



# The roles of learning orientation and passion for work in the formation of entrepreneurial intention

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**Dirk De Clercq**  
Brock University, Canada

**Benson Honig and Bruce Martin**  
McMaster University, Canada

## Abstract

In order to extend understanding of the drivers that underlie entrepreneurial intention formation, this article investigates the hitherto underexplored roles of people's learning orientation and passion for work. It considers how these personal characteristics may moderate the instrumentality of their perceived ability to become a successful entrepreneur, and perceptions of the attractiveness of becoming an entrepreneur. Using a survey of 946 university students, it finds that learning orientation and passion for work invigorate the role of these feasibility and desirability considerations in enhancing entrepreneurial intention. A follow-up analysis reveals that the moderating effects of learning orientation and passion for work on the perceived attractiveness–entrepreneurial intention relationship are stronger to the extent that people value the intrinsic goal of autonomy in their future career more, but these moderating effects are immune to the importance of the extrinsic goal of earning financial rewards. Several implications for research and practice emerge.

## Keywords

entrepreneurial intention, learning orientation, passion for work, theory of planned behaviour

## Introduction

The new venture creation process unfolds over time (Gartner et al., 1992, 1994), and the first stage is the formation of entrepreneurial intention (Bird, 1988; Kautonen et al., 2010; Krueger et al., 2000; Lee et al., 2011). A person's entrepreneurial intention reflects their level of interest in starting a business (Fitzsimmons and Douglas, 2011; Krueger et al., 2000; Lent et al., 1994), which

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### Corresponding author:

Dirk De Clercq, Faculty of Business, Brock University, 500 Glenridge Avenue, St Catharines, ON L2S 3A1, Canada.  
Email: ddeclercq@brocku.ca

provides a professional trajectory alternative to regular employment (Schjoedt and Shaver, 2007). Entrepreneurship scholars focus on such entrepreneurial intentions as they represent one of the few measurable outcomes of entrepreneurship education (Fitzsimmons and Douglas, 2011; Franke and Lüthje, 2004). Considering that motivation scholars also maintain that intentions offer good predictors of behaviour (Ajzen, 1991; Armitage and Conner, 2001); thus, a strong understanding of the factors that influence entrepreneurial intentions remains critical to explaining entrepreneurial behaviour (Shane and Venkataraman, 2000).

Entrepreneurial intentions depend on external factors such as the presence of an unfavourable economic environment or a lack of regular employment options (Evans and Leighton, 1989; Ghatak et al., 2007; Shapero and Sokol, 1982). However, not everyone develops the same intentions in the face of the same external circumstances. This scenario suggests an important role for individual factors, including personality (Zhao et al., 2010); demographic characteristics such as age (Levesque and Minniti, 2006), gender (Brush, 1992; Minniti and Nardone, 2007), education (Autio and Acs, 2010; Blanchflower and Oswald, 1998); cognitive factors (Baron, 2004) and, significantly, the belief that a career as an entrepreneur is feasible and desirable (Fitzsimmons and Douglas, 2011; Krueger et al., 2000).

In order to extend the extant literature, this study investigates the intricate interplay among such feasibility and desirability considerations and two individual characteristics that have received scant attention in entrepreneurship research: learning orientation and passion for work. *Learning orientation* reflects people's propensity to update their current knowledge set continuously; it taps into people's cognitive abilities (Armstrong and Mahmud, 2008; Kolb, 1984; VandeWalle et al., 1999). *Passion for work* captures the extent to which people 'love' to work and derive joy from investing in work-related activities (Baum and Locke, 2004; Shane et al., 2003). Unlike learning orientation, passion for work captures an emotional aspect of people's approach to work (Frijda et al., 1991; Vallerand et al., 2003) yet, it also relates to cognition in the sense that people who are passionate about work tend to engage in more intensive and systematic knowledge processing when task-related demands require it (Frederickson, 1998; Ho et al., 2011).

The principal research question that drives this study is how these two individual characteristics might affect the potency with which people's perceived *ability* to become a successful entrepreneur, and their perception of the *attractiveness* of becoming an entrepreneur, inform their entrepreneurial intention. Thus, we aim to make two main contributions. First, by investigating such contingencies, we address calls to consider the intricate relationships among people's individual characteristics, career-related motivations and entrepreneurial aspirations in one integrated framework (Franke and Lüthje, 2004; Lee et al., 2011; Lent et al., 1994), particularly in terms of how the former may invigorate the feasibility and desirability motivations that lead to the decision to start a new business (Fitzsimmons and Douglas, 2011). The examination of individual-level contingencies in entrepreneurial intention formation is particularly important because it answers the question of which personal factors might facilitate or impede the conversion of entrepreneurship-specific motivations into the intention to become an entrepreneur (Franke and Lüthje, 2004; Lent et al., 1994) – a career generally conceived of as contingent, challenging and marked by high levels of uncertainty (Sarasvathy, 2008).

Second, to the best of our knowledge this study represents the first empirical examination of the roles of learning orientation and passion for work in the entrepreneurial intention literature; these characteristics capture how people value and process knowledge in their daily work. Their consideration in the formation of entrepreneurial intentions is important in that they complement the extant literature, which tends to focus on how people's 'static' access to knowledge informs their inclination or decision to start a new venture (Davidsson and Honig, 2003; De Clercq and Arenius,

2006). Instead, learning orientation and passion for work imply a dynamic aspect, in that they speak to the ongoing efforts that people devote to knowledge renewal and work-related activities, respectively (Baum et al., 2011; Baum and Locke, 2004). As these characteristics should be somewhat malleable, they also contrast with implicit attitudes and beliefs that are stable and offer little or no opportunity for intervention among adults. Further, we argue that these characteristics are critical as they can help translate perceptions about the feasibility and desirability of entrepreneurship into the actual formation of entrepreneurial intentions.

## Theoretical background

Understanding the drivers underlying entrepreneurial intention formation is important because new ventures do not emerge by accident; rather, they are the result of specific, intentional choices (Bird, 1988). For example, Learned (1992) argues that intentionality is a key component of the entrepreneurial process, and Herron and Sapienza (1992) point to the critical role of entrepreneurs' aspiration levels in their venture initiation model. The strength of entrepreneurial intentions in the very early stages may matter for the future direction of the ventures to be created, because subsequent growth and success depend on these intentions (Bird, 1988).

One stream in entrepreneurship research, which relies on the theory of planned behaviour (Ajzen, 1991, 2001), argues that such 'intentionality' depends on three factors:

1. perceived behavioural control – the perceived ease to 'perform' entrepreneurial behaviour;
2. general attitude toward entrepreneurship – the extent to which a person has a favourable evaluation of entrepreneurship as a career; and
3. subjective norms – perceived social norms that indicate entrepreneurship is an 'acceptable' career choice (Kolvereid, 1996b; Liñán and Chen, 2009).

Applications of this theory predict entrepreneurial intentions based on people's feasibility- and desirability-driven motivations (Fitzsimmons and Douglas, 2011; Krueger and Brazeal, 1994; Krueger et al., 2000). The feasibility motivation refers to Ajzen's (1991) perceived behavioural control dimension; the desirability notion includes both the attitude and subjective norm dimensions (Kolvereid, 1996b; Krueger and Brazeal, 1994). The distinction between feasibility and desirability also mirrors an argument in the career choice literature, which indicates that people's interests in a particular career are informed by whether they view themselves as capable and find the career attractive and desirable (Bets and Rottinghaus, 2006; Lent et al., 1994).

For the present research, we label these feasibility- and desirability-driven motivations as people's perceived *ability* to become a successful entrepreneur, and the perceived *attractiveness* of becoming an entrepreneur.<sup>1</sup> The perceived ability dimension is akin to the notion of self-efficacy, or the belief that one has the capabilities to perform designated tasks well (Bets and Rottinghaus, 2006; Gatewood et al., 2002; Krueger et al., 2000). Perceived attractiveness encompasses the belief that a career choice, such as becoming an entrepreneur, will have desirable consequences (Krueger et al., 2000; Liñán and Chen, 2009). Similar to prior research (Creed et al., 2009; Fitzsimmons and Douglas, 2011; Lent et al., 1994; Souitaris et al., 2007), we examine these issues for the early career interests of young adults, which admittedly represents a boundary on our proposed framework. Although individual considerations of feasibility and desirability can influence adjustments throughout a person's entire career trajectory, later adjustments tend to be subject to a broader set of factors, such as dissatisfaction with a current job or a desire for a lifestyle change (Super, 1990). These factors are beyond the scope of this article, for which the goal is to understand the

emergence of entrepreneurial intentions early in a person's career trajectory when educational interventions are most likely, rather than to offer a broader theory of lifelong career intentions (Super, 1990). Accordingly, we adopt a focused approach to explaining the interest in starting one's own business (Franke and Lüthje, 2004; Lent et al., 1994).

We examine how the relationship between people's perceptions of ability and attractiveness, on the one hand, and their formation of entrepreneurial intentions, on the other, may depend on two personal characteristics which have received limited attention in previous entrepreneurship research: namely, learning orientation and passion for work. We argue that the extent to which people are prone to update their current knowledge set with new knowledge continuously (learning orientation), and the passion with which they undertake work-related activities (passion for work), have instrumental importance for how their reflections about feasibility and desirability translate into entrepreneurial intention. Thus, we respond to calls to create a better understanding of and empirically test how certain contingency factors might facilitate or hinder the conversion of career-specific motivations into entrepreneurial intention formation (Lent et al., 1994): particularly the factors which can help alleviate the complexity and ambiguity surrounding entrepreneurship (Sarasvathy, 2008). Therefore, we do not aim to suggest that learning orientation and passion for work are relevant only for the formation of entrepreneurial intention, or do not matter for alternative career choices; rather, we argue that to the extent that people perceive an entrepreneurial career as highly feasible or desirable, their learning orientation and passion for work will facilitate the translation of these considerations into actual entrepreneurial intentions.

### *Learning orientation*

Individual learning is a dialectical process that comprises both access to new knowledge and the ability to assimilate such new knowledge into current knowledge sets (Baum et al., 2011; Kolb, 1984). Thus, learning is the process by which people transform new experiences into combinations of new and existing knowledge (Joy and Kolb, 2009).<sup>2</sup> This transformational capability is reflected in people's learning orientation, defined as the propensity to be continuously on the lookout for new knowledge (Dweck, 1986; Dweck and Leggett, 1988; VandeWalle et al., 1999).<sup>3</sup> Learning theory suggests that the propensity to acquire new knowledge and integrate this into the existing knowledge set increases one's ability to deal with problems and uncertain situations, because continuously updating the current knowledge set increases the capacity to find novel solutions for current problems (Cohen and Levinthal, 1990; Honig, 2004; Piaget, 1950). Therefore, in the assessments of the pros and cons of an entrepreneurial career, which arguably involves high uncertainty levels (Sarasvathy, 2001, 2008; Schoonhoven et al., 2009), a learning orientation may function as a critical trigger in transforming career-specific entrepreneurship considerations into an intention to become an entrepreneur.

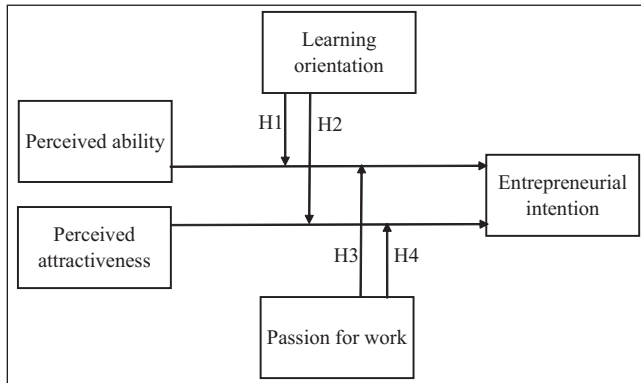
With the exception of Zhao et al. (2010), who tangentially consider this characteristic when discussing the role of people's openness to new experiences, and Baum et al. (2011), who note the implications of learning orientation for entrepreneurs' practical intelligence, entrepreneurship scholarship has somewhat ignored the role of learning orientation. In order to bridge this gap, we place learning orientation in a central position in our theoretical framework. However, we acknowledge that entrepreneurship is not the only career that entails high levels of uncertainty and risk, and that could benefit from a strong learning orientation (Ho et al., 2011); accordingly, our model and hypotheses (which we discuss subsequently) consider not the direct effect of learning orientation, but rather its indirect effect. This orientation might influence the potency of people's feasibility- and desirability-driven considerations with respect to entrepreneurship to enhance their entrepreneurial intentions.

In addition, the consideration of learning orientation in entrepreneurial intention formation is important from a practical perspective, because people's learning orientations are not set in stone. Although it is dispositional (Dweck, 1986), the manifestation of a learning orientation may fluctuate to some extent with situational conditions and contexts (Ames and Archer, 1988; Button et al., 1996; Dragoni et al., 2009). For example, people may become more learning-oriented when they confront the need to undertake challenging tasks, or receive encouragement from others to question their current knowledge set (e.g. Ames and Archer, 1988; Dragoni, 2005). Thus, although a person's learning orientation may exhibit the many qualities of a trait, it is still a somewhat malleable individual characteristic (Button et al., 1996; Maurer et al., 2003; Van Hooft and Noordzij, 2009). As such, it should be of particular interest to entrepreneurship educators because it offers an opportunity to intervene in, and facilitate the career decisions of, young adults (Franke and L uthje, 2004).

### *Passion for work*

An equally important but also underexplored personal characteristic with potential relevance to entrepreneurial intention formation is people's passion for work. Prior research differentiates obsessive from harmonious passion: the former characterizes workaholics, whereas the latter refers to people who are voluntarily enthusiastic about their work (Ho et al., 2011; Vallerand et al., 2003). Harmonious passion acknowledges an emotional component, such that the passion that people exhibit for work-related activities might reflect how they define themselves (Ho et al., 2011). Similarly, we conceptualize passion for work as the extent to which people experience feelings of pleasantness and joy when engaging in intensive work-related activities (Baum and Locke, 2004; Richie et al., 1997). Such passion captures not only an emotional element but also a cognitive one, because it informs the cognitive efforts that people are willing to allocate to work-related activities. The greater the intensity or passion with which people undertake work-related tasks, the greater their ability to reduce uncertainty in meeting corresponding work-related goals, because such intensity exposes them to a greater variety of options for solving challenging situations (Frederickson, 1998; Ho et al., 2011; Vallerand et al., 2003). For example, people's cognitive engagement – the extent to which they are focused and psychologically present when undertaking a particular task – mediates between their harmonious passion and work performance (Ho et al., 2011).

The extant entrepreneurship literature argues that an entrepreneurial career is marked by high levels of passion (Bird, 1989; Cardon et al., 2009), such that passion is 'perhaps the most observed phenomenon of the entrepreneurial process' (Smilor, 1997: 342; see also Baum and Locke, 2004). Although researchers have considered the relationship between passion for work and subsequent motivations for venture growth (Baum and Locke, 2004), they have devoted limited attention to how this personal characteristic affects the instrumentality of career-specific motivations for increasing entrepreneurial intention. Instead, entrepreneurship research has focused mostly on the role of entrepreneurial passion: the personal joy that a person derives from engaging in specific activities that come with the job of being an entrepreneur, such as inventing new products and services or developing a business venture to bring products and services to market (Cardon et al., 2009). However, such entrepreneurial passion may not be equally important or pertinent to everyone in society, or even everyone who starts a new business. For example, passion about specific entrepreneurial activities and its role in entrepreneurial intention formation may be less relevant among young adults who have not gained any direct experience as an entrepreneur (Fitzsimmons and Douglas, 2011; Lent et al., 1994). Because young people who have yet to experience the actual creation of an enterprise are likely to lack a clear idea of the specific activities involved in launching and developing a venture, we consider a research focus on a passion for work in general, rather



**Figure 1.** Conceptual model.

than entrepreneurial passion, to be appropriate. The nature of entrepreneurial endeavours varies considerably, so studying an individual's general passion for work also should be a more inclusive and relevant measure, as not all start-ups require high degrees of invention and innovation. Finally, our focus on people's passion for work in general, rather than passion for entrepreneurship, resonates with the premise that we are not interested in the direct effects of people's passion on their entrepreneurial intention, but rather in how their passion may leverage career-specific motivations that they already possess into entrepreneurial intention formation.

The investigation of passion for work in the formation of entrepreneurial intention has great practical relevance because it can inform entrepreneurship educators' understanding of how variations in the intensity with which people engage in work-related activities may be relevant for leveraging their specific career motivations. A key notion is that people's passion for work may be subject to change with external circumstances, such as their perceptions of the organizational context (Burke and Fiksenbaum, 2009; Luthans, 2002). For example, a person could exhibit a strong passion for work if they are allowed to experiment with new ideas without direct interference from others; whereas that same person may be less passionate about work when operating in an environment marked by a heavy focus on strict procedures and rules (Frijda et al., 1991; Vallerand et al., 2003).

Figure 1 summarizes our conceptual model. It starts with established findings that indicate that both people's perceived ability to become a successful entrepreneur and the perceived attractiveness of an entrepreneurial career affect their entrepreneurial intentions (Fitzsimmons and Douglas, 2011; Kolvereid, 1996a, 1996b; Krueger et al., 2000; Liñán and Chen, 2009). Because people's learning orientation and passion for work might be important influences on other careers that imply high levels of uncertainty and risk (Ho et al., 2011; Patrick et al., 2011), the proposed model does not include the direct effects of these two characteristics on entrepreneurial intention. Instead, we focus on the possible moderating effects of learning orientation and passion for work on the relationships between perceived ability and attractiveness, on the one hand, and entrepreneurial intentions, on the other.

### *The moderating role of learning orientation*

We argue that learning orientation positively moderates the relationship between their perceived ability to become a successful entrepreneur and their entrepreneurial intention. As mentioned

previously, a learning orientation reflects a propensity to expand the current knowledge set continuously (Ames and Archer, 1988; Dweck, 1986). Because people with a strong learning orientation are more prone to engage in 'active experimentation' – in which they acquire new knowledge through experiences in real-life situations (Baum et al., 2011) – they are in a better position to leverage the potential inherent in their current knowledge set by infusing it with new knowledge and insights (Kolb, 1984). Thus, a strong learning orientation is not only important for the maintenance of the current knowledge set (Gong and Fan, 2006), but also provides diagnostic information about how current knowledge can be expanded and leveraged to address new challenges (Dweck and Leggett, 1988). Similarly, a strong learning orientation can facilitate the leveraging of current knowledge (Armstrong and Mahmud, 2008), because the dynamic change of the current knowledge set that it implies facilitates the integration of new with old knowledge, and thus, the ability to solve problems in uncertain situations, as might be anticipated in an entrepreneurial career (Baum et al., 2011; Sarasvathy, 2001).

Further, a core feature of a career as an entrepreneur is the inherent likelihood of failure and the associated challenge to diminish the odds of failure (Honig, 2004; Murphy et al., 1996). People with a strong learning orientation are likely to perceive that they can successfully exploit their past and ongoing relevant experiences to cope with the anticipated difficulties of future activities (Dweck and Leggett, 1988; VandeWalle, 1997), so they may view their current knowledge set as an opportunity to overcome the pitfalls that mark a career as an entrepreneur. Similarly, people with a strong learning orientation are likely to adapt themselves more easily to the difficulty of (entrepreneurial) tasks that come their way through increased efforts to retrieve specific knowledge from their current skill set that is relevant to the task at hand (Ames and Archer, 1988; Maurer et al., 2003; Porter and Tansky, 1999). Finally, people with a strong learning orientation are attracted to tasks that are complex and knowledge-intensive (Ames and Archer, 1988), and may view applications of their current entrepreneurship-relevant knowledge to solve complex tasks as sources of personal growth and fulfilment rather than burdens (Brett and VandeWalle, 1999; VandeWalle et al., 1999). On the basis of these arguments, we expect a positive interaction effect between people's learning orientation and their perceived ability to become successful entrepreneurs on their entrepreneurial intentions, hypothesizing as follows:

H1: People's learning orientation moderates the relationship between their perceived ability to become a successful entrepreneur and their entrepreneurial intention, such that the relationship is amplified for a stronger learning orientation.

Further, we argue that learning orientation amplifies the relationship between the perceived attractiveness of becoming an entrepreneur and their entrepreneurial intentions. People with a strong learning orientation not only have a higher propensity to develop new knowledge, but also believe that their learning efforts can be instrumental to attaining desirable goals (Maurer et al., 2003; VandeWalle, 1997). That is, a strong learning orientation facilitates persistence in goal attainment (Brett and VandeWalle, 1999), and encourages more effective planning about how to execute personal goals (VandeWalle et al., 1999). Similarly, the notion of *self-regulated* learning reflects the idea that learning-oriented people are more motivated to integrate new knowledge into their current knowledge set to enhance their prospects for achieving a situation that is desirable to them (Boekaerts, 1997).

Moreover, the role of learning orientation in reinforcing the effect of desirability considerations in people's career choices should be particularly salient in career situations marked by high levels of uncertainty and unexpected hurdles, such as entrepreneurship (Sarasvathy, 2008). Learning

theory suggests that people's tendency to be continuously on the lookout for new knowledge increases their anticipation of finding solutions for any problems on the path toward goal attainment, even if those problems are unforeseen (Honig, 2004; Piaget, 1950). In short, an inclination to develop new knowledge, as stimulated by a learning orientation, offers a resource that aspiring entrepreneurs can use to realize an 'attractive' career as entrepreneur (Brett and VandeWalle, 1999). This leads us to our second hypothesis:

H2: People's learning orientation moderates the relationship between the perceived attractiveness of becoming an entrepreneur and their entrepreneurial intention, such that the relationship is amplified for a stronger learning orientation.

### *The moderating role of passion for work*

We predict a positive moderating effect of people's passion for work on the relationship between their perceived ability to become a successful entrepreneur and their entrepreneurial intention. The extent to which people experience feelings of joy when engaging in work-related activities stimulates them not only to store task-relevant knowledge, but also to focus their cognitive efforts toward knowledge retrieval when task demands require it (Cardon et al., 2009; Foo et al., 2009). Greater knowledge retrieval from an existing knowledge base can be instrumental for translating current abilities into enhanced task performance, as exemplified in research that demonstrates how workers with more harmonious passion are immersed in their work-related activities and devote more psychic energy to them, which in turn leads to better work performance (Ho et al., 2011). Similarly, the application of current entrepreneurship-relevant abilities demands perseverance and commitment (Kuratko et al., 1997), which should be fuelled by the passion and intensity with which people undertake work-related activities (Chen et al., 2009). Thus, the passion that someone feels about work in general can invigorate the instrumentality of their perceived entrepreneurship-relevant abilities for increasing entrepreneurial intentions, because this individual characteristic informs the cognitive efforts that they are willing to expend to exploit the current knowledge set (Baum and Locke, 2004).

In addition, people who are passionate about work in general are more likely to experience positive emotions such as joy and vitality when undertaking work-related activities (Vallerand et al., 2003). Such emotions, in turn, increase people's cognitive abilities to channel their relevant knowledge set toward task-relevant activities (Frederickson, 1998), such as those anticipated in an entrepreneurial career. Thus, the positive emotions derived from passion for work can expand the repertoire of tools available to leverage existing skills and solve task-related problems (Ho et al., 2011). Finally, people with a strong passion for work are internally driven to go the extra mile to exploit their current knowledge set, and experience positive feelings of accomplishment when they do so (Baum and Locke, 2004; Vallerand et al., 2003). On the basis of these arguments, we expect that the higher the passion for work, the greater the likelihood that perceived ability to become a successful entrepreneur will enhance entrepreneurial intentions. This leads to our third hypothesis:

H3: People's passion for work moderates the relationship between their perceived ability to become a successful entrepreneur and their entrepreneurial intention, such that the relationship is amplified for a stronger passion for work.

In addition, a person's passion for work should amplify the relationship between the attractiveness of becoming an entrepreneur and entrepreneurial intentions. When people are passionate about



work in general, they exhibit higher levels of commitment to achieving desirable work-related goals (Baum and Locke, 2004). In contrast with their less passionate counterparts, they are more prone to direct high cognitive and mental energies toward achieving a situation that is highly attractive to them (Button et al., 1996; Mannheim et al., 2004).

Further, people who feel passionate about work in general tend to experience a close connection between their work and self-identity (Mannheim et al., 2004), which makes them more motivated to expend significant efforts and energy to undertake tasks that are attractive. That is, because both passion for work and the anticipation of finding oneself in a desirable work situation are instrumental to how people define themselves (Ho et al., 2011), these two elements should mutually reinforce each other in the formation of entrepreneurial intention. Similarly, Cardon et al. (2009) note that feelings of passion enhance *existing* entrepreneurs' motivation to accomplish their personal goals, in that such passion affirms their salient role identities. In the context of this study, which focuses on entrepreneurial intention formation *prior* to the actual start-up of a new business, a strong passion for work may function as a source of self-actualization that activates the urge to launch a career (as an entrepreneur) which the person perceives as highly attractive (Rothbard and Edwards, 2003). Thus, people with a strong passion for work should be more eager to consider starting a career that they regard as highly desirable. This leads us to our final hypothesis:

H4: People's passion for work moderates the relationship between the perceived attractiveness of becoming an entrepreneur and their entrepreneurial intention, such that the relationship is amplified for a stronger passion for work.

## Method

### *Sample and data collection*

Consistent with prior research that examines entrepreneurial intentions or behaviour (Krueger et al., 2000; Levesque and Schade, 2005; Mueller and Thomas, 2001), we test our hypotheses with quantitative data collected from a university student sample.<sup>4</sup> Although university students may not be representative of the general population, they are ideally suited to the study of entrepreneurial intentions, as opposed to actual entrepreneurial behaviours (Krueger et al., 2000), because reflections on the outcomes that they want to achieve in their future careers are likely in the forefront of their minds; they are relatively homogeneous with respect to their prior work experience; and compared with a general adult sample, they are less likely to have actual entrepreneurial experience – a factor which might confound the level of entrepreneurial intentions. Also, very early career intentions can be a good predictor of career-related decisions over time (Trice, 1991), and findings from laboratory motivation studies involving students typically generalize to field settings involving adults (Locke, 1986).

We asked students from various academic backgrounds (e.g. business, humanities, sciences) at two Canadian universities to complete an online, self-administered survey that assessed their career aspirations and personal characteristics. In one institution (University 1), the university's career services office assisted in recruiting students and distributed flyers about the survey during a one-off job recruitment event attended by students from across the university. At the other institution (University 2), potential study participants consisted of students enrolled in any undergraduate course in organizational behaviour or human resources, who were informed about the study through the school's standard research participation system emails (original and follow-up), and verbal communication from their instructors. In both universities, prospective participants were told that although the study was about entrepreneurship as a career choice, they did not need to have a specific interest in entrepreneurship in order to participate.<sup>5</sup>

In order to pre-test the survey and ensure that its questions were clear and understandable, we undertook informal interviews with three academics and three students (not included in the final sample) before the actual administration of the final version, whom we asked to point out ambiguous, vague or unfamiliar terms. We incorporated their feedback to refine the measurement scales and improve the readability and relevance of the survey instrument (Podsakoff et al., 2003). To minimize the possibility that the responses were subject to biases due to social desirability, acquiescence or consistency with 'assumed' research hypotheses, the respondents could complete the survey anonymously, were guaranteed complete confidentiality, received repeated assurances in the survey that there were no right or wrong answers, and were asked to answer the questions as honestly as possible (Podsakoff et al., 2003; Spector, 2006). The final sample consisted of 946 respondents (respondents who indicated that they had had previous experience as an entrepreneur were excluded).

### Construct measures

In Table 1, we list the focal measures used in our analyses, with their individual items, overall reliability estimates (Cronbach's alpha, composite reliability) and average variance extracted (AVE). The measures, drawn from prior literature, employ seven-point Likert scales.

**Table 1.** Constructs and measurement items.

	Factor loading	t-value
Entrepreneurial intention ( $\alpha = .88$ ; CR = .89; AVE = .80):		
I am likely to start my own business soon.	.885	37.28
I have been preparing to start my own business.	.900 <sup>a</sup>	–
Perceived ability ( $\alpha = .83$ ; CR = .86; AVE = .76):		
It is highly feasible that I could start my own business.	.983	27.01
I feel certain that I would be able to start my own business if I wished to do so.	.739 <sup>a</sup>	–
Perceived attractiveness ( $\alpha = .95$ ; CR = .96; AVE = .88):		
I have a strong desire to start my own business.	.958	60.91
I feel a strong urge to become self-employed.	.934	56.09
My overall wish is to have my own business.	.922 <sup>a</sup>	–
Learning orientation ( $\alpha = .89$ ; CR = .90; AVE = .62):		
I often read materials (articles, internet, books, etc.) to improve my abilities.	.585	18.60
I like to take on a challenging task from which I can learn a lot.	.859	27.25
I often look for opportunities to develop new skills and knowledge.	.829	26.34
I enjoy challenging and difficult tasks through which I can learn new skills.	.889	28.15
For me, developing my abilities is important enough to take risks.	.792	25.18
I prefer to work in situations that require a high level of ability and talent.	.713 <sup>a</sup>	–
Passion for work ( $\alpha = .87$ ; CR = .87; AVE = .59):		
I derive most of my life satisfaction from working hard.	.734	16.01
I love to work hard.	.849	17.05
I look forward to returning to work when I am away from it.	.899	17.38
I accomplish a lot because I love to work hard.	.501 <sup>a</sup>	–
Sometimes I wish that I could be working harder when I am not.	.585	18.60

<sup>a</sup>Initial loading was fixed to 1 to set the scale of the construct.

Notes: CR = construct reliability; AVE = average variance extracted.

**Entrepreneurial intention.** We measured entrepreneurial intention with two items drawn from Chen et al. (1998). Respondents indicated their level of agreement with statements assessing whether they had been preparing to start their own business, or whether it was likely that they would start their own business soon (alpha = .88).

**Perceived ability.** We assessed perceived ability to become a successful entrepreneur by adapting Bagozzi et al.'s (2003) measure of people's goal feasibility in decision-making to the context of entrepreneurship. The items assess whether 'It is highly feasible that I could start my own business' and 'I feel certain that I would be able to start my own business if I wished to do so' (alpha = .83).

**Perceived attractiveness.** The measure of the perceived attractiveness of a career as entrepreneur is also adapted from Bagozzi et al. (2003). Respondents indicated whether they had a strong desire to start their own business, felt a strong urge to become self-employed and had an overall wish to have their own business (alpha = .95).

**Learning orientation.** We measured learning orientation with VandeWalle's (1997) scale, which assesses the extent to which people are prone to develop new skills. For example, respondents indicated their agreement with statements about the extent to which they like to take on challenging tasks from which they can learn, or the extent to which they look for opportunities to develop new skills and knowledge (alpha = .89).

**Passion for work.** Following prior studies (Baum and Locke, 2004), we measured passion for work with five items that reflect the extent to which people love work. Sample items assess the level of agreement with statements such as 'I love to work hard' and 'I derive most of my life satisfaction from working hard' (alpha = .87).

**Control variables.** In order to account for alternative explanations for the variations in entrepreneurial intention, we controlled for the respondents' gender (dummy variable, female = 1), age (measured in years), education level (dummy variable, graduate student = 1), educational background (business, humanities or sciences major, with the latter as the base case), whether they have been exposed to entrepreneurship in their curriculum (yes = 1), university affiliation (with University 1 as the base case), and whether they have a close family member who is self-employed.

### **Reliability and validity of measures**

Following Anderson and Gerbing (1988), we estimated a five-factor measurement model using AMOS 18, which includes the study's major constructs. Confirmatory factor analysis (CFA) revealed factor loadings greater than .40, normalized residuals less than 2.58 and modification indices less than 3.84 (Anderson and Gerbing, 1988), in support of the adequacy of the scale items. We also note that this five-factor model fits the data well ( $\chi^2_{(125)} = 496.66$ , goodness-of-fit index (GFI) = .95, Tucker-Lewis index (TLI) = .97, confirmatory fit index (CFI) = .98 and root mean squared error of approximation (RMSEA) = .05). The significance of the factor loadings in the measurement model ( $t > 2.0$ ; Gerbing and Anderson, 1988) and the magnitude of the AVE estimates (greater than .50, Bagozzi and Yi, 1988) provide evidence of the convergent validity of the measurement scales (see Table 1 for more details). Discriminant validity between the constructs is also established, because the AVE estimates of the constructs are greater than the squared correlations between the corresponding pairs of constructs (Fornell and Larcker, 1981). In addition, we found significant differences

between the fit indices of the unconstrained and constrained models (Anderson and Gerbing, 1988) for all 10 pairs of constructs, which indicates that the unconstrained models (which assume discriminant validity) are superior.<sup>6</sup> For example, significant differences appear in the models that include entrepreneurial intention and perceived ability ( $\chi^2_{(1)} = 21.8, p < .001$ ), entrepreneurial intention and perceived attractiveness ( $\Delta\chi^2_{(1)} = 50.5, p < .001$ ), perceived ability and perceived attractiveness ( $\chi^2_{(1)} = 46.5, p < .001$ ), and learning orientation and passion for work ( $\chi^2_{(1)} = 20.2, p < .001$ ).

In order to rule out the possibility of common method bias in the results, we undertook a CFA for a single-factor model and found a poorer fit with the data ( $\Delta\chi^2_{(135)} = 7,808.84$ , GFI = .42, TLI = .41, CFI = .48, RMSEA = .23), significantly worse ( $\Delta\chi^2_{(10)} = 7,312.18, p < .001$ ) than the fit for the five-factor model, which suggests that common method bias should not be a serious concern. Further, common method bias typically is less salient in studies using highly educated respondents and multi-item scales (Bergkvist and Rossiter 2007), as well as for studies that test for moderating rather than main effects because respondents cannot easily guess the former effects, which decreases the likelihood of spurious findings (Brockner et al., 1997; Simons and Peterson, 2000). In all, these considerations alleviate concerns related to the use of common respondents in our study.

## Results

The correlations and descriptive statistics for the study variables appear in Table 2. We used moderated hierarchical regression analysis to test our hypotheses (Cohen and Cohen, 1983), with a mean-centring procedure for the independent and moderating variables to minimize multicollinearity (Aiken and West, 1991). The variance inflation factors were all lower than the critical value of 10, which implies that multicollinearity is not an issue in our analyses (Neter et al., 1996). In Table 3, we provide the regression results for several models. Model 1 contains only the control variables, and Model 2 adds the direct effects of perceived ability, perceived attractiveness, learning orientation and passion for work. Models 3 to 6 add the four corresponding interaction terms one at a time, in order to avoid the masking of true interaction effects (Aiken and West, 1991; Cohen and Cohen, 1983), as recommended by prior entrepreneurship studies that test multiple interactions (e.g. De Clercq et al., 2010; Zahra and Hayton, 2008).

In terms of the control variables, we found that women express lower entrepreneurial intentions than men, and that there are positive relationships between whether respondents have taken an entrepreneurship course or have exposure to a family role model and their entrepreneurial intentions (Model 1). We also observed a positive relationship between the perceived ability to become a successful entrepreneur ( $\beta = .067, p < .05$ ) and the perceived attractiveness of becoming an entrepreneur ( $\beta = .591, p < .001$ ), on the one hand, and entrepreneurial intention, on the other. Further, we found a direct positive relationship of passion for work ( $\beta = .107, p < .01$ ), but not learning orientation ( $\beta = -.003, ns$ ), with entrepreneurial intention (Model 2).

H1 and H2 predict positive moderating effects of learning orientation. In order to test them, we added the corresponding interaction terms in Models 3 to 4. Each interaction term is positive and significant: we found positive interactions between people's learning orientation and their perceived ability to become a successful entrepreneur ( $\beta = .048, p < .05$ , Model 3) and the perceived attractiveness of becoming an entrepreneur ( $\beta = .058, p < .01$ , Model 4). The moderating effects of passion for work (H3 and H4) mirror those for learning orientation. We found a positive interaction between people's passion for work and perceived ability ( $\beta = .065, p < .001$ , Model 5) and perceived attractiveness ( $\beta = .067, p < .001$ , Model 6).

In order to clarify the nature of these significant interaction effects, we plot them in Figures 2 and 3. The positive relationship between perceived ability and entrepreneurial intention is stronger at higher levels of learning orientation (Figure 2a) and passion for work (Figure 2b); similarly, the

**Table 2.** Correlation matrix (N = 946).

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Entrepreneurial intention	2.829	1.596													
2. Perceived ability	4.036	1.474	.524												
3. Perceived attractiveness	3.638	1.748	.726	.664											
4. Learning orientation	5.198	.975	.184	.208	.213										
5. Passion for work	4.870	1.171	.219	.155	.211	.494									
6. Gender	.616	.487	-.215	-.239	-.242	.047	.144								
7. Age	21.030	2.160	.047	-.034	.070	.158	.06	.039							
8. Education level	.067	.249	.038	-.038	.008	.019	.023	.089	.403						
9. Business major	.580	.494	.158	.164	.175	-.140	-.119	-.311	-.113	.012					
10. Humanities major	.330	.470	-.170	-.185	-.197	.078	.068	.335	.06	-.006	-.823				
11. Entrepreneurship in curriculum	1.690	.461	-.134	-.107	-.136	-.061	-.056	.134	-.110	-.034	-.170	.108			
12. University affiliation	.280	.450	.075	.094	.083	-.023	-.011	-.142	-.256	-.167	.480	-.388	.146		
13. Family role model	.626	.484	.124	.103	.105	.068	.110	.067	-.03	.014	-.006	-.013	-.092	-.011	

Note: Correlations above .067 are significant at  $p < .05$ .

**Table 3.** Regression results (dependent variable: entrepreneurial intention) (N = 946).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Gender (female = 1)	-.595***	-.170*	-.164*	-.171*	-.172*	-.179*
Age	.037	-.010	-.011	-.013	-.011	-.015
Education level (graduate student = 1)	.234	.272 <sup>+</sup>	.279 <sup>+</sup>	.296 <sup>+</sup>	.277 <sup>+</sup>	.303 <sup>+</sup>
Business major <sup>a</sup>	.000	.091	.096	.099	.138	.135
Humanities major	-.278	.039	.040	.042	.060	.043
Entrepreneurship in curriculum	.306**	-.075	-.075	-.071	-.074	-.058
University affiliation <sup>b</sup>	.176	.024	.026	.017	.007	-.001
Family role model	.426***	.139 <sup>+</sup>	.137 <sup>+</sup>	.131 <sup>+</sup>	.140 <sup>+</sup>	.127 <sup>+</sup>
Perceived ability		.067*	.069*	.066*	.068*	.063*
Perceived attractiveness		.591***	.586***	.587***	.581***	.583***
Learning orientation		-.003	.018	.022	.015	.006
Passion for work		.107**	.113**	.110**	.131***	.138***
H1: Perceived ability × Learning orientation			.048*			
H2: Perceived attractiveness × Learning orientation				.058**		
H3: Perceived ability × Passion for work					.065***	
H4: Perceived attractiveness × Passion for work						.067***
F-value	11.303***	92.096***	85.757***	86.470***	87.032***	87.866***
R <sup>2</sup>	.088	.543	.544	.546	.548	.550

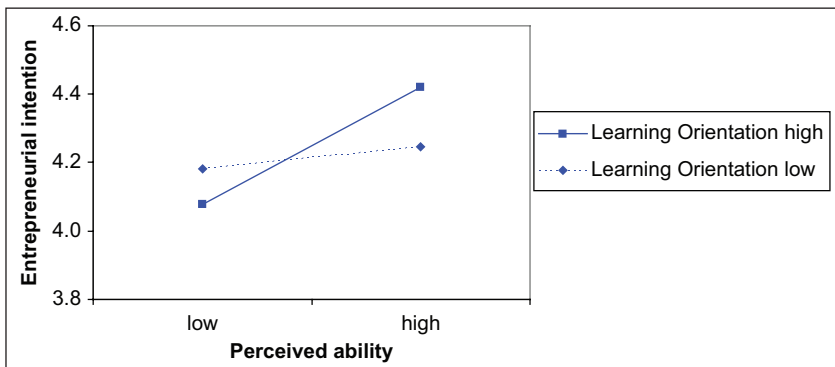
\*p<.10; \*p<.05; \*\*p<.01; \*\*\*p<.001 (two-tailed).

<sup>a</sup> Base case = Science major; <sup>b</sup> Base case = University I.

positive relationship between perceived attractiveness and entrepreneurial intention is stronger at higher levels of learning orientation (Figure 3a) and passion for work (Figure 3b).

**Post-hoc analysis**

In order to determine whether the interaction effects between the perceived attractiveness of becoming an entrepreneur and the two personal characteristics (learning orientation and passion



**Figure 2a.** Moderating effects of learning orientation – perceived ability–entrepreneurial intention relationship.

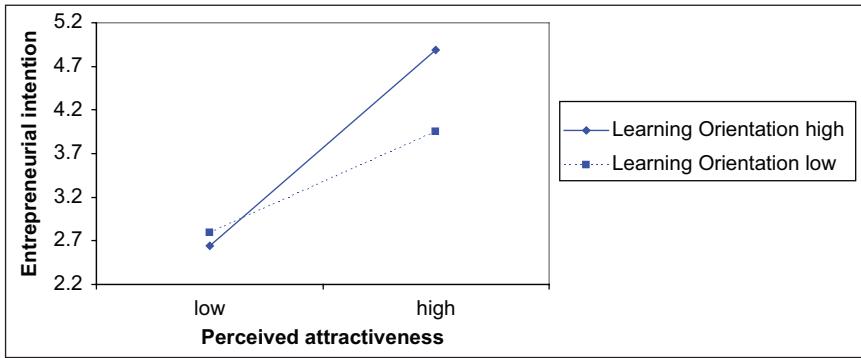


Figure 2b. Perceived attractiveness–entrepreneurial intention relationship.

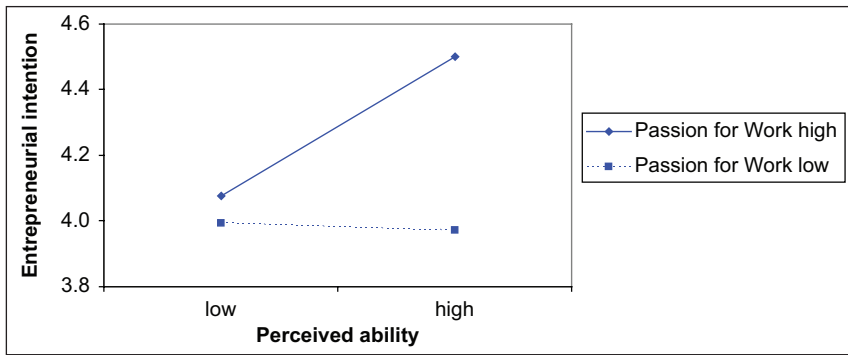


Figure 3a. Moderating effects of passion for work: perceived ability–entrepreneurial intention relationship.

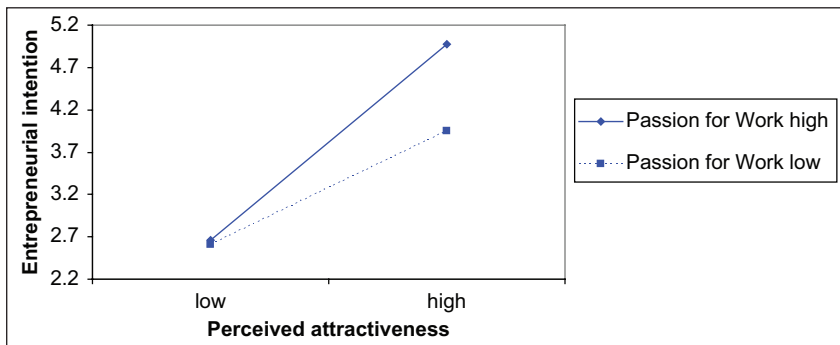


Figure 3b. Perceived attractiveness–entrepreneurial intention relationship.

for work) might work differently according to the extent to which people value extrinsic and intrinsic aspects in their future career (Naffziger et al., 1994; Schjoedt, 2009; Souitaris et al., 2007), we assessed the importance that people attributed to financial rewards and autonomy in their future career, respectively, with two items for financial rewards: ‘economic opportunity’ and ‘receiving

compensation based on merit' ( $\alpha = .70$ ), and with four items for autonomy: 'freedom', 'independence', 'be my own boss' and 'choose my own work tasks' ( $\alpha = .85$ ).

Specifically, we calculated three-way interactions among perceived attractiveness, learning orientation (passion for work) and the two motivational aspects. Whereas we found no significant three-way interaction effects for the importance of financial rewards, we revealed that the positive moderating effect of learning orientation on the perceived attractiveness–entrepreneurial intention relationship is stronger at higher levels of autonomy importance ( $\beta = .031, p < .05$ ), and that passion for work on the perceived attractiveness–entrepreneurial intention relationship is stronger at higher levels of autonomy importance too ( $\beta = .024, p < .05$ ). These findings indicate that learning orientation and passion for work play particularly salient roles in transforming attractiveness considerations about entrepreneurship into actual entrepreneurial intentions when intrinsic motivations (e.g. autonomy) underlie future career choices. However, the roles that these two personal characteristics play in leveraging perceived attractiveness into enhanced entrepreneurial intentions appears immune to the extrinsic motivation of financial rewards.

## Discussion

The intention to start a new business represents a first critical step in the process of becoming an entrepreneur (Bird, 1988; Krueger et al., 2000; Lee et al., 2011). We investigate the role of two individual characteristics – learning orientation and passion for work – which have received scant attention in prior studies of entrepreneurial intention formation. This oversight is somewhat surprising in light of the widely acclaimed importance of knowledge in the decision to start a venture (Davidsson and Honig, 2003; De Clercq and Arenius, 2006; Gorman et al., 1997). It is of particular relevance because these characteristics reflect how people value and process knowledge when undertaking work-related tasks: namely, their propensities to look continuously for new knowledge to update the current knowledge set (learning orientation), and to process work-related knowledge intensively during task execution (passion for work). Although the formation of entrepreneurial intention may result from career-specific considerations with respect to feasibility and desirability (Fitzsimmons and Douglas, 2011; Krueger et al., 2000; Krueger and Brazeal, 1994), limited research has considered how individual characteristics – let alone learning orientation and passion for work – might influence the potency of such considerations to enhance the intention to start a new business (Franke and Lüthje, 2004; Lee et al., 2011; Lent et al., 1994). We argue that both characteristics provide a more dynamic perspective on the role of knowledge in entrepreneurial intention formation, because they reflect people's ongoing efforts when undertaking work-related activities, and thus, may have instrumental effects for alleviating concerns about the anticipated uncertainty of a future entrepreneurial career. Ultimately, they should invigorate the means by which feasibility and desirability considerations inform actual intention formation.

Our results indicate empirical support for these theoretical expectations. First, we find that the potency of perceived ability to become a successful entrepreneur in terms of enhancing entrepreneurial intention is stronger at higher levels of learning orientation (Figure 2a) and passion for work (Figure 3a), compared with those at lower levels. People who continuously look for new knowledge are better able to infuse their current knowledge set with new insights, and thus, may be more convinced that they can leverage their current entrepreneurship-relevant abilities to start a business. Similarly, those who are more passionate about devoting substantial efforts to work-related activities enjoy enhanced cognitive abilities to exploit their current knowledge base; in addition, they may perceive stronger feelings of self-accomplishment and joy when they can leverage their current knowledge set in support of a career for which they believe they have appropriate capabilities.



Second, we find a similar pattern for the instrumentality of the perceived attractiveness of becoming an entrepreneur. The positive relationship between perceived attractiveness and entrepreneurial intention is stronger among people with a stronger learning orientation (Figure 2b) and passion for work (Figure 3b). Thus, learning orientation and passion for work – and the associated propensities to update the current skill set and intensively process work-related knowledge, respectively – amplify the potency of perceptions of entrepreneurship as a desirable career for enhancing entrepreneurial intentions. The finding with respect to passion for work may suggest the possibility of a positive feedback loop, in which prospective entrepreneurs ‘leverage’ their passion to signal to themselves their anticipated success with regard to meeting an attractive career state. However, further research should investigate this proposition.

In a post-hoc analysis, we investigated whether the role of learning orientation and passion for work in leveraging attractiveness considerations into greater entrepreneurial intentions might depend on the extent to which extrinsic or intrinsic motivations underlie career choices. The amplification effects of learning orientation and passion for work on the perceived attractiveness–entrepreneurial intention relationship grow greater when the intrinsic goal of autonomy is valued to a greater extent, but these amplification effects are immune to the importance of the extrinsic career motivation of earning financial rewards. The lack of significant three-way interactions among learning orientation (passion for work), perceived attractiveness of becoming an entrepreneur and the importance of financial rewards could indicate that those who have a strong willingness to learn new skills (or give their utmost to work-related activities) devote limited attention to financial issues when they choose to pursue their desirable entrepreneurship goal. This interpretation resonates with previous research on the benefits of learning orientation and passion for work, particularly the notion that people who are motivated to invest significant energy in pursuing work-related goals for the sake of the learning challenge or joy that it brings – in our context, undertaking tasks that can lead to the desirable goal of entrepreneurship – grant limited weight to the financial outcomes associated with goal accomplishment (Dweck and Leggett, 1988; Ho et al., 2011).

## Conclusion

### *Limitations of the study and recommendations for future research*

This study contains some limitations that offer opportunities for further research. First, our focus has been on intentions rather than actual start-up decisions. Additional research could examine how our focal individual characteristics (learning orientation and passion for work) influence the transition of intentions into actual career decisions (Ajzen, 1991, 2001). In this regard, our findings could inform future longitudinal applications of Ajzen’s (1991) theory of planned behaviour to entrepreneurship. Implicit in our argument is that entrepreneurial intention automatically leads to actual new business creation, but this might not necessarily be the case (Franke and Lüthje, 2004). Instead, learning orientation and passion for work could play instrumental roles in when and how entrepreneurial intentions translate into actual entrepreneurial behaviour. For example, those continuously on the lookout for new knowledge or willing to go the extra mile when undertaking work-related activities might be more likely to persist, even if their initial attempts to sell their business ideas to others fail. Providers of entrepreneurial finance notably are in the ‘business of saying no’ (Fried and Hisrich, 1994), so persistence among nascent entrepreneurs who go through repeated attempts to receive external funding may be greater when they are willing to incorporate the feedback and novel insights received from potential investors into their initial business idea, and are relentless in their efforts.

Second, our post-hoc analysis has provided some preliminary insights into how specific desirable career outcomes (i.e. financial rewards and autonomy) might alter the importance of a learning orientation and passion for work in translating career-specific motivations into entrepreneurial intention. Future research could consider additional relevant outcomes, such as challenge or self-realization (Souitaris et al., 2007) and include these in a more comprehensive model of career intention formation, such as one that features careers as entrepreneur versus manager in a corporate setting. Such research might investigate whether the relative insensitivity of learning-oriented and passionate people to financial issues, as we found in our post-hoc analysis, also suggests that people who are prone to learn new skills or work passionately believe that gaining financial rewards can be accomplished as easily in work settings other than entrepreneurship. For example, strong learning orientations and passion for work may offer opportunities for direct comparisons with peers (who are less learning-oriented or less passionate about work), and thus increased possibilities that employers will provide financial rewards for demonstrating a willingness to learn new things or work passionately.

Third, our study has focused on the emergence of particular intentions early in a person's career trajectory (Fitzsimmons and Douglas, 2011) rather than offering a broader theory of lifelong career intentions. Accordingly, we tested our hypotheses with a student sample, which may not be representative of the entire population. It would be beneficial to test the external validity of our findings across a more diverse set of subjects and thus investigate, for example, whether and how the hypothesized effects work differently as people move along different stages of their career trajectory.

### *Practical implications of the study*

Despite these limitations, this study offers several important practical implications. Our consideration of the interplay between people's feasibility and desirability considerations and characteristics that tap into how they value and process knowledge reveals that these two sets of factors should be considered simultaneously in order to understand entrepreneurial intention formation. Entrepreneurship programmes should recognize that career-specific motivations, the willingness to update current knowledge and a general passion for work all go hand-in-hand and can have synergistic effects on the development of interest among young adults to start their own business. In addition, educators should be clear that a willingness to update a knowledge base continuously or devote maximum effort to work-related activities may be only a minimum entry condition for a career fraught with challenges, hurdles and possible failure. Having a learning orientation or being highly passionate about work instead may be rewarded more easily or rapidly in a corporate context, where a person's work-related behaviours are often directly compared with those of their peers. In this regard, our post-hoc analysis indicates that a strong learning orientation and passion for work may be most useful among those who see entrepreneurship as a desirable career *and* emphasize intrinsic goals (e.g. pursuit of autonomy) in their future career, rather than looking to reach extrinsic goals.

However, learning orientation and passion for work are not set in stone (Ames and Archer, 1988; Burke and Fiksenbaum, 2009; Porter and Tansky, 1999), and their manifestation may depend on the situation, such as prior task-related experiences or external requirements for particular tasks (Button et al., 1996; Markus and Wurf, 1987). Accordingly, the potency with which feasibility- and desirability-related considerations enhance entrepreneurial intentions could be influenced by educators or other stakeholders who wish to increase the number of students that engage in actual start-up endeavours. For example, attitudes and behaviours associated with a strong learning orientation could be promoted by exposing students to the joys of undertaking challenging projects, or providing them with the skills and abilities to bring projects to a successful conclusion (Brett and VandeWalle, 1999; Souitaris et al., 2007). Practical experience, a flexible learning environment and

more widely expressed learning goals may increase learning orientations while enhancing the interest of individual students in starting a new business, thus creating a virtuous cycle.

Similarly, students' passion for work could be stimulated by explicating the possible synergistic effects between work and leisure activities, such that work-related activities come to represent sources of personal freedom, individual growth, challenge and excitement (Kuratko et al., 1997). Educators could increase the likelihood that students will exhibit a strong passion for work in the context of entrepreneurship by demonstrating that entrepreneurial opportunities exist in a wide array of areas and disciplines, encouraging them to consider what areas and disciplines they are most interested in, and then developing exercises to explore entrepreneurial opportunities in those areas. In addition, students might be exposed to inspiring role models who communicate their passion for entrepreneurship (Cardon et al., 2005, 2009; Scherer et al., 1989).

More generally, educators should extend traditional pedagogy, which frequently contrasts with the needs of an entrepreneurial education (Honig, 2004). Academic learning typically consists of presenting information in a consistent and predictable manner. Students review, digest and repeat previously dictated solutions to specific abstract problems, then demonstrate competence during examinations. These techniques might be used for teaching foundational material, such as tools that assist students in analytical decision-making, but they are ill-suited to the complex and dynamic problems typically faced by entrepreneurs. Developing more experiential 'open-ended' learning opportunities may be a useful way to enhance entrepreneurial endeavours. Such a learning environment could have considerable implications for traditional educational programmes, which tend to focus on testing and rewarding replication rather than adaptation. Therefore, new assessment measures may be necessary to accommodate the needs of entrepreneurship education. Educators could create specific conditions to activate students' learning orientation and passion for work; they should recognize how these manipulations alter intentions to consider entrepreneurship as a career option, particularly among people who already have some capabilities to become a successful entrepreneur, or for whom entrepreneurship seems attractive in general.

To conclude, this study should be of interest to those who research, teach and support entrepreneurship, because it explicates the interplay between the underexplored concepts of learning orientation and passion for work with entrepreneurship-specific motivations for the formation of entrepreneurial intention. We have highlighted how these individual characteristics, which have implications for how people value and process knowledge, affect the potency of feasibility and desirability considerations to enhance entrepreneurial intention. They present an important, and as yet largely untapped, point of access for those interested in promoting and enhancing entrepreneurship. We hope that this study can serve as a precursor of further research into the boundary conditions that influence the effectiveness of specific career considerations for enhancing entrepreneurship.

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## Notes

1. We consider only the 'attitude' component of the desirability motivation, not the subjective norm component, because there is some controversy about the direct effect of subjective norms on entrepreneurial intention. Such norms may affect entrepreneurial intention indirectly through perceived behavioural control and attitudes (Liñán and Chen, 2009).
2. Whereas learning is a process, generation of knowledge is an outcome of it (Kolb, 1984). We thank an anonymous reviewer for pointing out this critical distinction.

3. A person's learning orientation represents a particular type of goal orientation; performance orientation is another facet (Seijts et al., 2004). Whereas performance orientation focuses on the end result of a particular task, such as the consequences of good or bad performance, learning orientation focuses on the process of acquiring and mastering new skills (Seijts et al., 2004). The latter is more effective for reducing uncertainty about complex tasks (Baum et al., 2011; Vandwalle et al., 1999), and therefore should be particularly instrumental in considerations of a highly uncertain career such as starting a business (Sarasvathy, 2008).
4. Our research design follows the positivist approach and empirically tests pre-theorized hypotheses. An interpretivist approach would be a good alternative, if our aim were to capture detailed information about people's different interpretations of what makes an entrepreneurial career feasible and desirable, or to consider the interactions between these interpretations and learning orientation and passion for work. However, our positivist approach seems warranted, considering our theoretical focus on the moderating roles of learning orientation and passion for work, rather than on varying interpretations of the feasibility and desirability of entrepreneurship.
5. The response rate equalled 45 percent at University 1 and 61 percent at University 2. Because the sample of University 1 included students from various backgrounds (business, humanities, sciences) and that of University 2 featured business students only, we ran separate regressions for the business and non-business subsamples as a robustness check. The signs of the interaction terms were identical and in the same direction as the total sample, although the significance levels declined due to the lower statistical power associated with regressions with smaller samples.
6. To be precise, we assess the difference in fit between several pairs of models, whereby one model in each pair assumes perfect correlation between the two constructs (i.e. complete lack of discriminant validity), and the other model predicts a complete absence of a correlation (i.e. perfect discriminant validity). A significant chi-square difference indicates that the former model offers significantly worse fit than the latter model, and thus that the assumption of discriminant validity can be accepted (Anderson and Gerbing, 1988).

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### Author biographies

Dirk De Clercq is Professor of Management at the Faculty of Business, Brock University. His research interests include entrepreneurship, innovation, venture capital, social exchange relationships and cross-country studies.

Benson Honig is the Teresa Cascioli Chair in Entrepreneurial Leadership, DeGroote School of Business, McMaster University. Studying entrepreneurship worldwide, his research includes business planning, nascent entrepreneurship, transnational entrepreneurship, social entrepreneurship, social capital, and entrepreneurship in environments of transition.

Bruce Martin is a PhD candidate at the DeGroote School of Business, McMaster University. His research focuses on motivation, education and performance management in commercial entrepreneurship, social entrepreneurship and non-profit contexts.