus 26%.

We compared the longitudinal sample of 204 respondents with the 555 eligible individuals who did not participate in wave 2 in terms of all variables that were measured in wave 1. We used independent samples t-tests for continuous and chi-squared tests for categorical variables. The tests did not reveal significant differences in terms of gender, prior entrepreneurial experience, country of residence, or trait self-control. However, the wave 2 participants are slightly younger on average (40.8 versus 42.8 years).

**Factor Analysis**

Before index scores were computed, the multi-item measurement scales were factor analyzed. We also conducted additional tests of discriminant validity and common method variance. Based on these tests, we concluded it was safe to compute indices for each construct by averaging the item scores. Details are available from the authors upon request.

**Descriptive Statistics**

Table 1 presents the means, standard deviations and Pearson correlation coefficients for all variables for the full sample of 204 observations. For multi-item indices, Table 1 also displays Cronbach’s alpha. From the 204 respondents (all intenders), 28% (57 individuals) did not take any action. If we define the intention-action gap as ‘taking no or very little action’, then 68% have not taken action.
RESULTS

Direct Effects

We employ ordinary-least-squares regressions for hypothesis testing. Table 2 presents the coefficient and standard error estimates for the models that examine the direct effects. Model (1) in Table 2 includes only the control variables, while Model (2) adds intention strength to the equation. Intention strength has a positive and significant effect on taking action and its addition also improves the model fit significantly compared with Model (1) ($F_{1, 195} = 19.2, p < .001$). Thus, H1 receives support.

Next we tested the direct effects of the four volitional conditions and self-control on taking action. We estimated three different model specifications: one where the four volitional conditions are sole predictors of taking action, one where those variables are added to Model (2) ($F_{4, 191} = 1.71, p > .10$) and finally, a full model of all direct effects, reported in Table 2 as Model (3). All three models provide the same conclusion: action uncertainty is the only volitional condition that has a negative direct effect on taking action.

Diagnostics

Before complicating the model specification with interactions that are required to test H2 and H3, we performed a number of regression diagnostics and a robustness test on Model (3), examining Cook’s distance, VIF scores, the regression specification-error test, and possible heteroskedasticity. All tests allow us to proceed with our analyses and details on the test results are available from the authors. As a robustness test, we estimated a model where the four volitional conditions are interacted with the entrepreneurial experience dummy. The estimation indicated that the negative effect of action uncertainty is only significant for individuals who do not have previous experience of starting and running businesses.

Interaction Effects

The remaining hypotheses (H2 and H3) require the inclusion of multiplicative interaction terms involving two or more continuous variables. A presentation of the coefficient estimates for these models is omitted in the interest of efficiency and because the coefficient estimates in such models are not informative. Instead, Table 3 summarizes the fit statistics for these models. Note that the fit statistics provide only limited information on the actual interaction effects, and the introduction of an interaction term to the model not adding significantly to model fit does not as such mean that a substantively important interaction is absent (Brambor et al., 2006). The substantive interpretations of the interactions in the following are based on plots of the relevant marginal effects, which have been computed following the approach outlined in Brambor et al. (2006). The seven graphs depicting the marginal effects are available from the authors upon request.

The first set of interaction hypotheses (H2a-d) proposes that the four volitional conditions moderate the effect of intention strength on taking action. Models 4a-d in Table 3 present the fit statistics for these models.
An examination of the interaction plots (available from the authors) lead to the following findings. The effect of intention strength grows stronger when the level of competing intentions increases. Interestingly, at low levels of competing intentions, the effect of intention strength is not even significant. By contrast, the effect of intention strength becomes weaker when action fear increases and at very high levels of action fear, intention strength loses significance. Action aversion does not moderate the relationship between intention strength and taking action. However, the effect of intention strength becomes considerably weaker when action uncertainty increases. Similarly to action fear, intention strength loses significance at high values of action uncertainty.

The second set of interaction hypotheses concerns trait self-control. The first hypothesis (H3) proposes that trait self-control moderates the effect of intention strength on taking action. Model (5) in Table 3 displays the fit statistics. Adding the interaction term improves the model fit significantly compared to Model (3) and an examination of the plotted marginal effects shows that the effect of intention strength increases with trait self-control. In fact, intention strength requires at least a moderate level of self-control in order to be statistically significant. Hence, H3 is supported.

The final set of interaction hypotheses concerns the moderating effect of trait self-control on the effects of the four volitional conditions on the relationship between intention strength and taking action (H4). The quantity of interest is the marginal effect of intention strength on taking action, which in this case is conditional both on the level of the volitional condition and on the level of trait self-control. Models (6a-d) in Table 3 show the fit statistics.

The interaction plots point to the following conclusions: The effect of intention strength becomes stronger when the level of competing intentions increases, but this finding is statistically significant only when the person has above average levels of trait self-control. The effect of intention strength weakens when action fear increases. In contrast, the effect of intention strength actually strengthens with action fear if the person has above average levels of trait self-control, while intention strength is not significant at low levels of trait self-control. The effect of intention strength becomes stronger with increasing action aversion if the person has a higher than average level of self-control, while again the effect is non-significant at low levels of self-control. Compared to the simple moderating effect of action uncertainty in model 4d, the difference brought about by the addition of trait self-control is dramatic: the effect of intention strength remains stable at any level of action uncertainty for individuals with high self-control, while intention strength is not significant if self-control is low.

**Discussion**

This study makes significant contributions toward building knowledge about the intention-behavior link in entrepreneurship. Regrettably, nearly all intention research so far has focused on explaining intention, and stopped there, without investigating whether intentions subsequently translate into behavior (Schlaegel & Koenig, 2012). Intention strength, however, is only one factor predicting entrepreneurial behavior. A sizeable percentage of our respondents did not take any steps towards starting a new venture. This study focused, at the expense of yet other factors such as economic conditions, on volition as an additional predictor of entrepreneurial action. The results show that action uncertainty and self-control play important roles. Uncertainty at the action level appears to be a direct impediment towards taking steps to start a new business. Even though the
venture seems feasible at the opportunity or firm level, when it comes down to certain actions, some respondents are unsure how to perform them, and subsequently refrain from taking action. Remedies against action uncertainty lie in action training and action planning. Thus, our results support the findings in Gielnik et al. (2012) who report that their training in entrepreneurial action regulation predicts entrepreneurial action.

However, our conceptualization of motivation and volition emphasizes their interplay rather than separate direct effects. Turning to the interaction analyses, contrary to expectations, we found having competing intentions to interact positively with intention strength in predicting entrepreneurial action. Whereas we expected that those people who had more other demands on their time and energy would take less action, our results proved our intuition wrong. This may reflect the adage “when something has to be done, ask a busy person”: those people who take more actions do so in multiple domains. This is confirmed by our finding that high levels of self-control are a prerequisite for competing goal intentions and intention strength to interact positively. High levels of both action fear and action uncertainty cause intention strength to lose significance in its influence on action.

Self-control is another contributing factor to translating entrepreneurial intentions in actions. Firstly, our results show a significant interaction between self-control and intention strength, such that intention strength requires at least a moderate level of self-control in order to show statistical impact. Secondly, our results generally show that self-control helps to avert the negative effects of encountering volitional conditions on taking action. In other words, it appears that self-control or self-discipline is not so much a direct predictor of whether entrepreneurial action is taken, nor is it related to intention strength, but rather helps to bring intentions to fruition, and to encounter the negative effects on action of volitional conditions. We conceived of self-control as a trait, thus relatively stable over time and place, but fortunately recent research by Baumeister and colleagues shows that self-control depends on an energy source which they label as self-regulatory strength (Bauer & Baumeister, 2011). Self-regulatory strength can be trained, and even better, its benefits generalize to any domain, which suggests the intriguing possibility that one can train self-regulatory strength in a domain unrelated to entrepreneurship, yet employ that increased self-regulatory strength for the purpose of entrepreneurial ventures.

Our results show some light on the TPB (Ajzen, 1991; 2011), the most often used theory in entrepreneurial intention research (Schlaegel & Koenig, 2012). In the TPB, behavior is not only predicted by intentions but also by Perceived Behavioral Control (PBC). PBC predicts both intentions and behavior, for the latter as a proxy of actual behavioral control. PBC is a higher level construct refers to both internal factors (self-efficacy) and external factors (Ajzen, 2002). This is still very broad, and self-control as well as volitional conditions studied in this research can be seen as more specific operationalizations of PBC, in particular as they refer to perceptions about actions, rather than perceptions on the level of the opportunity or the venture, as has been common practice in entrepreneurship research so far.

As any study ours has limitations. Firstly, all measures are self-reported, which introduces risks of single source bias. Although our analyses show that this may not have affected our results, a design that somehow operationalizes entrepreneurial action in an objective sense would have merit. Secondly, we had just two waves of data with a one-year time interval. The relation between intention strength and action is somewhat under-reported as some respondents may have taken
action while having no intentions at the time of wave 1. Future research could include a different or more time periods. Thirdly, we focused on psychological variables at the expense of others such as economic factors. Thus, we are unable to assess the relative importance of psychological variables vis-à-vis other factors explaining the intention-action gap in new venture creation, which we leave for future research to investigate.

Another direction for future research is to explore the relationship between constructs like self-control and self-discipline on the one hand, and effect on the other (for example, entrepreneurial passion). Tangney et al. (2004) show the effects of self-control on a variety of desired outcomes to be linear, whereas Baron and colleagues argue and prove the beneficial effects of positive affect to disappear after a certain optimum (Baron, Hmieleski, & Henry, 2012; Baron, Tang & Hmieleski, 2011). One hypothesis can be that under conditions of high self-control, the inflection point moves outward.

The role of entrepreneurial experience is another avenue for investigation. Our findings indicate that experience reduces the chance that volitional conditions are encountered, or if encountered, their effects on the impediment of taking action are mitigated. Experience thus serves to take action faster. Future research on the intention-behavior link could provide support for this proposition. Located chronologically between studies of intention formation and nascent entrepreneurship, both of which have received extensive attention from the entrepreneurship research community, study of the conversion of entrepreneurial intentions into actions has only just begun.

CONTACT: Marco van Gelderen; margeld@dds.nl; (T): +64 9 4140800 ext. 43399; Massey University, College of Business, School of Management, Private Bag 102904, NSMC, Auckland, 0745, New Zealand.

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REFERENCES


Table 1: Descriptive statistics

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Notes: N=204. Pearson correlation coefficients * and ** denote significance at the 5% and 1% levels. α = Cronbach’s alpha.
### Table 2. Ordinary-least-squares estimates pertaining to taking action

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**Notes:** * and ** denote 5% and 1% significance levels (two-tailed Wald test).

### Table 3. Ordinary-least-squares estimates of the interaction effects pertaining to taking action

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<th>Adj. R²</th>
<th>F-test</th>
<th>F-test of diff.¹</th>
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<td>.36 (1, 189)</td>
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<td>(4c) Action aversion * IS</td>
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<td>3.49** (14, 189)</td>
<td>.02 (1, 189)</td>
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<td>(4d) Action uncertainty * IS</td>
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<td>3.94** (14, 189)</td>
<td>1.84 (1, 189)</td>
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<td>(5) Self-control * IS</td>
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<td>.19</td>
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<td>5.82* (1, 189)</td>
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<td>(6a) Self-control * competing intentions * IS</td>
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<td>.20</td>
<td>4.02** (17, 186)</td>
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<td>(6b) Self-control * action fear * IS</td>
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<td>3.61** (17, 186)</td>
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<td>3.66** (17, 186)</td>
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</table>

**Notes:** IS = intention strength. Models are based on N=204 and include the relationships specified in Model (3) in Table 2 as well as the specified interaction parameters. ¹ The F-test of difference compares Models (4a-d), (5) and (6a-d) to Model (3). * and ** denote 10% and 5% significance levels.