

FROM OPPORTUNITY RECOGNITION TO OPPORTUNITY EVALUATION: A
CONGRUENCE PERSPECTIVE OF OPPORTUNITY BELIEF FORMATION

by

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ABSTRACT

DAVID JAMES SCHEAF. From opportunity recognition to opportunity evaluation: A congruence perspective of opportunity belief formation (Under the direction of DR. JUSTIN W. WEBB)

Beliefs about the existence and attractiveness of opportunities underpin entrepreneurial action. Belief formation is broken into two distinct phases. Third-person opportunity beliefs (i.e., an opportunity for someone) form as a result of the opportunity recognition phase. First-person opportunity beliefs (i.e., an opportunity for me) form as a result of the opportunity evaluation phase. Although there is consensus that belief formation follows the path of opportunity recognition phase to the opportunity evaluation phase, most of the theoretical and empirical work to date has examined these phases independently. Herein, I review the opportunity recognition and opportunity evaluation research to synthesize a congruence model of belief formation. Specifically, I introduce the concepts of goal congruence, capability congruence, circumstance congruence, and identity congruence to explain why some individuals transition from favorable third-person opportunity beliefs to (un)favorable first-person opportunity beliefs, while others do not. I test hypotheses with a sample of 172 nascent and experienced entrepreneurs across two time points. Results support that capability, goal, and circumstance congruence moderate the relationship between third-person beliefs and first-person opportunity evaluations. The model contributes to the cognitive perspective of entrepreneurship by providing an alternative perspective to extant expected utility frameworks.

DEDICATION

I dedicate this dissertation to the Core: Mom and Dad, your constant sacrifices, encouragement, and support made reaching this milestone possible. You truly are shelter from the storm. Dan and Beth, thank you for being role models and cheering me on. Your willingness to travel to us provided much needed rejuvenation and kept me grounded during the duration of this project. Courtney, thank you for believing in me when I did not believe in myself. Your love and support kept me going and is instrumental in my success. You're a good egg.

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CHAPTER 1: INTRODUCTION

Entrepreneurship occurs when enterprising individuals act on promising entrepreneurial opportunities (Shane, 2003; Shane & Venkataraman, 2000). As such, it is important to consider both the situational conditions that shape entrepreneurial opportunity (Plummer et al., 2007), and the individual factors that influence pursuit of entrepreneurial opportunity (Wood, McKelvie, & Haynie, 2014). It is at this nexus of individual and opportunity where beliefs about the potential value resulting from opportunity exploitation form (Grégoire et al., 2010; Haynie et al., 2009). The formation of opportunity beliefs involves interpretation of current circumstances (Mitchell et al., 2005), subjective future-focused projections (Barreto, 2012), and the cognitive ‘resources’ that people bring to these circumstances (e.g., dispositions, interests, and experience) (Grégoire et al., 2011). These opportunity beliefs ultimately underpin entrepreneurial action (Felin & Zenger, 2009; McMullen & Shepherd, 2006). Therefore, understanding opportunity belief formation processes and the factors which influence these beliefs are central to advancing our understanding of entrepreneurial behaviors and the associated outcomes.

Individuals pursue opportunities because they form beliefs about the existence, quality, and personal attractiveness of opportunities (Grégoire, & Shepherd, 2012; Haynie, Shepherd, & McMullen, 2009). Belief formation is broken into two distinct phases. Third-person opportunity beliefs (i.e., an opportunity for someone) form as a result of the opportunity recognition phase. First-person opportunity beliefs (i.e., an

opportunity for me) form as a result of the opportunity evaluation phase (McMullen & Shepherd, 2006; Wood & McKelvie, 2015). Both third- and first-person opportunity beliefs are formed with the use of mental images (Grégoire & Shepherd, 2012; Mitchell & Shepherd, 2010; Wood et al., 2014). Mental images are conceptual frameworks or “theories” of cause-and-effect linkages and are used to organize information, form expectations of future events, and predict outcomes (Lim & Klein, 2006; Webber et al., 2000). The use of mental images implies pattern recognition insofar as mental images represent prototypes or exemplars against which incoming information is compared (Gioia & Poole, 1984; Mitchell & Beach, 1990). In this way, individuals hold images of “opportunity” (Baron & Ensley, 2006) and “personal opportunity” (Wood, McKelvie & Haynie, 2014) such that opportunity beliefs form when cognitive representations of the environment or “gists” match these mental images (Shepherd, McMullen, & Jennings, 2007). Because opportunity beliefs form through a dynamic interaction between individuals and environments, opportunity beliefs are influenced by the information produced by the environment (Ozgen & Baron, 2007), the interpretation of information (Kaish & Gilad, 1991; Corbett, 2005), and individuals’ mental images of opportunity (Baron & Ensley, 2006; Grégoire & Shepherd, 2012).

Despite the importance and growing scholarly interest of the cognitive processes to theories of entrepreneurial action, research on third-person opportunity beliefs (i.e., opportunity recognition) and first-person opportunity beliefs (i.e., opportunity evaluation) have emerged separately (Short et al., 2010; Shepherd, et al., 2015; Wood & McKelvie, 2015). Although there is consensus that belief formation follows the path of opportunity recognition phase to the opportunity evaluation phase (Shane & Venkataraman, 2000;

McMullen & Shepherd, 2006), most of the theoretical and empirical work to date has examined these phases independently (e.g., Grégoire, Barr, & Shepherd, 2010; Haynie et al., 2009). Indeed, empirical studies building upon McMullen and Shepherd's (2006) model tend to employ experimental designs to examine how individual's form either third-person opportunity beliefs or first-person opportunity beliefs (e.g., Fitzsimmons & Douglas, 2011; Grégoire et al., 2010; Haynie et al., 2009). While certainly adding to our understanding of the cognitive processes involved for opportunity recognition and opportunity evaluation independently, this prior research does not fully address how third-person opportunity beliefs transition to or influence first-person opportunity belief formation. This gap is noticeable as scholars have discussed how entrepreneurs must shift their thinking as they transition between the phases of the entrepreneurship process (Wood, Williams, & Grégoire, 2012), and that opportunity evaluation often unconsciously and automatically occurs following opportunity recognition (Lumpkin & Lichtenstein, 2005). Stated formally, the current study seeks to address the following research questions:

RQ1a: Why do individuals transition from favorable third-person opportunity beliefs to (un)favorable first-person opportunity beliefs?

RQ1b: How do individual differences influence this belief formation process?

I seek to address these research questions by reviewing extant entrepreneurial cognition research as it relates to third-person opportunity beliefs (i.e., opportunity recognition) and first-person opportunity beliefs (i.e., opportunity evaluation). Through this review of the opportunity recognition and evaluation literature, it is evident that extant research has established that individuals use mental images to form third-person

and first-person opportunity beliefs. However, the mental image of opportunity used to form third-person opportunity beliefs are associated with the envisioned ideal person, entity or candidate for opportunity pursuit, while mental images of personal opportunity used to form first-person opportunity beliefs are associated with current images of the self (Grégoire & Shepherd, 2012; Grégoire et al., 2010; Mitchell & Shepherd, 2010; Wood & McKelvie, 2015). Thus, it follows that transitioning from third-person beliefs to first-person beliefs relies, to some extent, on comparing the mental image of the ideal person, entity, candidate for opportunity pursuit to the current mental image of the self (c.f., Holland, 1985; Medin & Smith, 1984; Rosch, 1977). Herein, I attempt to integrate third- and first-person opportunity belief research by developing a model of belief formation through a synthesis of decision-making, cognitive, and motivation theories premised on assessing congruence (e.g., fit theory, image theory, regulatory fit theory, role congruence theory, etc.). Congruence refers to the fit, match, or similarity between two concepts (Edwards, 1994). Building from this theoretical foundation, the basic premise of the model is that the transition from third-person beliefs to first-person beliefs are enhanced or suppressed depending on the extent to which images of self are congruent with the images of the ideal person, entity, or candidate for opportunity pursuit. Based on the review of the existing fit literature, I introduce the perceptual concepts of *capability image congruence*, *goal image congruence*, *circumstance image congruence*, and *identity image congruence* to explain why some individuals transition from third-person opportunity beliefs to (un)favorable first-person opportunity beliefs. I propose a series of hypotheses derived from the theoretical model. I tested hypothesized

relationships using a survey methodology with a sample of 172 entrepreneurs across two time points.

The study seeks to make four contributions. First, the major intended contribution of the study is to draw attention to the unique effects which enhance or inhibit transition from third-person opportunity beliefs to first-person opportunity beliefs and to show how these relationships differ as a function of individuals and opportunities. That is, the belief formation process depends on the opportunity, the individual, and the individual-opportunity interaction. In this way, we seek to further solidify the importance of the individual-opportunity nexus perspective of the entrepreneurship process to entrepreneurship research. This is important as scholars have questioned the usefulness of the individual-opportunity nexus to entrepreneurship research (Dimov, 2011), with some scholars calling for its abandonment as a central guiding framework for entrepreneurship theory (Davidsson, 2015, 2016, 2017a, 2017b).

Second, I seek to contribute to the cognitive perspective of the entrepreneurship process. Extant theory suggests that third-person opportunity beliefs arise when information about the environment matches a mental image of “opportunity” (Baron & Ensley, 2006; Grégoire, Barr, & Shepherd, 2010) and first-person opportunity beliefs are formed if the opportunity coheres with individuals’ knowledge and values (i.e., image of personal opportunity) (McMullen & Shepherd, 2006; Shepherd et al., 2007). Extant cognitive models assert that both third- and first-person opportunity beliefs form via a bottom-up matching process driven by sensory information from the environment or a top-down matching process driven by the individual’s preconceived mental images (Shepherd et al., 2007; Shepherd, McMullen, & Ocasio, 2017). I seek to extend this

perspective by introducing a perceptual congruence matching process whereby individuals' images of the ideal candidate associated with third-person beliefs—produced by either top-down or bottom-up processes—are compared to the individuals' images of the self. In this way, first-person opportunity beliefs arise when individuals “see” themselves as the ideal candidate for opportunity pursuit. The implication of this approach being that more individual factors are brought to bear in the formation of first-person opportunity beliefs beyond knowledge and values. In this way, I seek to put forth a cognitive model which provides a more comprehensive framework to guide future research on the iterative and recursive transition between the opportunity recognition and opportunity evaluation phases of the entrepreneurship process.

Third, extant research examining third-person and first-person opportunity beliefs are often premised on some formulation of expected utility models in that individuals are often depicted forming opportunity related beliefs through conducting some type of cost/benefit or risk/reward calculation (McMullen & Shepherd, 2006; Grégoire, Shepherd, & Lambert, 2010). I seek to complement, rather than replace, extant research adopting this expected utility paradigm through the introduction of a model premised on congruence (i.e., individual-opportunity fit). The implication being that individuals may not merely form first-person opportunity beliefs based on perceived opportunity value (i.e., third person opportunity beliefs), but consider how the opportunity pursuit fits within their personal situations and contexts (c.f., Mitchell et al., 2001). For example, when considering two opportunities, individuals may believe that one opportunity is more valuable in general, but believe the opposite when considering opportunity pursuit for themselves specifically. In this way, and counter to expected utility models, more

favorable first-person opportunity beliefs may form for “lower quality” third-person opportunity beliefs (c.f., Simon, 1972), because the image of opportunity pursuit associated with the “lower quality” third-person opportunity belief may fit better with an individuals’ current image of self. Accounting for individual-opportunity fit provides a complementary lens to account for, for example, why individuals pursue seemingly low quality opportunities in poor performing industries (e.g., Johnson, 2004; Shane, 2009) or do not act on recognized promising opportunities (e.g., Hill & Berkinshaw, 2010; Wood, Williams, & Drover, 2017), which are not readily explained by extant opportunity discovery (Shane & Eckhardt, 2003) or opportunity creation perspectives (Alvarez & Barney, 2007), which draw on assumptions of expected utility theory.

Forth, the study seeks to contribute to theories of entrepreneurial action. Entrepreneurial action is premised on opportunity belief formation processes (McMullen & Shepherd, 2006; Grégoire et al., 2011). The few studies examining beliefs in conjunction with action find that the majority of individuals who express a general belief that they will act entrepreneurially in the near future rarely enact entrepreneurial behaviors (Van Gelderen, Kautonen, & Fink, 2015; Kautonen, Van Gelderen, & Fink, 2015). The implication is that individuals’ entrepreneurial behavior is better understood if underpinning beliefs preventing action are taken into account. In particular, I seek to demonstrate that lack of individual-opportunity fit via circumstance congruence and identity congruence influences first-person opportunity beliefs therefore suggesting a reduced likelihood of entrepreneurial action.

CHAPTER 2: LITERATURE REVIEW

In this section, I review the opportunity recognition and opportunity evaluation literature. I organize the literature by McMullen and Shepherd's (2006) third-person and first-person opportunity belief framework. Accordingly, the opportunity recognition phase results in (un)favorable third-person opportunity beliefs, and opportunity evaluation phase results in (un)favorable first-person opportunity beliefs. The ideas presented below serve as a review for most of the theory and research on opportunity belief formation.

2.1. Individual-Opportunity Nexus

A major premise of the individual/opportunity nexus model is that the field of entrepreneurship should not be defined simply in terms of who the entrepreneur is and what the entrepreneur does, but rather in terms of the interactions of individuals and opportunities (Shane & Venkataraman, 2000; Venkataraman, 1997; Shane, 2003). Entrepreneurial opportunities (henceforth referred to as opportunities) are market imperfections which allow for the introduction and sale of new goods, services, raw materials, and organizing methods at potentially greater than cost of production (Alvarez & Barney, 2007; Casson, 1982; Shane & Venkataraman, 2000; Venkataraman, 1997). Opportunities for profit represent a combination of two components: situational conditions and new venture ideas. Situational conditions refer to myriad environmental factors that shape the competitive market imperfections. For instance, markets (i.e., the set of customers with latent or underserved needs and wants) act as one facet of

entrepreneurial opportunities, and opportunities vary depending on, for example, market concentration, homogeneity, and other attributes (Shane, 2012). Moreover, broader environmental trends (i.e., the emergence of new technologies, shifting sociocultural landscapes, competitor offerings, etc.) transform existing market needs and/or activate latent needs that constantly change the presence of entrepreneurial opportunities (Ramoglou & Tsang, 2016). In short, situational factors shape the conditions which allow for the introduction and sale of new goods or services (Davidsson, 2015). While situational conditions are important to generating value, ideas about what can be done to capture value are necessary for the generation of entrepreneurial profit.

New venture ideas refer to imagined future ventures comprised of product/service offerings and a means of bringing the offerings into existence (Grégoire, et al., 2010; Davidsson, 2015; Dimov, 2010). Individuals image new venture ideas in response to exogenous changes in situational conditions (Eckhardt & Shane, 2003; Shane, 2012) or in response to endogenous changes in individual entrepreneurial aspirations (Sarasvathy, 2001). In this way, multiple new venture ideas may be imagined to service the same perceived change in situational conditions (e.g., Hill & Birkinshaw, 2010). Similarly, individuals wishing to enact their own venture, regardless of the current situational conditions, imagine various new venture ideas to potentially pursue (Perry, Chandler, & Markova, 2012). Regardless of their origin, the new venture idea is the entity the entrepreneur acts on to capture perceived unmet or latent demand in a target market (Davidsson, 2015; Ramoglou & Tsang, 2016). Entrepreneurial opportunity, therefore, is premised on potential value availability within economic systems, and a means of capturing the available value (Kirzner, 1979). Accordingly, an entrepreneurial

opportunity “involves a demand side, a supply side, and the means to bring them together” (Venkataraman & Sarasvathy, 2001: 652).

Entrepreneurial opportunities only represent half of the nexus model.

Entrepreneurial activity and value generation also depends on enterprising individuals (Shane & Venkataraman, 2000). Individuals “make contact” with entrepreneurial opportunities through extensive cognitive efforts (Grégoire, Corbett, & McMullen, 2011). Individuals interpret the situational conditions (Mitchell et al., 2005), make subjective future-focused projections (Barreto, 2012), and use judgment about the ability of imagined solutions to address perceived unmet needs (Hsieh, Nickerson, & Zenger, 2007; Klein, 2008; Pryor et al., 2016). These cognitive efforts coalesce as beliefs about whether specific situations anchored in a specific time and place, in combination with specific new venture ideas, represent entrepreneurial opportunities (Eckhardt and Shane, 2003; Grégoire, Shepherd, & Lambert, 2010; Wood, McKelvie & Haynie, 2014).¹

Opportunity beliefs are differentiated by a third- and first-person perspective (McMullen & Shepherd, 2006). Favorable third-person opportunity beliefs form when people recognize that applying a specific new venture idea in a specific situation would result in profit. Thus, third-person opportunity beliefs form as a result of opportunity recognition. Because individuals are inherently self-interested and seek to maximize personal benefits (Smith, 1786; Cropanzano, Goldman, & Folger, 2005), a favorable third-person opportunity automatically triggers an evaluation process in which individuals determine whether the third-person opportunity belief constitutes a personally

¹ One cannot know with certainty a priori if a set of circumstances and an idea about what to do regarding those circumstances will generate future profits and therefore the beliefs can be inaccurate (Dimov, 2011; Shane, 2012).

desirable course of action for themselves specifically (McMullen & Shepherd, 2006).

Thus, first-person opportunity beliefs form as a result of the opportunity evaluation. The belief formation process flows from third-person to first-person because an opportunity must theoretically exist in general (i.e., for someone) before if it can exist for any focal actor (i.e., for me or my firm specifically) (Choi & Shepherd, 2004).

2.2. Opportunity Recognition: The Formation of Third-Person Opportunity Beliefs

Third-person beliefs form based on subjective judgments that introducing a specific new venture idea in a specific situation has the potential to result in future profits *for someone in general*. Thus, third-person opportunity beliefs represent the recognition that an idea to remedy a competitive market imperfection represents an opportunity for someone with the right qualities (e.g., knowledge, skills, resources, etc.) (Dimov, 2007). Indeed, the theoretical foundations of opportunity recognition are premised on the subjective process through which ideas for potentially profitable new business ventures are identified (e.g., Kirzner 1979, Shane 2003). A key component to this subjective opportunity recognition process and the resulting formation of third-person opportunity beliefs is pattern recognition (Baron & Ensley, 2006). That is, individuals have a mental image of “opportunity” upon which sensory information from the environment is matched (Dimov, 2007; Shepherd et al., 2007). A typical mental image of “opportunity”, for example, consists of relative novelty, alignment between the product or service attributes and the needs of a market, general feasibility in production, and the generation of desirable outcomes (i.e., value or profits) (Baron, 2006; Grégoire, Barr, & Shepherd, 2010). Individuals interpret information from the environment against their mental model of opportunity and the more that the information “matches” the mental model, the

stronger the third-person opportunity belief (e.g., Grégoire & Shepherd, 2012; Shepherd, Haynie, & McMullen, 2012). Accordingly, opportunity recognition beliefs are influenced by (1) individual factors which direct attention or influence awareness of changes in situational conditions (i.e., the informational input) and (2) individual factors which influence the mental image of “opportunity”.

2.2.1. Attention and Awareness

Individuals differ in the attention they give to situational conditions and/or their awareness of changes in market equilibria (Shepherd, McMullen, & Ocasio, 2017). These differences in attention and awareness are the result of both psychological (Gaglio & Katz, 2001) and social network differences (Bhagavatula et al., 2010; Ma, Huang, & Shenkar, 2011). For example, entrepreneurial alertness, a distinctive set of perceptual and information-processing skills, refers to a readiness to recognize market disequilibrium (Kirzner, 1973; Eckhardt & Shane, 2003). Driven by a motivated propensity to formulate an image of the future, individuals higher in alertness more frequently scan and search the environment for new information, changes, and shifts overlooked by others (Gaglio & Katz, 2001; Tang, Kacmar, & Busenitz, 2012). The increased scanning and search activities leads to higher likelihood of forming third-person opportunity beliefs (Kaish & Gilad, 1991).

Beyond psychological differences, differences in network ties (i.e., mentors, professional organizations, etc.), network positioning (i.e., structural holes), and information exposure (i.e., privileged industry access) influence opportunity recognition via the awareness of changes in environments (Ozgen & Baron, 2007). For example, individuals with richer network ties are more likely to form third-person opportunity

beliefs. The rich network provides individuals with both novel and diverse information not easily accessible by all market participants (Gielnik, Frese, Graf, & Kampschulte, 2012). Diverse information allows for the synthesis of various inputs which challenge the individuals preconceived notions, and in turn, drives awareness of changes in the environment (Dyer et al., 2008).

2.2.2. Mental image of opportunity

Individuals are heterogeneous in their human capital, and these differences influence opportunity recognition because the human capital gives meaning to received information (Bhagavatula et al., 2010; Corbett, 2007). Human capital includes formal education, training, employment experience, and skills, all of which shape entrepreneurs' mental models, schema, or images of opportunities (Davidsson & Honig, 2003; Florin, Lubatkin, & Schulze, 2003). For example, experience with markets, technology, and entrepreneurship refines the mental model of opportunity. Indeed, experienced entrepreneurs' typical mental model of opportunity differs from novice entrepreneurs (Baron & Ensley, 2006) and these differences positively influence opportunity recognition (Gruber et al., 2012; Ucbasaran et al. 2009; Vandor & Franke, 2016).

In addition to human capital, other individual factors influence opportunity recognition. For example, general and entrepreneurial self-efficacy influence opportunity recognition because individuals have greater confidence in their ability to effectively differentiate meaningful information from mere noise (Ozegen & Baron, 2007; Tumasjan & Braun, 2012). Similarly, entrepreneurs' thinking styles, schemas, prior knowledge, and risk propensity lead entrepreneurs to analyze information differently from non-entrepreneurs (Kaish and Gilad, 1991; Pryor et al., 2015). This difference in data analysis

and interpretation shapes individuals' meta-representations of the environment and influences whether these "gists" cohere with mental models of opportunity. Thus, the differences in thinking styles, schemas, and prior knowledge leads some individuals to recognize opportunities while others do not (Gielnik et al., 2012; Grégoire & Shepherd, 2012; Ozegen & Baron, 2007; Shepherd & DeTienne, 2005; Shepherd, McMullen, & Jennings, 2007).

Extant opportunity recognition research suggests that individuals possess a mental image or abstraction of "entrepreneurial opportunity". Third-person opportunity beliefs arise when sensory information from the environment is interpreted and matches the mental model of opportunity. This suggests that differences in how information is received (i.e., awareness, attention, and network positioning), how information is interpreted (i.e., knowledge, experience, and learning styles), and how "opportunity" is represented by individual images (i.e., mental representations or schemas) influence the formation of third-person opportunity beliefs. Third-person opportunity beliefs are representations of the future or "projected courses of action", which allow individuals to "see" what is required by *someone* to pursue and successfully exploit the recognized opportunity (Grégoire, Shepherd, & Lambert, 2010: 117; Grégoire et al., 2015). Thus, this envisioned future where the opportunity is refined and exploited produces an image of the ideal exemplar for opportunity pursuit (c.f., Rosch, 1977). The awareness of a third-person opportunity is a necessary, but insufficient condition for entrepreneurial action. Indeed, individuals discern whether they should personally pursue the opportunity before taking action (Wood et al., 2014).

2.3. Opportunity Evaluation: The Formation of First-person Opportunity Beliefs

The second stage is opportunity evaluation and results in (un)favorable first-person opportunity beliefs (McMullen & Shepherd, 2006). First-person opportunity beliefs represent the extent to which individuals believe pursuing action to introduce a specific new venture idea in a specific situation is worthwhile for *themselves specifically* (i.e., an opportunity for me). First-person opportunities are about the possibility to act and represent future-oriented cognitive representations of “what will be” if personal action is taken (Haynie, Shepherd, & McMullen, 2009). To determine whether to personally act on an entrepreneurial opportunity, individuals evaluate opportunities. Opportunity evaluation consist of first-person beliefs about personal gains, personal losses, and personal feasibility in exploiting the opportunity (Scheaf, 2016; Scheaf, Loignon, Webb, Heggstad, & Wood, WP). Gain estimation refers to individuals’ judgments of the potential for gain, whether monetary and non-monetary benefits, for themselves in pursuing. Loss estimation is similar to, but distinct from, gain estimation. Loss estimation refers to individuals’ judgments of the potential for loss, related to monetary and non-monetary costs of venturing, for themselves in pursuing specific opportunities. Perceived feasibility refers to individuals’ consideration of their ability and capacity to execute the tasks or activities associated with opportunity pursuit.

First-person opportunity beliefs arise from a person-centric evaluation of an opportunity which involves interpretation (c.f., Barreto, 2012; Dimov, 2007) and takes the form of a multi-criteria structured decision problem (Hastie, 2001). Similar to third-person opportunity beliefs, first-person opportunity beliefs are formed with the use of mental images (Shepherd & Patzelt, 2017). These images relate to the self and consist of individuals’ deeper knowledge and value structures (Shepherd et al., 2007). In this way,

environmental representations are held and matched against this image of self-concept (Mitchell & Shepherd, 2010). The use of images of self suggests that aspects of opportunities can make opportunity pursuit more or less appealing depending on the individual evaluator (Dimov, 2010).

Indeed, entrepreneurs evaluate opportunity pursuit as more personally attractive when the opportunity characteristics indicate an increased potential for personal financial gain. For example, entrepreneurs are more personally attracted to opportunities which are highly inimitable, have limited competition, and have a broad time horizon for exploitation (Mitchell & Shepherd, 2010). Conversely, individuals are less attracted to opportunities which are perceived as having a higher threat of financial loss (Dewald & Bowen, 2010). For example, entrepreneurs are less likely to pursue an opportunity when there is lower likelihood of sustaining innovation, lower likelihood of achieving a lead time over competitors, and when perceived uncertainty and the rate of technological change is high (McKelvie, Haynie, & Gustavsson, 2011). Although certain aspects of opportunity can make pursuit more attractive across individuals, first-person opportunity beliefs are also influenced by an ‘individuation’ process, which asserts that interpretations are shaped by person-specific factors (Wood et al., 2014). These specific individual factors are integrated with representations of opportunity to discern the personal payoff of opportunity pursuit. This integration process reflects Grégoire and colleagues (2011) discussion that cognitive ‘resources’—differences in genetics, knowledge and desires (pg. 1446)— influences how opportunities are personally evaluated. Extant research has uncovered both stable and variable person-specific factors which influence first-person opportunity beliefs (Wood & McKelvie, 2015).

2.3.1. Stable person-specific factors

Stable person-specific factors refer to individual factors less resistant to change and influence the evaluation of opportunities. These person-specific factors alter the individuation process, and lead individuals to either over- or underestimate gains, losses, and perceived feasibility of opportunities, which influences motivation to pursue entrepreneurial action (e.g., Lee & Venkataraman, 2006). For example, positive dispositional affect – the stable tendency to experience positive moods and emotions – interferes with the evaluation of opportunities and can lead individuals to judge the opportunity with “rose colored glasses” (Baron et al., 2012; Hmieleski & Baron, 2009). Conversely, a dispositional tendency to avoid failure (i.e., fear of failure), strengthens the emphasis individuals place on potential value of opportunity pursuit such that individuals are likely to form first-person opportunity beliefs in instances where the perceived rewards of opportunity pursuit far outweigh the risks (Mitchell & Shepherd, 2010). Beyond emotional dispositions and tendencies, the individuation process has been found to be influenced by gender such that men evaluate opportunities more favorably than women when the opportunity invokes male stereotypes (Gupta et al., 2013). In a similar way, less stable, variable person-specific factors, also influence this individuation process.

2.3.2. Variable person-specific factors

Variable person-specific factors are state-like characteristics and often vary within person over time. Similar to stable-specific factors, variable person-specific factors influence the formation of first-person opportunity beliefs via the individuation process. For instance, positive state-like emotions (i.e., joy) enhance positive aspects of

opportunities influence on first-person opportunity beliefs because euphoric emotions invoke optimism, while negative state-like emotions (i.e., fear) suppresses this relationship as the evaluator is making judgments in a pessimistic state (Foo, 2011; Welppe et al., 2012). Similar to third-person belief formation, human capital shapes how information is interpreted during the individuation process of first-person opportunity belief formation. Opportunity-related knowledge and experience reduces the negative effect of uncertainty on first-person opportunity beliefs as the individual has encountered similar circumstances and can more accurately forecast potential gains and losses (Kor et al., 2007; McKelvie et al., 2011). Also, having related knowledge and experience reduces the costs of entry, making the opportunity more personally attractive by reducing loss potential (Lee & Venkataraman, 2006; Mitchell & Shepherd, 2010; Wood & Pearson, 2009). Experience with aspects of entrepreneurship can also influence how individuals evaluate opportunities. Experience with prior failure (Wood et al. 2014), and considering the worst-case scenario (Bryant 2007; Wood & Williams 2014) influences how individuals' form judgments for loss. Using this specific form of human capital allows individuals to give a more realistic image of "what might be" if an opportunity is pursued and ultimately fails and can reduce or heighten the sense of loss depending on whether the experience was positive or negative (Wood, Williams, & Drover, 2017).

The extant research on opportunity evaluation suggests that individuals' knowledge and values influence the formation of first-person opportunity beliefs. The extent that the opportunity coheres with the individuals' deeper knowledge and value structures, the stronger the first-person opportunity beliefs. Person-specific factors can

enhance or suppress first-person opportunity beliefs. These person specific factors range from highly variable (i.e., emotional states) to highly stable (i.e., gender).

Viewed collectively, a lot of attention has been given to examining the formation of third-person opportunity beliefs (i.e., opportunity recognition) and first-person opportunity beliefs (i.e., opportunity evaluation) separately. However, little theoretical and empirical work has examined how individuals transition from recognition to evaluation, whether third-person opportunity beliefs influence first-person opportunity evaluation, and whether this process is consistent across individuals. This gap in our understanding is noticeable because scholars have acknowledged that opportunity evaluation follows opportunity recognition (Shane & Venkataraman, 2000), but little is known about how individuals transition between these phases of the entrepreneurship process (Wood & McKelvie, 2015). Provided that there has been little theoretical and empirical work examining the transition between third-person and first-person opportunity beliefs, a well-developed theoretical model for this belief formation process is lacking. Despite the lack of a well formulated model, extant research suggests that third- and first-person opportunity beliefs form through the use of mental images of opportunities and images of self respectively (Dimov, 2007; Mitchell & Shepherd, 2010).

Mental images are conceptual frameworks or “theories” of cause-and-effect linkages and are used to organize information, form expectations of future events, and predict outcomes (Lim & Klein, 2006; Webber et al., 2000). Mental images of opportunities reflect the sum of what is thought to be known about the opportunity at the time (Wood et al., 2017). Mental images of opportunities allow one to envision a potential future where the opportunity is successfully refined and exploited (Dimov,

2007; Stevenson & Jarrillo, 1990). In this way, the image of opportunity generates representations of the future, which allows the individual to “see” what is required by someone to pursue and exploit the recognized opportunity—an ideal exemplar of opportunity pursuit (c.f., Rosch, 1977). Mental images of self are “the total set of beliefs about and attitudes toward the self as an object of reflection” (Morgan and Schwalbe, 1990, p. 154). In this way, the mental images of self are used to determine if opportunity pursuit is worthwhile for themselves specifically. Seeking to integrate these bodies of research, I suggest that the transition between third-person beliefs and first-person beliefs depends, in part, on the extent to which individuals judge the congruence between the image of the ideal exemplar of opportunity pursuit and their image of self (c.f., Edwards, 1994; Holland, 1985; Medin & Smith, 1984).

Accordingly, decision-making, cognitive, and motivation theories premised on determining congruence provide a useful basis to develop a model of this proposed matching process. Building upon this foundation, I propose a theory of belief formation premised on the use of mental images and image congruence.

CHAPTER 3: SYNTHESIZING THEORIES OF FIT: A CONGRUENCE MODEL OF OPPORTUNITY BELIEF FORMATION

Individuals attempt to select choices or courses of action which produce positive outcomes. Positive outcomes are those situations in which pleasure is maximized and pain is minimized (Hastie, 2001). Traditionally, decision theory asserts that the decision-making process consists of forming beliefs about the benefits and costs of selecting an option to determine if it's worthwhile (Fishburn, 1981). An option is considered "worthwhile" in instances where the benefits are high when compared to alternative decisions, and the costs are relatively low when compared to the benefits (Kahneman & Tversky, 2000). Recently, decision theory has extended beyond focusing solely on potential outcomes in explaining worthwhile decisions.

Indeed, decision makers also determine worth based on whether the choice option is congruent with some purpose (Beach, 1990; Edwards, 1991; March, 1994; Higgins, 2000; Holland, 1985). Congruence refers to the fit, match, or similarity between two concepts (e.g., perceived outcomes and goals, job applicant skills and job demands, etc.) (Edwards, 1994). Numerous models of congruence exist, but these theories share the general orientation that humans determine congruence by matching information related to an option against a mental representation of a prototypical exemplar which would satisfy a given purpose (i.e., a standard set of criteria) (Fiske, 1993; Rosch, 1977). Thus, the closer (further) the option is from the prototypical exemplar, the more (less) the option is perceived to fit the given purpose (Mitchell & Beach, 1990).

The prototypical exemplar is an abstract representation of ideal features (c.f., Cantor & Mischel 1978; Devine & Baker, 1991; Johnston & Hewstone, 1992). The implication is that congruence with the prototypical exemplar is determined by how the characteristics of a choice fit with the characteristics of the prototypical exemplar. For example, individuals determine their fit with a potential job through value-congruence, demands-abilities congruence, needs-supplies congruence, among others (Holland, 1985; Hoffman & Woehr, 2006). Therefore, the belief formation process can best be conceptualized as congruence among set of criteria, rather than holistic assessments (c.f., Miller, 1981; Venkatraman, 1989).

Although various congruence models exist, these theories are typically oriented toward specific contexts (e.g., person-job fit, person-stereotype fit, strategy-environment fit, etc.) (e.g., Edwards, 1994; Miner, Crane, & Vandenberg, 1994; Venkatraman, 1989). In this way, a comprehensive theoretical model of congruence is not overtly obvious. Herein, I synthesize theories of decision making, cognition, and motivation involving congruence processes to highlight similarities and introduce the criteria which individuals use to determine whether third-person opportunity beliefs transition to first-person opportunity beliefs.

3.1. Capability Image Congruence

Comparing theories of congruence from the decision-making, cognition, and motivation literatures reveals useful similarities. Numerous theories assert that perceived congruence between an individual's current knowledge, skills, and abilities and the perceived knowledge, skills, and abilities required to execute a task influences the belief that the task is a personally favorable course of action. Notably, self-efficacy (Bandura,

1977), perceived behavioral control (Ajzen & Fishbein, 1969), expectancy (Vroom, 1964), and perceived feasibility (Shapero, 1982) conceptualize individuals' beliefs in their effectiveness in executing required behaviors to reach perceived outcomes as a key driver in intentions or preference towards an action.

Perceived self-efficacy refers to individuals' beliefs in their ability to execute behaviors necessary to produce specific performance attainments (Bandura, 1997). This core belief is the foundation of human motivation. Indeed, Stajkovic and Luthans (1998) found considerable support for the role of self-efficacy in determining intention. That is, people favor action paths where perceived self-efficacy is high because high self-efficacy leads to an overestimation of the ability to complete tasks. Conversely, people tend to avoid courses of action or tasks where perceived self-efficacy is low. The low self-efficacy discourages intentions toward action as effort is seen as futile (Grant & Shin, 2011).

Perceived behavioral control overlaps with Bandura's (1997) perceived self-efficacy construct, in that both constructs are about the perceived ability to execute a target behavior (Ajzen, 1987). Perceived behavioral control refers to individuals' perception of the ease or difficulty of performing a particular behavior. Perceived behavioral control can, and usually does, vary across situations and actions (Ajzen, 1987). Vroom's (1964) expectancy theory also conceptualizes individuals' beliefs in effectively performing tasks. In his model, expectancy involves an individuals' belief that effort will lead to the necessary level of performance required to achieve envisioned outcomes.

These theories of decision making are consistent with occupational choice models. Shapero's (1982) model of the entrepreneurial event asserts that the degree to which one feels personally capable of starting a business influences entrepreneurial intention. Similarly, effective career decisions result from a match between a person's knowledge, skills, and abilities, and the organizational and/or job requirements (Cable & Judge, 1997).

Overall, these theories assert that individuals' beliefs about their capabilities to effectively perform specific behaviors influences whether the individual believes the action is personally worthwhile. These theories imply that individuals are aware of the capabilities needed to effectively navigate a course of action. That is, individuals hold a mental image of the ideal capabilities needed to successfully enact behaviors and evaluate whether their personal capabilities are congruent with this ideal image.

Drawing on these theories, I introduce the concept of *capability image congruence*, which refers to individuals' subjectively perceived (in)compatibility between their self-capability image and the ideal capability image for opportunity pursuit. As the individual perceives more congruence between their personal image and the ideal image, opportunity pursuit will be perceived as more personally worthwhile. Therefore, higher capability image congruence enhances the third- to first-opportunity person belief formation process, while lower capability image congruence suppresses the formation process.

3.2. Goal Image Congruence

There is considerable overlap in the decision-making, cognition, and motivation literature regarding goals and desires. Goal intentions (Gollwitzer, 1993, 1999) value

images (Mitchell & Beach, 1990), valence (Vroom, 1964), and attitude towards the behavior (Ajzen, 1987) all emphasize that individuals bring preconceived ideas about what they hope to attain in the future in determining their beliefs about personally pursuing a course of action.

Goal intentions are end states that individuals want to attain and turn general desires into binding goals (Gollwitzer, 1993, 1999). Goals can range from abstract (e.g., I want to be wealthy) to concrete (e.g., I want to save 20% of my income). The use of goal intentions makes an individual feel committed to or specifies the intention to meet an envisioned standard. This specification gives guidance in determining which actions are important to the individual. Whether a course of action is believed to be personally favorable depends on if the action is perceived to be instrumental in servicing the goal intentions. Gollwitzer's (1999) model assumes goal intentions, but does not specify its origins. Value images from image theory addresses the source of goal intentions. The value image consists of individuals' principles (Beach, 1990). Principles are a combination of ethics, morals, and general desires (e.g., Beach, 1990; Mitchell & Beach, 1990). Principles serve to internally generate goals and guides whether externally generated goals should be adopted. The value image is a critical component during the decision making process because decisions regarding potential courses of action are evaluated with reference to contributing to or hindering goal attainment. Indeed, if the characteristics of a choice option violate the ideal characteristics associated with reaching a goal, then the option is rejected or discarded (Beach & Strom, 1989).

Similarly, expectancy theory accounts for the within-person decisions about whether, where, and how to spend time and energy (Grant & Shin, 2011). Within

expectancy theory, decisions are influenced by the valence towards a course of action (Vroom, 1964). Valence refers to the individuals' belief that the perceived outcomes of action are important or valuable. Individuals interpret potential outcomes of a decision with reference to individually predetermined criteria of importance. Attitudes from the theory of planned behavior exhibit overlap with valence (Ajzen, 1987) such that attitudes capture the extent to which individuals evaluate potential behaviors favorably. Favorability in the theory of planned behavior is conceptualized as the individual's affective orientation towards the perceived outcomes. Additionally, Shepherd and colleagues' (2007) coherence model of first-person opportunity beliefs argues that first-person beliefs form when meta-representations of opportunity cohere with the individual's deeper value structure.

These theories are consistent with occupational choice models. Indeed, Shapiro's (1982) model of the entrepreneurial event asserts that entrepreneurial intentions form when an individual values the outcomes associated with starting a business. Similarly, a critical dimension of person-organization fit theory is value congruence. Value congruence refers to the perceived similarity between individuals' values and prospective organizations' values (Kristof, 1996). This perceived congruence between values influences the personal attraction of joining an organization because serving the organizations' goals are instrumental in serving the individual's goals as well.

Overall, these theories assert that individuals' personal values and goals influence whether the individual believes an action is personally worthwhile. Individuals envision the outcomes for ideal action pursuit (i.e., the best case scenario) and determine if the action is suitable for goal attainment. The more perceived congruence between the

outcomes of ideal action pursuit and personal goals, the more valuable enactment of the action becomes. In this way, pre-existing personal goals are brought to the belief formation process and options may or may not service goal attainment.

Drawing from these theories, I define *goal image congruence* as individuals' subjectively perceived (in)compatibility between their goal image and the benefits associated with the outcomes of ideal opportunity pursuit. As the individual perceives more congruence between their personal goal image and the perceived benefits associated with the outcomes of ideal opportunity pursuit, the more personally worthwhile opportunity pursuit becomes for them specifically. Therefore, higher perceived goal image congruence enhances the third- to first-person opportunity belief formation process, while lower capability image congruence suppresses the formation process.

3.3. Circumstance Image Congruence

A few decision making, cognitive, and motivation theories assert that individuals' personal circumstances influence whether a course of action is personally worthwhile. These models emphasize that personal circumstances (e.g., recent marriage, child bearing, finishing school, a lucrative job) (Bagozzi et al. 1989) influence whether an individual believes that pursuing a course of action is suitable at the moment. Examples of circumstances preventing first-person belief formation include perceptions of embeddedness (Mitchell et al., 2001), the costs of switching (Folta, 2007), resource slack (Zauberman & Lynch, 2005), and the propensity to act (Shapero, 1982). Each emphasize that aspects of an individual's life outside of perceived ability and motivation influence whether the course of action is suitable for the individual.

Perceptions of embeddedness asserts that factors outside ability and motivation are important determinants of why people find choices personally worthwhile (Lee & Maurer, 1999). Perceptions of embeddedness are like a net or a web in which an individual feels stuck. The foundations of perceptions of embeddedness are rooted in Field theory (Lewin, 1939). People have a perceptual life space in which the aspects of their lives are represented and connected. These connections can be few or many and close or distant. As individuals perceive higher levels of embeddedness, they increasingly see themselves as part of their surroundings, making any change from their current situation more difficult. Indeed, Mitchell and colleagues (2001) find that off-the-job factors such as links and fit with the community reduces turnover intentions despite feelings of job dissatisfaction. Moreover, individuals higher in perceived embeddedness engage in less job search activities. In this way, individuals' perception of "being stuck" influence the belief that alternative courses of action are not suitable at the given moment.

The concept of perceived embeddedness overlaps with perceived costs of switching associated with pursuing a new course of action in that these concepts invoke a sense of sacrifice (Folta, 2007). Individuals' perceptions of the costs associated with switching actions influence whether they believe a course of action is worthwhile at the given time. For example, the cost of switching from wage work to self-employment involves disruption of an accustomed lifestyle, loss of employer provided healthcare, loss of retirement benefits with an employer, loss of company seniority or status, the costs of raising start-up capital, and other perks of wage employment (Parker 1996, 2005). These costs take on greater weight in the switching decision in the presence of uncertainty.

Thus, as the perceived costs of switching increase, the likelihood of pursuing new courses of action is reduced. These concepts suggest that the belief that an action is personally worthwhile hinges on whether the individual perceives themselves as constrained by their current circumstances (c.f., Kimmel & Conway 2001, Renna 2006).

Similarly, a new course of action may not seem worthwhile at the given moment due to the new course of action competing for the use of a single, limited resource pool (c.f., Shah, Friedman, & Kruglanski, 2002). Whether an action is considered personally worthwhile depends on the perception of slack resources. Resource slack is defined as the perceived surplus of a given resource available to complete new tasks without causing interruptions to the completion of existing tasks associated with the use of the same resource (Zauberman & Lynch, 2005). Perceptions of slack drive the desire to delay action because slack enables individuals and organizations to divert attention away from "fire-fighting" (i.e., focusing existing resources on completing necessary obligations) and instead focus on expansive thinking or exploration (Nohria & Gulati, 1996). In this way, slack resources enable individuals and organizations to effectively manage current obligations while allowing for the exploration of new courses of action at the same time (Nohria & Gulati, 1996; Sharfman, Wolf, Chase, & Tansik, 1988). For example, slack financial resources can facilitate investments in radical product innovations while continuing to service the existing customer base (O'Brien, 2003). The implication being that slack resources influence whether the individual believes the circumstances are "right" to engage in new courses of action.

Shapiro's (1982) occupational choice model builds on the notion that circumstances and exogenous influences can affect individual beliefs about whether a

course of action is worthwhile. The entrepreneurial event model assumes that inertia guides human behavior until something interrupts or “displaces” that inertia.

Displacement is often negative (e.g., job loss), but can be positive such as winning the lottery or receiving inheritance. These significant life events change how individuals view their circumstances and modifies their propensity to act. Propensity to act reflects volitional beliefs (e.g., “I can do it now”). Conceptually, propensity to act is a type of control perception. In other words, displacement theoretically breaks or solidifies the perception that individuals are controlled by their circumstances. The individuals have not changed (e.g., their personality, human capital, etc.), rather their perceptions of their “new” circumstances have. Thus, Shapero (1982) emphasizes that beliefs about whether a course of action is suitable depends on whether the individual perceives his/her circumstances as allowing for pursuit of the action.

Overall, these theories assert that individuals’ beliefs about their current circumstances influences whether the individual believes an action is suitable or worthwhile. These theories imply that individuals are aware of the ideal circumstances needed to effectively pursue a course of action. That is, individuals hold a mental image of the ideal circumstances for action pursuit and evaluate whether their personal circumstances are congruent with this ideal image.

Accordingly, I introduce the concept of *perceived circumstance image congruence*, which refers to individuals’ subjectively perceived (in)compatibility between their personal circumstance image and their image of ideal circumstance associated with opportunity pursuit. As the individual perceives more congruence between their personal image and the ideal image, opportunity pursuit will be perceived

as more personally worthwhile. Therefore, increased perceived circumstance image congruence enhances the third- to first-person opportunity belief formation process, while lower circumstance image congruence suppresses the formation process.

3.4. Identity Congruence

Social psychological theories assert that identity influences whether actions are perceived as suitable or worthwhile. Identity theory (Hogg, Terry, & White, 1995), social identity theory (Ashforth & Mael, 1989), and role congruence theory (Eagly & Karau, 2002) explain how individuals give meaning to their self-concepts via identification with roles or self-categorization into social groups. Identification with particular roles or social categories shapes behavior because adherence to an identity influences belief perceptions about what behaviors are (in)appropriate or suitable to pursue (Tajfel & Turner, 1979).

Identity theory explains that identity is based on identification with salient roles. Identity links social structure to individual behavior and is continually shaped by role identifications. Role identifications are self-definitions which people apply to themselves because of the role positions they believe to occupy (Hogg et al. 1995). In this way, individuals define their identity in terms of their perceived membership in a particular role category (e.g., wage employee, entrepreneur, etc.) (Mael & Ashforth, 1992). Identification with particular roles or social categories shapes behavior because adherence to an identity influences belief perceptions about what behaviors are (in)appropriate or suitable for their given role (Tajfel & Turner, 1979). For example, founders' behaviors reflect adherence to a projected image of successful entrepreneurs, rather than managers or administrators (Miller & Breton-Miller, 2011).

Related to identity theory, social identity theory maintains that people tend to classify themselves into social groups and classification can occur with or without direct interaction with the group (Hogg, Terry, & White, 1995). Identity is assumed when people consider themselves a member of a group and sees things from the groups' perspective (Ashforth & Mael, 1989). A sizeable body of research provides evidence that individuals categorize themselves according to their perceived fit with an identity prototype. Identity prototypes are "a common standard against which current and prospective members are evaluated as being fit for group membership" (Bartel & Wiesenfeld, 2013: 507). Thus, categorization happens through a process of matching individual characteristics to the perceived prototypical characteristics abstracted from the members of a group (Tajfel & Turner, 1979). Classification is comparative and relative, which means the definition of the self-concept depends on the other members being classified in related, but distinct categories (Ashforth & Mael, 1989). For instance, the category of "entrepreneur" becomes meaningful in relation to the category of "manager" or "employee". This process gives individuals a systematic method for defining their identity and identity mediates the interaction between social structures and behavior. Thus, social identity is assumed to direct behavior due an individual perceiving situations through the lens of their group membership.

Building on identity and social identity theory, role congruence theory asserts that expectations and behaviors are influenced when individual characteristics are (in)congruent with the attributes that are thought to be required for success in certain roles (Eagly & Karau, 2002). According to role congruence theory, when individuals perceive incongruence between their identity and the characteristics of a role, this

inconsistency lowers their evaluation of themselves as an actual or potential occupant of the role and in turn lowers their expectation of being able to successfully perform behaviors associated with the role. For example, women perform worse on mathematical tasks when they are primed with negative stereotypes of women being poor mathematicians (Shih, Pittinsky, & Ambady, 1999). The priming increases a perceived incongruity between their characteristics as women and the perceived requirements for being successful at mathematics.

Overall, these theories assert that individuals categorize themselves into roles or groups which gives meaning to their identity. Identity mediates social situations and individual beliefs and behaviors. In this way, identity influences whether an action is perceived as suitable depending on their categorized role. These theories imply that individuals possess mental images of the social category or role of the entrepreneur associated with pursuing entrepreneurial opportunity and beliefs about whether opportunity pursuit is suitable depends on their perceived congruence to this image of entrepreneur.

Accordingly, I introduce the concept of *perceived identity image congruence*, which refers to individuals' subjectively perceived (in)compatibility between their characteristics and the ideal characteristics associated with their image of the entrepreneur role. As individuals perceive more congruence between their characteristics and the ideal characteristics of the entrepreneurial role, then opportunity pursuit will be perceived as more personally worthwhile. Therefore, higher perceived identity congruence enhances the third- to first-person opportunity belief formation process, while lower circumstance image congruence suppresses the formation process.

The synthesized theoretical model is depicted in Figure 1. Using this theoretical framework, the formation of first-person opportunity beliefs is considered a cognitive process through which individuals match their images of self to the image of the envisioned ideal person for opportunity pursuit. The implication being that transition from third-person to first-person opportunity beliefs are enhanced or suppressed based on the perceived (in)congruence between their capability, goal, circumstance, and identity images and their images of the envisioned ideal candidate for opportunity pursuit.

The congruence process occurs in the minds of individuals. Therefore, the belief formation process is influenced by subjective perceptions of (in)congruence rather than objective indicators. Even in instances where individuals may be objective fits for opportunity pursuit, if the individuals themselves perceive a lack of fit for opportunity pursuit due to the lack of congruence between their images and their images of the ideal candidate, then first-person person opportunity belief formation is suppressed. Conversely, individuals may objectively not fit with opportunity pursuit, but perceive congruence between their images of the ideal candidate and their personal images. Regardless of the objective indicators, the perceived congruence between images enhances first-person opportunity beliefs. The implication of the model is that first-person opportunity beliefs can be influenced by errors in the congruence process. Accordingly, these errors can arise because of individuals hold inaccurate images of the ideal candidate for opportunity pursuit (c.f., Shane, 2008), or inaccurate images of themselves (c.f., Chang, Ferris, Johnson, Rosen, & Tan, 2012). Below, I propose a series of hypotheses to test this theoretical model.

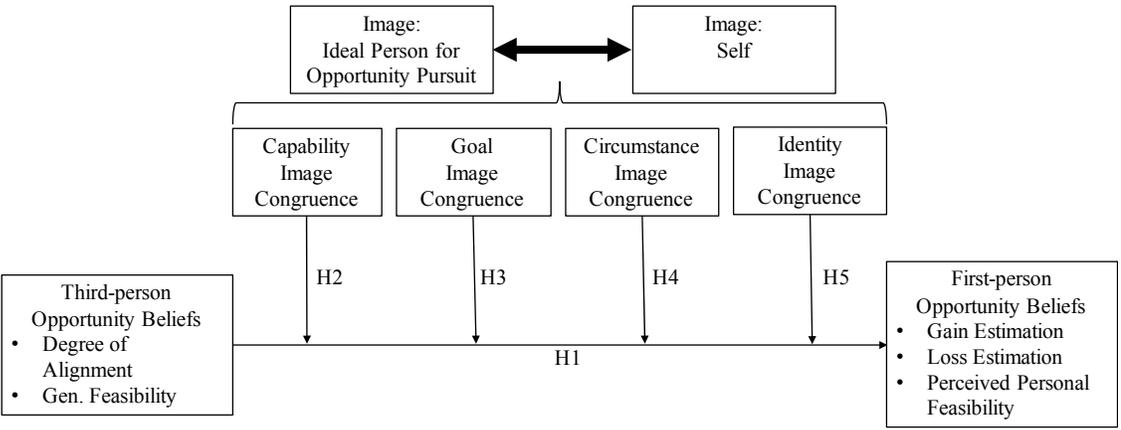


FIGURE1: A congruence model of third- to first-person opportunity belief formation

CHAPTER 4: CURRENT STUDY

4.1. The Effects of Third-person Opportunity Beliefs on First-person Opportunity Beliefs

Third-person opportunity beliefs form when meta-representations of the environment or “gists” match mental models or images of opportunity (Shepherd, et al., 2007). Mental images of opportunity consist of degree of alignment between product and service features and the needs of a target market, and general feasibility in production. These dimensions indicate that individuals believe that potential entrepreneurial profit exists for someone who pursues the opportunity (Gregoire & Shepherd, 2012; Gregoire, et al., 2010). In this way, third-person opportunity beliefs are about the perceived quality of the entrepreneurial opportunity (Gregoire, Barr, & Shepherd, 2010).

Third-person opportunity beliefs are necessary, but insufficient conditions for entrepreneurial action (Wood et al., 2014). Indeed, the formation of a third-person opportunity beliefs trigger an evaluation process where individuals estimate the potential personal gains and losses of opportunity pursuit, and determine whether opportunity pursuit is personally feasible (McMullen & Shepherd, 2006; Scheaf, 2016). Thus, individuals determine whether the potential value of pursuing an entrepreneurial opportunity for *someone* is applicable to *me or my firm specifically* (Choi & Shepherd, 2004; Haynie et al., 2009). I expect positive relationships between third-person opportunity beliefs and first-person opportunity beliefs for two reasons.

First, the formation of both third-person and first-person opportunity beliefs relies on the use of the same sensory information and meta-representations of the environment

(Shepherd, McMullen, & Jennings, 2007). Although the referent changes from *someone in general* for third-person opportunity belief formation to *me or my firm* for first-person opportunity belief formation, the use of the same opportunity stimuli likely leads to anchoring effects (c.f., Gilovich, Griffin, Kahneman, 2002). Specifically, the belief that a new venture idea's attributes align with the needs of a market, and the production of the new venture idea is generally feasible suggests that potential profit availability for someone to capture via opportunity exploitation. This third-person opportunity belief provides the basis for first-person opportunity evaluation (McMullen & Shepherd, 2006). Higher quality third-person opportunity beliefs likely lead to higher estimates of personal gain, lower estimates of personal loss, and increased perceptions of personal feasibility in opportunity pursuit than when an individual perceives a lack of alignment between a new venture idea's attributes and the needs and demands of a target market and lack of feasibility in production. Simply stated, third-person opportunity beliefs provide the theoretical floor and ceiling for first-person opportunity evaluation. Third- and first-person opportunity belief formation is premised on the same sensory information which likely produces a positive association between these beliefs across opportunities (e.g., McMullen, Shepherd, & Jennings, 2007).

Second, third-person opportunity beliefs and first-person opportunity beliefs form with similar mental schemas (McMullen & Shepherd, 2006). Individuals' mental schema drives awareness of changes in situational conditions (Shane, 2003). Moreover, it is individuals' mental schema which determines whether there is alignment between a new venture idea and the needs of a target market and if it is feasible to produce the venture offering (Gregoire & Shepherd, 2012). This mental schema is similar in the formation of

first-person opportunity beliefs (Gregoire et al., 2011). For example, coherence with images of personal opportunity increases opportunity attractiveness and reduces doubt and that entrepreneurial action will result in personal gains, while limiting downside losses (Haynie et al., 2009; McMullen et al., 2007). Conversely, a lack of coherence with mental representation of opportunity produces beliefs that the attributes of a new venture idea do not adequately address the needs of a target market (Gregorie, et al., 2012). In these instances, the lack of coherence with the mental image of opportunity likely relate to unfavorable first-person opportunity beliefs. In other words, if the individual perceives a lack of opportunity *for someone*, they likely will assume a lack of personal gain, a heighten sense of personal loss potential, and/or a lack of perceived feasibility *for me or my firm* specifically (McMullen & Shepherd, 2006). In accordance with this logic, I hypothesize the following:

Hypothesis 1a: There is a positive relationship between favorability of third-person opportunity beliefs and personal gain estimation

Hypothesis 1b: There is a negative relationship between favorability of third-person opportunity beliefs and personal loss estimation

Hypothesis 1c: There is a positive relationship between favorability of third-person opportunity beliefs and individual perceived feasibility

4.2. Capability Image Congruence: Knowledge, Skills, and Abilities

Third-person opportunity beliefs involve future representations where someone has executed the necessary entrepreneurial tasks to create a viable venture. The future representation allows the individual to “see” projected courses of action which are necessary to reach successful opportunity exploitation or the envisioned ideal image of opportunity pursuit (Gregoire et al., 2010). These projected courses of action consist of

both general entrepreneurial capabilities and capabilities specifically related to the development the product or service offering.

General entrepreneurial tasks consist of planning, marshaling, and implementing activities (Mueller & Goic, 2003; Stevenson et al., 1985). Planning activities consists of tasks which translate ideas into effective business plans. Planning requires knowledge, skills, and abilities related to markets, business establishment procedures, manufacturing, financial control, operations, growth strategies, and venture sustainability, among others (Chen et al., 1998; Mueller & Goic, 2003). Marshaling activities involve tasks related to assembling resources to bring the venture into existence. These tasks consist of gathering necessary resources such as capital, labor, suppliers, and distributors to bring the venture into existence (Mueller & Goic, 2003). As such, marshaling activities require knowledge, skills, and abilities in the domains of marketing, negotiation, and regulations (i.e., hiring laws, business certifications, etc.) (Kyndt & Baert, 2015). Implementing refers to activities related to growing and sustaining the venture past its infancy. These activities require knowledge, skills, and abilities in the domains of management, strategic management, leadership, and operations management (Kyndt & Baert, 2015; Mueller & Goic, 2003). Beyond general entrepreneurial tasks, ideal opportunity pursuit involves turning new venture ideas into developed products or services (Davidson, 2015; Gregoire, et al., 2010). These tasks require knowledge, skills, and abilities related to development, production, and refinement of the specific product or service offering.

The image of the ideal candidate for opportunity pursuit is assumed to possess the knowledge, skills, and abilities in these domains. As individuals transition their thinking to first-person opportunity belief formation, they determine whether their knowledge,

skills, and abilities fit this ideal image. In this way, the relationship between third-person and first-person opportunity beliefs are enhanced or suppressed to the extent that the individual “sees” himself or herself as possessing the perceived required knowledge, skills, and abilities related to general entrepreneurial tasks and developing the specific product or service.

As noted, favorable third-person opportunity beliefs are expected to have a positive relationship with perceived gain estimation. When individuals also perceive high capability congruence, then the relationship between third-person opportunity beliefs and gain estimation is likely to be enhanced because the individuals believe they have the expertise to exploit the opportunity and capture benefits for themselves specifically. However, when individuals perceive a favorable third-person opportunity belief, but perceive low capability congruence, then perceived gain estimation is likely suppressed because the individuals believe their effort is not likely to lead to capturing the perceived available benefits. Conversely, when individuals form an unfavorable third-person opportunity belief, then their estimations of personal gains are likely reduced regardless of their perceived capability because the individual perceives a lack of opportunity in general. Accordingly, I hypothesize the following:

Hypothesis 2a: The relationship between favorability of third-person opportunity beliefs and personal gain estimation is moderated by perceived capability congruence, such that the effect of third-person opportunity belief favorability becomes more positive as perceived congruence increases.

In a similar way, when individuals form favorable third-person opportunities beliefs and perceive high capability congruence, then loss estimation is likely to be reduced. That is, the individuals believe they have the knowledge, skills and abilities to

effectively pursue the opportunity, reducing concerns that the costs of pursuing the opportunity will be forfeited due to failed venturing. In this way, the negative relationship between favorable third-person opportunity beliefs and loss estimation will be less negative. However, if an individual perceives a favorable third-person opportunity belief and low capability congruence, then the negative relationship between favorable third-person opportunity beliefs and loss estimation increases because although the opportunity is favorable for someone, the lack of personal capabilities will likely lead to squandering the costs associated with opportunity pursuit. Accordingly, I hypothesize the following:

Hypothesis 2b: The relationship between favorability of third-person opportunity beliefs and personal loss estimation is moderated by perceived capability congruence, such that the effect of third-person opportunity belief favorability becomes less negative as perceived congruence increases.

A dimension of favorable third-person opportunity beliefs is the general feasibility of the opportunity. General feasibility refers to the degree to which it is possible to develop and bring the envisioned product or service to market (Gregorie & Shepherd, 2012; Grégoire et al., 2010). I expect that there is a positive relationship between favorability of third-person opportunity beliefs and first-person perceived feasibility, but I expect that this relationship to be moderated by the perceived capability congruence.

In instances where individuals perceive high capability congruence, I expect the positive relationship between third-person opportunity beliefs and individual perceptions of perceived feasibility to increase. That is, individuals are more likely to believe that they specifically can transform the product or service idea into a manifest product or service offering. In contrast, when perceived congruence is low, then the positive effect

of third-person opportunity beliefs on perceived feasibility is likely suppressed. In other words, increases in perceived general feasibility of the opportunity have little effect on individual perceived feasibility because individuals believe they lack the knowledge, skills, and abilities needed to bring the product or service offering to market. Therefore, I hypothesize the following:

Hypothesis 2c: The relationship between favorability of third-person opportunity beliefs and individual perceived feasibility is moderated by perceived capability congruence, such that the effect of third-person opportunity belief favorability becomes more positive as perceived congruence increases.

4.3. Goal Image Congruence: Independence, Financial success, and Self-realization

Individuals envision the positive outcomes associated with ideal opportunity pursuit. The most common benefits of successful entrepreneurial action are independence, financial success, and/or self-realization (Carter et al, 2003). Independence refers to an individual's desire for freedom, control, and flexibility in the use of their time. This control often manifests in greater flexibility in work-life arrangement and freedom to adapt their approach to work (Birley & Westhead, 1994; Shane et al., 1991). Financial success describes an individual's intention to earn more money and achieve financial security (Carter et al, 2003) and self-realization involves fulfilling a personal vision.

Third-person beliefs form because an individual believes that there is alignment between product and service attributes and the needs of a target market, and the product or service offering is possible to produce (Gregoire, Shepherd, & Lambert, 2010). As a consequence of these factors, ideal opportunity pursuit is perceived to result in some combination of independence, financial success, and/or self-realization for the individual

who exploits the opportunity. As individuals transition their thinking to first-person opportunity belief formation, they determine whether their goals fit these envisioned benefits associated with the ideal opportunity pursuit. In this way, the relationships between favorability of third-person opportunity beliefs and first-person opportunity evaluations are enhanced or suppressed to the extent that the individual “sees” this ideal opportunity pursuit as helping or hindering personal goal achievement.

Specifically, in instances where individuals form favorable third-person opportunities beliefs and perceive congruence between their personal goals and the envisioned benefits with opportunity pursuit, then the positive relationship between favorability of third-person opportunity beliefs and gain estimation is likely to increase because opportunity pursuit can lead to outcomes valued by the individual. Similarly, if individuals hold unfavorable third-person opportunity beliefs, but perceive high congruence between their personal goals and the envisioned benefits with opportunity pursuit, then the relationship between favorability of third-person opportunity beliefs and personal gain estimation is increased because opportunity pursuit is perceived to lead to valued outcomes.

Conversely, when the individual perceives low congruence between their personal goals and the envisioned benefits associated with ideal opportunity pursuit, then the positive relationship between favorability of third-person opportunity beliefs and gain estimation is likely reduced. In other words, individuals may or may not believe that opportunity pursuit can lead to positive outcomes in general, but the lack of congruence between their personal goals and the benefits associated with opportunity pursuit reduces

individuals' estimation of personal gains for pursuing the opportunity. In accordance with this logic, I hypothesize the following:

Hypothesis 3a: The relationship between favorability of third-person opportunity beliefs and personal gain estimation is moderated by perceived goal congruence, such that the effect of third-person opportunity belief favorability becomes more positive as perceived congruence increases.

In contrast to gain estimation, if individuals form favorable third-person opportunity beliefs, and perceive high goal congruence with opportunity pursuit, then the negative relationship between favorability of third-person opportunity beliefs and loss estimation is likely to be reduced. In these cases, opportunity pursuit serves as a means to obtain valued outcomes and potentially losing the costs associated with opportunity pursuit is considered worthwhile. Indeed, goal congruence likely suppresses unfavorable third-person opportunity beliefs' negative effect on loss estimation, because pursuit of the unfavorable opportunity still serves as a means to obtaining valued outcomes for the individual specifically. However, when the individual perceives low goal congruence, then the relationship between favorability of third-person opportunity beliefs and loss estimation likely increases. In these cases, opportunity pursuit does not service goal attainment and therefore potentially losing the costs associated with failed opportunity pursuit is not worth the risk. Indeed, this effect is likely further increased when individuals hold unfavorable third-person opportunity beliefs because the individual believes that anyone who deploys resources towards opportunity pursuit is squandering their capital. Therefore, I hypothesize the following:

Hypothesis 3b: The relationship between favorability of third-person opportunity beliefs and personal loss estimation is moderated by perceived goal congruence, such that the effect of third-person opportunity

belief favorability becomes less negative as perceived congruence increases.

Interests and desires, which emanate from enduring facets like personality and deep-seated values, have been found to influence individual goal selection (Gollwitzer, 1993). Once goals are selected, they are integrated with the individuals' sense of self (Brunstein & Gollwitzer, 1996). This integration occurs because the individual perceives a locus of causality (deCharms, 1968). That is, individuals believe goal attainment is under their control. The heightened sense of control over goal attainment results in enhanced sustained effort of goal pursuit, which is referred to as goal striving (Sheldon & Elliot, 1996).

Perceived feasibility involves personal considerations of individual capacity to execute the tasks or activities associated with opportunity pursuit. In this way, the degree of goal congruence likely influences individual belief about capacity to pursue the opportunity depending on whether opportunity pursuit facilitates goal attainment or not. Specifically, when perceived goal congruence is low, then the effect of favorable and unfavorable third-person opportunity beliefs on individuals' perceived feasibility will likely remain constant, because the opportunity is peripheral to individuals' goals. Thus, if opportunity pursuit does not service goal attainment, then individuals are likely to remain striving for their goals thereby resulting in perceptions that they do not have the capacity for opportunity pursuit. Accordingly, the positive relationship between third-person opportunity beliefs and perceived feasibility will be buffered by low goal congruence. In contrast, if individuals perceive high goal congruence and favorable third-person opportunity beliefs, then perceived feasibility will likely be enhanced because the high goal congruence and favorable opportunity belief produces a synergistic effect that

(re)directing effort towards opportunity pursuit will service goal attainment. In this way, perceived goal congruence enhances the belief that individuals' have the personal capacity to pursue the opportunity. Taken together, I hypothesize the following:

Hypothesis 3c: The relationship between favorability of third-person opportunity beliefs and individual perceived feasibility is moderated by perceived goal congruence, such that the effect of third-person opportunity belief favorability becomes more positive as perceived congruence increases.

4.4. Circumstance Image Congruence: Time and Money Availability

Third-person opportunity beliefs depend on the use of future representations where someone has executed the necessary entrepreneurial tasks to create a viable venture (Gregoire et al., 2010). Thus, the image of opportunity pursuit assumes that the envisioned candidate has the ideal circumstances to pursue the opportunity. Ideal circumstances for opportunity pursuit consist of resource availability (c.f., Baker & Nelson, 2005). Two critical resources needed to successfully exploit an opportunity are financial capital (e.g., Romanelli, 1989) and time (e.g., Choi, Levesque, & Shepherd, 2008).

Individuals attempting to exploit entrepreneurial opportunity enact a variety of costly activities. Costly new venture activities include developing models or prototypes, buying equipment and facilities, applying for licenses and patents, among others which require capital requirements (Carter, Gardner, & Reynolds, 1996). Indeed, the typical start-up is capitalized with \$25,000 taken primarily from the founder's savings (Shane, 2011). Beyond the typical start-up costs, third-person opportunity beliefs are theoretically associated with an ideal personal financial image which can withstand the opportunity

costs of foregoing stable income from working for someone else (c.f., Raffiee & Feng, 2014).

Additionally, individuals enact a variety of activities which do not directly cost money, but expend time and effort. For example, nascent entrepreneurs report spending time talking to potential customers, drafting business plans, organizing founding teams, researching regulatory requirements, developing financial projections, among others (Gartner, Carter, & Reynolds, 2002).

As individuals transition to the formation of first-person opportunity beliefs, they assess whether their personal circumstances fit with this image of the ideal circumstances for opportunity pursuit. In this way, individuals perceive if they have the financial and time availability to pursue an entrepreneurial opportunity. Indeed, qualitative evidence suggests that entrepreneurs do not pursue promising entrepreneurial opportunities because they do not have the capital or time available. For example, an entrepreneur reports that “I evaluated the options to achieve financial return from doing something like selling this product. But I found it wasn’t worth it; it was just too time consuming” (Autio et al., 2013: p. 1363).

The relationship between favorability of third-person beliefs and personal gain estimation is likely moderated by individuals’ perceptions of circumstance congruence (i.e., their financial capital and time availability). Specifically, if circumstance congruence is high then the positive relationship between favorable third-person opportunity beliefs and gain estimation likely increases because individuals believe they can pursue the opportunity while also effectively maintaining prior financial and time obligations—producing a perceived net positive of benefits. In contrast, when the

individual perceives a lack of circumstance congruence, the positive association between favorability of third-person beliefs and personal gain estimation is likely buffered. Meaning, individuals perceive an inability of maintaining prior financial and time obligations, which reduces the perceived net benefits of opportunity pursuit. Taken together, I hypothesize the following:

Hypothesis 4a: The relationship between favorability of third-person opportunity beliefs and personal gain estimation is moderated by perceived circumstance congruence, such that the effect of third-person opportunity belief favorability becomes more positive as perceived congruence increases.

Third-person opportunity beliefs involve to the general favorability of the opportunity, and thus relate to the degree to which individuals believe that the costs associated with venturing will be forfeited due failed venturing. Therefore, I expect a general negative association between third-person opportunity beliefs and first-person loss estimation. However, I expect that this relationship will be moderated by circumstance congruence. Specifically, if circumstance congruence is high, then the negative relationship between the favorability of third-person opportunity beliefs and loss estimation likely decreases because failed venturing will not be perceived as interfering with prior financial obligations. Conversely, if circumstance congruence is low, then the negative relationship between favorability of third-person opportunity beliefs and loss estimation likely increases. The lack of time and money availability for both opportunity pursuit and maintaining current obligations suggests that individuals cannot as easily absorb the losses associated with opportunity pursuit. In accordance with this logic, I hypothesize the following:

Hypothesis 4b: The relationship between favorability of third-person opportunity beliefs and by personal loss estimation is moderated by perceived

circumstance congruence, such that the effect of third-person opportunity belief favorability becomes less negative as perceived congruence increases.

Pursuing an opportunity requires start-up costs (i.e., time and money). The degree to which individuals perceive that their current circumstances allow for the deployment of these costs will likely influence their personal ability and capacity to pursue the opportunity. Therefore, I expect the positive association between third-person opportunity beliefs and perceived feasibility to be moderated by circumstance congruence.

Specifically, if circumstance congruence and third-person opportunity beliefs are high, then perceptions of individual perceived feasibility are likely enhanced because the opportunity is believed to be generally feasible to produce and there are no individual barriers preventing opportunity pursuit. In contrast, low circumstance congruence likely buffers the positive effect of third person opportunity beliefs on perceived feasibility because the lack of time and money prevent the individual from thinking that the opportunity *for someone* applies to *him or herself specifically*. Thus, I hypothesize the following:

Hypothesis 4c: The relationship between favorability of third-person opportunity beliefs and individual perceived feasibility is moderated by perceived circumstance congruence, such that the effect of third-person opportunity belief favorability becomes more positive as perceived congruence increases.

4.5. Identity Image Congruence: Inventing, Founding, and Developing

Identity is critical to entrepreneurial behavioral enactment (Farmer, Yao, & Kung-Mcintyre, 2011; Ireland & Webb, 2007). The image of the ideal individual for opportunity pursuit consists of individual characteristics associated with the socially

constructed entrepreneurial role identity (c.f., Shane, 2008).² The entrepreneurial role consists of salient role identities derived from different aspects of starting a new venture in pursuit of exploiting entrepreneurial opportunity. The set of role identities provides concepts that reflects characteristics associated with prototypical entrepreneur (Farmer, Yao, & Kung-Mcintyre, 2011; Hoang & Gimeno, 2010).

The entrepreneur role is often accompanied with the perceptions that entrepreneurs are bold risk-takers (Mises, 1949). These characteristics portray entrepreneurs as adventurous thrill seekers effectively navigating uncertain contexts (Shane, 2008). Additionally, entrepreneurs develop new products or services, and work with new prototypes. Therefore, entrepreneurial identities are often associated with creativity, innovativeness, and boundless imagination (Cardon et al., 2013). New ventures are often hindered by their liability of smallness and newness (Short, McKelvie, Ketchen, & Chandler, 2009). Therefore, entrepreneurs are thought to be motivators, strategists, visionary leaders, socially competent (Baron & Markman, 2000; Baum & Locke, 2004; Gundry & Welsch, 2001), and have the grit and perseverance needed to overcome challenges (Mueller, Wolfe, & Syed, 2017).

As individuals transition from third- to first-person opportunity beliefs, they assess whether their characteristics fit the characteristics associated with the image of the entrepreneurial role. In this way, individuals perceive if their characteristics and traits are suitable for opportunity pursuit. The extent of perceived congruence between the

² Early research in the field of entrepreneurship concerned with individual differences yielded a lack of findings (cf., Gartner, 1988; Shaver & Scott, 1991). However, the premise of the congruence model put forth is less concerned with actual individual differences and entrepreneurship, but rather oriented to the perceived image of the entrepreneurial role, and the extent that individuals perceive themselves as fitting this ideal exemplar. Therefore, the role that actual individual differences have on enacting entrepreneurial activity and success are peripheral to the present study.

characteristics associated with the entrepreneurial role and the individual characteristics influences first-person opportunity beliefs because the individual evaluates the opportunity through the lens of their socially constructed identity (Powell & Baker, 2014, 2017). Therefore, I expect that the positive relationship between favorability of third-person opportunity beliefs and gain estimation to be moderated by individuals perceived congruence between their characteristics and the perceived characteristics of the ideal entrepreneur.

Specifically, if identity congruence and third-person opportunity beliefs are high, then first-person gain estimation is likely to be enhanced because individuals believe they possess the creativity and imagination needed to successfully exploit the opportunity. Similarly, gain estimation is likely to be more reduced when individuals have high identity congruence, but hold low third-person opportunity. In this case, individuals believe they personify the role of entrepreneur, and if they perceive a lack of opportunity, then they believe there is nothing they nor anyone can personally do to exploit the opportunity. Conversely, low identity congruence likely buffers the positive association between third-person opportunity belief and gain estimation because the individual does not believe they possess the “right” characteristics needed for opportunity exploitation. Similarly, low identity congruence likely buffers low opportunity beliefs effect on first-person gain estimation, because regardless of the opportunity belief, the individual does not believe they possess the “right” characteristics needed for opportunity exploitation. Based on this logic, I hypothesize the following:

Hypothesis 5a: The relationship between favorability of third-person opportunity beliefs and personal gain estimation is moderated by perceived identity congruence, such that the effect of third-person

opportunity belief favorability becomes more positive as perceived congruence increases.

Entrepreneurs are often thought of as bold-risk takers. Indeed, entrepreneurship is often associated with overcoming fear of failure. Accordingly, I expect that entrepreneurial identity congruence will moderate the relationship between favorability of third-person opportunity beliefs and loss estimation. If identity congruence and third-person opportunity beliefs are high, then first-person loss estimation is likely to be reduced because individuals perceive less overall risk and are comfortable with uncertainty. Similarly, loss estimation is likely to be buffered when individuals have high identity congruence, but hold low third-person opportunity. In this case, individuals believe they personify the role of entrepreneur, and if they perceive a lack of opportunity, then they believe they can effectively reduce the personal losses associated with opportunity pursuit. Conversely, low identity congruence likely enhances the negative association between third-person opportunity belief and loss estimation because the individual likely perceives more personal risk for themselves with opportunity pursuit. Based on this logic, I hypothesize the following:

Hypothesis 5b: The relationship between favorability of third-person opportunity beliefs and personal loss estimation is moderated by perceived identity congruence, such that the effect of third-person opportunity belief favorability becomes less negative as perceived congruence increases.

Entrepreneurs pursue new ventures because entrepreneurial paths are central “to a meaningful and salient self-identity” (Cardon et al., 2009: 516). Thus, whether individuals believe that they have the ability and capacity to pursue an opportunity is likely influenced by their adherence to the entrepreneur role or the salience of entrepreneurship to their identity. Therefore, I expect that the relationship between third-

person opportunity beliefs and perceived feasibility to be moderated identity congruence. Specifically, when identity congruence is high and third-person opportunity beliefs are high, I expect perceived feasibility to be enhanced. In this case, individuals “see” themselves possessing the ideal identity associated with the entrepreneurial role and therefore opportunity pursuit is suitable. However, I expect that low identity congruence to buffer the positive effect of favorable third-person opportunity beliefs on perceived feasibility because individuals do not “see” themselves possessing the ideal identity associated with the entrepreneurial role. Thus, pursuing the entrepreneurial opportunity is perceived as an unsuitable course of action given their lack of identification with the entrepreneurial role (c.f., Hogg & Terry, 2000). Similarly, when identity congruence is low, and third-person opportunity beliefs are unfavorable, this likely produces a synergistic effect in that perceived feasibility will be even lower because the opportunity is not feasible in general, and the course of action is deemed unsuitable for the individual given their lack of identification with the entrepreneurial role. Accordingly, I hypothesize the following:

Hypothesis 5c: The relationship between favorability of third-person opportunity beliefs and individual perceived feasibility is moderated by perceived identity congruence, such that the effect of third-person opportunity belief favorability becomes more positive as perceived congruence increases.

CHAPTER 5: METHOD

5.1. Procedure

Data were collected using an online survey instrument. Participation in the study occurred in two parts separated by one week. The independent and moderator variables were measured in part one and the dependent variables, controls variables, and demographics variables (see below for measure descriptions) were measured in part two. Separating independent variable and dependent variables by one week seeks to reduce concerns of common method bias (Podsakoff et al., 2003). One-week separation was chosen because opportunity beliefs have demonstrated consistency in measurement in one-week intervals, unless extraneous factors (e.g., discussion with peers, independent research, etc.) alter the true score of the opportunity evaluation constructs (Scheaf et al.). Thus, one-week duration provides sufficient time to rule out possible mono-source, mono-method biases between third-person and first-person beliefs, while also providing confidence in the time-invariance measurement of constructs of interest (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Following the tradition established by experimental studies in entrepreneurship, entrepreneurs were presented with vignettes or written descriptions of entrepreneurial opportunities and asked to respond to a series of items (Grégoire et al., 2010; Holland & Shepherd, 2013; Wood et al., 2017) (Please see Table 1). To reduce concerns of order effects, I randomized the order which opportunities were presented to entrepreneurs. Additionally, all items were randomized.

Dimov (2010, 2011) and Baron and Ensley (2006), among others, consider entrepreneurial opportunities as endogenously emerging from business ideas. Accordingly, I developed descriptions of new product and service ideas. To maintain realism of the new product and service ideas, I developed descriptions based on recently posted new product and service crowdfunding campaigns (www.kickstarter.com). To draft the descriptions, I used campaigns which were actively seeking funds to launch or begin manufacturing/production of a new product or service concept. Based on this approach, I developed the description of the indoor bed tent. I premised the second vignette on exogenous emergence via technological change, which is often referenced as a second source of business opportunities (McMullen & Shepherd, 2006; Shane, 2000). I followed a technique used by Grégoire et al., (2010), Grégoire and Shepherd (2012), and Wood and Williams (2014) where I identified actual changes in technology. Following Wood and Williams's (2014) protocol, I used information posted to a website designed to facilitate the commercialization of university-held intellectual property (www.ibridgenetwork.org). Based on this effort, I developed the description of the wearable sweat sensors (Opp2).

I avoided potential design confounds by ensuring that the descriptions were comparable in length and complexity. Specifically, I compared the scenarios based on the Fleish-Kincaid reading grade level scores as well as word counts and then revised them accordingly. Additionally, these opportunity vignettes have been successfully employed in prior research and have accumulated evidence which indicates lack confounding factors in opportunity evaluation.

TABLE 1: Descriptions of opportunities

Opportunity	Description
Indoor Bed Tent	An indoor bed tent designed to conserve heat and make a person's bed warmer during the winter. The tent is placed on top of a mattress and is made to fit a variety of bed sizes. The tent will be made out of materials that insulate heat, which will make the bed warmer during cold winter nights. Temperatures inside the tent will be 10 degrees warmer than outside of the tent. The increased warmth in the tent will allow consumers to save hundreds of dollars on heating bills during the winter season and provide a comfortable environment to enhance sleep quality.
Sweat Sensors	Consumer demand for wearable technology that tracks health-related data has increased in the recent years. Most of the currently developed wearable technologies are capable of only tracking the physical activities of an individual and fail to provide insight into the individual's state of health. Human sweat contains information needed to assess an individual's state of health and is an excellent candidate for non-invasive monitoring. Wearable sweat sensors can serve as an ideal platform for a wide range of real-time healthcare monitoring needs, such as exercise-induced dehydration and medical diagnosis. The sweat sensors can fit on wristbands, which can actively feed data into wearable technology to provide real-time health-related information.

5.2. Sample

The sampling frame consisted of entrepreneurs, defined as individuals who are deploying resources towards new ventures in conditions of uncertainty or have done so in the past five years (Klein, 2008). This approach is desirable because it captures individuals at various stages of the entrepreneurship process and reduces the likelihood of survivor bias in the sample (Ireland, Webb, & Coombs, 2005). To identify and recruit entrepreneur-participants, I used two approaches. First, I sent invites to an entrepreneur listserv that I have compiled, which consists of prescreened individuals who have been active entrepreneurs in the past five years. Second, I recruited active entrepreneurs from English web-based crowdfunding platforms seeking funds to start or grow their ventures.

For their participation, entrepreneurs were offered \$5 for completing part one of the questionnaire and \$10 for completing part two. Participants had the choice to receive their compensation in the form of an Amazon.com gift card or crowdfunding pledge.

A total of 1168 participation requests were sent to entrepreneurs via an email letter from the investigator. Participation requests included a brief description of the study and a link to part one of the online Qualtrics questionnaire. A total of 348 entrepreneurs responded to part one, but 39 respondents did not complete the entire questionnaire, resulting in a part one sample of 309 entrepreneurs (26.4% response rate). I emailed entrepreneurs Part 2 participation requests one week after completing part one of the questionnaire. I sent reminders to participants to complete part two of the questionnaire 5 days after initial part two requests. A total of 182 entrepreneurs responded to part two, but two questionnaires were partially completed, resulting in a final sample of 180 entrepreneurs (58.9% retention rate).

It is recommended that researchers using online data collection procedures similar to the current study investigate data quality before modeling and hypothesis-testing procedures (DeSimone et al., 2015). Online survey methodology raises the concern of insufficient effort responding (Huang et al., 2012). Insufficient effort responding refers to respondent behavior in which there is little motivation to follow survey instructions, correctly interpret items, or provide accurate and thoughtful responses to the questionnaire. In this way, insufficient effort responding results in the random selection of response anchors and the nonrandom repeated selection of the same response anchor across multi-construct items and negatively worded items. I conducted two analyses to

check data quality and identify insufficient effort responders (Dunn et al., 2018; Huang et al., 2012).

First, the online survey platform recorded participant response time for both Part 1 and Part 2. I flagged participants that had response times which indicated taking less than 1 second to respond per item (N=2). Second, I used a long-string index to identify insufficient effort responding (Dunn et al., 2018). A long string refers to participants providing the same response to an unusually large number of consecutive items in the presence of randomized multi-construct questionnaires and negatively worded items. I set a long-string threshold and flagged participants who gave 20 or more consecutive responses (e.g., strongly agree) (N=6). I removed these 8 case from the dataset because the high thresholds of both insufficient responding indices more likely reflects endorsing measurement error rather than thoughtful responses to the questionnaires, which resulted in a final sample of 172 (Dunn et al., 2018).³

On average, participant-entrepreneurs were 40.0 years old (SD = 13.1) and reported having 10.0 (SD = 9.5) years of entrepreneurial experience. The sample was 52% female and 48% male. The ethnicity of the sample was 67.4% white, 17% Black or African American, 6.4% Latino, 5.3% Asian, and 3.5% of participants indicating other. The sample was split in work arrangements towards their current venture with 44% pursuing their venture full time, while 56% of participants were hybrid entrepreneurs (i.e., working additional full or part-time jobs).

5.3. Measures

³ Following Dunn et al. (2018) recommendation, I conducted post-hoc analyses to test hypotheses, measurement model fit, and examine correlations on the full dataset (N=180). Results for hypotheses testing remained the same across the datasets. There was little to no change in measurement fit statistics (i.e., $\Delta CFI < .02$) and correlations ($\Delta r < .10$).

All part one and part two measures used in the current study can be found in Appendix A. Both the original measure and scale adaptations are reported. Following prior studies on assessing subjective congruence, I employed subjective measures of fit (Edwards, 1991). Subjective measures of congruence involve directly asking an individual to assess fit between their characteristics and their perceptions of a standard or criterion. That is, subjective fit measures assume that respondents have a mental representation of the prototypical standard and cognitively examine the congruence between their personal characteristics and their perception of this prototypical standard. In this way, it is individual's perception of congruence which affect outcomes, rather than objective indicators of fit (e.g., education requirements and education) and is often assessed using self-report measures (Edwards, 1991).

Third-person Opportunity Beliefs. Third-person opportunity beliefs were measured with the Gregoire, Shepherd and Lambert (2010) opportunity recognition beliefs scale. The scale consists of two dimensions. Three items relate to degree of alignment between focal means of supply and target market: (1) The proposed business solution can be used to solve the problems of a targeted market; (2) The proposed business solution has the capabilities to answer the needs of a market; and (3) There is a "match" between what the proposed business solution does, and what a targeted market demands. Two items reflect general feasibility of the opportunity: (1) Applying the proposed business solution with individuals/firms in a targeted market does constitute a feasible opportunity; and (2) The proposed business solution is sufficiently developed to be applied with individuals/firms in the targeted markets. Participants responded using a 9-point Likert scale with response anchors -4 (no, certainly not) to 4 (yes, certainly) and

midpoint of 0 (uncertain). Following Gregoire, Shepherd and Lambert (2010) instructions, the two dimensions are reflective of a higher-order opportunity belief construct, thus scores are averaged into a combined score of third-person opportunity belief, with higher scores indicating more favorable third-person opportunity beliefs. Cronbach's coefficient alpha = 0.92.

Goal Image Congruence. Following past research that has defined person–organization fit as values congruence (e.g., Cable & Judge, 1996, 1997; Chatman, 1989; Lauver & Kristof-Brown, 2001), I measured goal image congruence with an adapted version of Cable and DeRue's (2002) person–organization fit measure. These items were developed to assess subjective fit perceptions between individuals' goals and values and organizational goals and values. Therefore, I adapted the measure to the opportunity pursuit context. The six adapted items are: (1) The things that I value in life are very similar to the benefits associated with pursuing the [opportunity]; (2) My personal values match the ideal person for pursuing the [opportunity]; (3) Pursuing the [opportunity] provides a good fit with the things that I value in life; (4) There is a good fit between what pursuing the [opportunity] offers me and what I am looking for in an occupation; (5) The attributes that I look for in an occupation will be fulfilled very well by pursuing the [opportunity]; (6) Pursuing the [opportunity] will give me just about everything that I want from an occupation. Cronbach's coefficient alpha = 0.95.

Capability Image Congruence. Following prior research on perceived fit between demands and abilities, I measured perceived capability image congruence using an adapted version of Cable and DeRue (2002) three-item measure. These items were developed to measure perceived fit between personal knowledge, skills, and abilities and

the knowledge, skills, and abilities required for a certain job. Therefore, I adapted the context of the items to opportunity pursuit. The adapted items are: (1) The match is very good between the demands of bringing [opportunity] to market and my personal knowledge, skills, and abilities; (2) My abilities and training are a good fit with the requirements of bringing the [opportunity] to market; and (3) My personal abilities and education provide a good match with the demands that bringing the [opportunity] to market will place on me. A 7-point Likert scale was used ranging from strongly disagree to strongly agree. Cronbach's coefficient alpha = 0.92.

Circumstance Image Congruence. Circumstance image congruence was measured using an adapted version of Peters, O'Connor, Pooyan, and Quick (1984) time availability scale. Specifically, I adapted the referent and context of the measure. I adapted the measure to be context specific to reflect resource availability for opportunity pursuit, rather than general tasks. Peters et al. (1984) two-item scale provides the basis for comparing personal resource availability to their image of the ideal resource availability needed for opportunity pursuit. Participants respond to two items for time availability and two items for financial capital availability. Responses were measured on a 7-point Likert scale (strongly disagree to strongly agree). The adapted time availability items are: (1) I have the available amount of time to bring the [opportunity] to market; (2) My schedule offers the flexibility required to perform the tasks needed to bring the [opportunity] to market; (3) I have enough available money to develop and bring the [opportunity] to market; and (4) I have the flexibility in my personal finances to pursue the [opportunity]. Responses to these four items were averaged to create an overall circumstance congruence score. Higher scores reflect more perceived congruence, while

lower scores indicate a lack of perceived congruence. Cronbach's coefficient alpha = 0.86.

Identity Image Congruence. Identity image congruence was measured using a 4-item entrepreneurial identity centrality scale (Murnieks, Mosakowski, & Cardon, 2014). In this way, the more perceived centrality of the entrepreneurial role identity to the individual, the more perceived congruence between the individual and the ideal candidate for opportunity pursuit. The four items are (1) Being an entrepreneur is something I frequently think about, (2) Entrepreneurship is an important part of who I am, (3) I really don't have any clear feelings about entrepreneurship (R), and (4) I would feel a loss if I were forced to give up being an entrepreneur. Responses were captured using a 5-point Likert scale ranging from strongly disagree to strongly agree. Cronbach's coefficient alpha = 0.66.

Control. I controlled for general self-efficacy because the relationship between the independent variables and first-person opportunity beliefs are likely inflated by how confident the individual believes they are in accomplishing general tasks (Markman et al., 2002). I used Chen, Gully, and Eden's (2001) 8-item scale. The full item list can be found in the appendix, but a sample item is "I will be able to achieve most of the goals that I have set for myself." Responses were recorded using a 5-point Likert scale ranging from strongly disagree to strongly agree. Cronbach's coefficient alpha = 0.92.

Marker Variable. I followed an approach proposed by Weijters et al. (2008) and administer a scale developed by Simmering et al. (2015). This scale consists of 7 items that were randomly selected from *Handbook of Marketing Scales, Marketing Scales Handbook*, and *Measures of Personality and Social Psychological Attitudes*. The seven

random items provide a theoretically unrelated measure from the same source to test whether common method variance biases the correlations among variables associated with the theoretical model. Responses were provided using a 7-point scale ranging from *strongly disagree* to *strongly agree*. Cronbach's coefficient alpha = 0.81.

First-person Opportunity Beliefs. First-person opportunity beliefs were measured using Scheaf, Loignon, Webb, Heggstad, and Wood's (unpublished) opportunity evaluation scales. Following Scheaf and colleagues' model, the dimensions of first-person opportunity beliefs are distinct constructs. The opportunity evaluation scale consists of three dimensions: gain estimation, loss estimation, and perceived feasibility. Participants responded using a 6-point Likert scale ranging from strongly disagree to strongly agree. Six items captured gain estimation which is the individuals' judgments of the potential for gain of monetary and non-monetary benefits in personally pursuing the opportunity: (1) I want to learn more about pursuing [the opportunity] (2) I would love working on making the [opportunity] a reality (3) Pursuing the [opportunity] would be enjoyable for me (4) I see large potential gains for myself in pursuing the [opportunity] (5) The potential upside in pursuing the [opportunity] is large for me (6) Pursuing [the opportunity] would result in big profits for me. Cronbach's coefficient alpha = 0.96.

Four items captured loss estimation which is the individuals' judgments of the potential for loss of monetary and non-monetary costs in personally pursuing the opportunity: (1) The potential for loss in pursuing the [opportunity] is high (2) The overall riskiness of pursuing the [opportunity] is high (3) The size of the potential loss in pursuing the [opportunity] is large (4) The exposure to loss in pursuing the [opportunity] is sizeable. Cronbach's coefficient alpha = 0.91.

Four items captured perceived feasibility which is the individual's subjective belief that his or her effort will result in the capture of estimated benefits if the opportunity under consideration is pursued: (1) I have what it takes to create the [opportunity] (2) I am well equipped to pursue the [opportunity] (3) At this point in my life, it would be easy for me to go after the [opportunity] (4) At this point in my life, I have no barriers preventing me from pursuing the [opportunity]. Cronbach's coefficient alpha = 0.89.

5.4. Analyses

Measurement model. Confirmatory factor analyses were conducted using the lavaan package for R (Rosseel, 2012). Confirmatory factor analysis provides evidence that the data fit an a priori theoretical model, that the variables are empirically distinct, and provides support that the analytical model is testing the theoretical relationships (Brown, 2014; Lance & Vandenberg, 2002). The current study involved evaluating two opportunities, so I conducted CFAs on both opportunity data sets. Specifically, I conducted a series of nested models and evaluated the change in chi-square, CFI, TLI, SRMR, and RMSEA fit indices to determine the models of best fit. Please see Table 2 for results of the confirmatory factor analyses.

TABLE 2: Results for confirmatory factor analysis

Model	MLM χ^2 ^a	df	CFI	TLI	SRMR	RMSEA	Δdf	$\Delta\chi^2$	ΔCFI
<i>Bed Tent</i>									
1. One factor model ^b	2794.99**	594	.61	.59	.11	.15			
2. Two factor model ^c	2350.83**	593	.69	.67	.11	.13	1	444.16	.08
3. Five factor model ^d	1433.55**	582	.85	.84	.07	.09	11	917.28	.16
4. Six factor model ^e	1294.09**	577	.87	.86	.08	.09	5	139.46	.02
5. Eight factor model ^f	1025.44**	564	.92	.91	.08	.07	13	268.65	.05
<i>Sweat Sensors</i>									
1. One factor model ^b	2637.89**	594	.61	.58	.11	.14			
2. Two factor model ^c	2314.77**	593	.67	.65	.12	.13	1	323.12	.06
3. Five factor model ^d	1423.03**	582	.84	.82	.08	.09	11	711.74	.17
4. Six factor model ^e	1270.62**	577	.87	.85	.08	.08	5	152.41	.03
5. Eight factor model ^f	1098.92**	546	.89	.88	.07	.07	13	171.70	.02

Note. $N = 194$. CFI = comparative fit index; TLI = Tucker-Lewis index; SRMR = standardized root mean square; RMSEA = root-mean-square error of approximation * indicates $p < .05$. ** indicates $p < .01$. ^a χ^2 values are based on robust maximum likelihood estimation to account for skewed ratings. ^b One factor model where all items are forced to load on the same factor. ^c Two factor model where all opportunity beliefs items load onto a factor and all congruence items load onto one factor. ^d Five factor model where all opportunity beliefs items load onto their respective factors (i.e., third-person, GE, LE, PF) and all congruence items load onto a single factor. ^e Six factor model where all opportunity beliefs items load onto their respective factors (i.e., third-person, GE, LE, PF), entrepreneurial identity items load onto their respective factor, and all other congruence items load onto a single factor. ^f Eight factor model where all items load onto their respective factor.

Results for the bed tent opportunity support an improvement of model fit from the single factor model where all items load onto the same factor to the full eight factor model where all items load on their respective factors. Indeed, the eight factor model fits the data the best and exhibits acceptable model fit with $CFI > .90$, $TLI > .90$, $RMSEA < .08$, and $SRMR \leq .08$ (Hu & Bentler, 1999). Similarly, results for the sweat sensors opportunity support an improvement of model fit from the single factor model to the full eight factor model. However, the fit statistics indicate the data poorly fits the model with $CFI < .90$, $TLI < .90$. Therefore, data from the bed tent opportunity is used to test hypotheses. Descriptive statistics and correlations for sweat sensors can be found in Appendix C and hypothesis testing using sweat sensor opportunity data can be found in the Appendix D. I caution interpretation of these results because the sample data from this opportunity does not surpass acceptable thresholds (Brown, 2014).

Common Method Bias. The survey methodology used in the study may produce artificial covariation among the predictors and dependent variables (Lindell, & Whitney, 2001). Additionally, common method variance may result from having a common rater for all constructs of interest (Avolio, Yammarino, & Bass, 1991). Techniques used to control for common method variance should reflect the fact that it is expected to have its effects at the item level instead of the construct level (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). I reduced concerns of common method bias by separating predictor variables and dependent variables by one week's time. In addition to the research design, I tested for common method variance using a confirmatory factor analysis marker technique using lavaan package in R (Podsakoff et al., 2003). Williams and colleagues

(2003) propose a theoretically irrelevant marker be tested in a confirmatory factor analysis with the variables under investigation. Common method variance may be thought of as any shared variance between the marker factor and the indicators of the theoretical factors. Examining the latent factor correlations in the bed tent opportunity (Opp1) provides evidence indicating that the scales are unlikely to be inflated or biased due to common method variance (Richardson, Simmering, & Sturman, 2009; Simmering et al., 2015). Specifically, I found the latent variable correlations among focal scales and the marker variable to be generally small in magnitude ($r = 0$ to $.29$). Therefore, between the research design and results from the marker analytic technique, it appears common method variance is not substantially biasing observed correlations.

Multiple Moderated Regression. I tested all hypothesized relationships with ordinary least squares (OLS) regression in SPSS. All predictor variables were mean centered prior to the analysis. Thus, scores which are greater than or less than “0” represent meaningful deviation scores (Cohen et al., 2013). This is important for multiple moderated regression, because beta coefficients are more easily interpretable. Although centering reduces “non-essential” multicollinearity associated with computing composites (i.e., interaction terms), it does not remove multicollinearity among predictors. Moderation tests using regression are premised on the amount of additional variability accounted for in the dependent variable after all the other predictor variables in the model have accounted for variability in the dependent variable. In other words, if important predictors are related in the model, then it is possible that none of the predictors will appear significant because each of the related predictors accounts for very little of the remaining, or incremental variability after the other predictors have been

controlled (Cohen et al., 2013). Although the ideal solution for testing models with related predictors is to gather large sample sizes, this approach has its limitations in that unimportant predictors can become significant with abnormally large samples (Cohen, 1994). Thus, there are tradeoffs to test moderation hypotheses using regression techniques with related predictors.

Following Villa and colleagues (2003) recommendations for testing multiple moderator regression with correlated predictors, I tested each moderation hypothesis within separate models. That is, opportunity belief and a single congruence variable were entered into the regression equation prior to entering the product of the main effects to test the interaction effect. Villa and colleagues (2003) find support through comparative analysis that the separate model analytic method has a greater ability to detect influential moderator variables when compared to full model method, even in instances where variance inflation factor (VIF) indices are below recommended thresholds. Thus, I proceed with the separate model analytical approach.

CHAPTER 6: RESULTS

Descriptive statistics are in Table 3. As expected, the bivariate correlations among the predictor variables are significant. I tested for multicollinearity among all independent variables in predicting gain estimation, loss estimation, and perceived feasibility. The variance inflation factor indices for third-person opportunity beliefs, capability congruence, goal congruence, circumstance congruence, and identity congruence for gain estimation, loss estimation, and perceived feasibility models were below recommended cutoffs ($VIF < 5$).⁴

Hypothesis 1a is that favorability of third-person opportunity belief has a positive relationship with first-person gain estimation. The bivariate correlation was positive and significant. Additionally, I regressed gain estimation onto third-person belief, while controlling for general self-efficacy, and found that third-person belief ($\beta = .63, p \leq .01$) was a significant predictor of individual gain estimation ($\Delta R^2 = .39, p \leq .01$). Thus, Hypothesis 1a was supported.

Hypothesis 1b predicted that favorability of third-person opportunity belief has a negative relationship with first-person loss estimation. The bivariate correlation is negative, but not significant. I regressed loss estimation onto third-person belief, while

⁴ Additionally, I conducted a supplemental relative weights analysis and found support that favorability of third-person opportunity beliefs, capability congruence, circumstance congruence, and goal congruence explains non-trivial variance in gain estimation and perceived feasibility (even in the presence of additional, correlated predictors). These results are reported in Appendix B. This evidence, in conjunction with model fit statistics and VIF indices, provides evidence that these variables are distinct and have individual effects on dependent variables.

controlling for general self-efficacy, and found that third-person belief was not a significant predictor of individual loss estimation. Therefore, Hypothesis 1b is not supported.

Hypothesis 1c predicted that favorability of third-person opportunity belief has a positive association with first-person perceived feasibility. The bivariate correlation was positive and significant. I regressed perceived feasibility onto third-person belief, while controlling for general self-efficacy, and found that third-person belief was a significant predictor ($\beta = .46, p \leq .01$) of perceived feasibility ($\Delta R^2 = .20, p \leq .01$). Therefore, Hypothesis 1c is supported.

Results for Hypotheses 2a- 5c are in Table 4. Centered main effects for each moderation test are in Model 1 and interaction terms for each test are in Model 2. Changes in R^2 are reported in Model 2 to test whether the interaction term accounts for variance above and beyond main effects reported in Model 1.

Hypothesis 2a is that the positive association between favorability of third-person opportunity belief and gain estimation is moderated by capability image congruence, such that the positive association increases as capability image congruence increases. I find support for Hypothesis 2a for the moderating effect of capability image congruence. Specifically, the interaction term of third-person belief and capability image congruence is statistically significant, and the interaction contributes unique variance. Upon examining the simple slope plot in Figure 2, the nature of the slopes suggests that the positive effect of third-person opportunity belief increases more strongly when capability congruence is high.

Hypothesis 2b was not supported because the product of third-person opportunity belief favorability and capability image congruence was not significant and therefore did not account for unique variance above the main effects. Hypothesis 2c is that the positive association between favorability of third-person opportunity belief and perceived feasibility is moderated by capability image congruence, such that the positive association between third-person opportunity belief favorability and perceived feasibility increases as capability image congruence increases. The interaction term for third-person belief and capability image congruence is statistically significant, and the interaction contributes unique variance. Upon examining the simple slope plot in Figure 3, the nature of the slopes indicates that the effect of third-person opportunity belief increases when capability image congruence is high, but remains generally unchanged when capability image congruence is lower. Therefore, Hypothesis 2c is supported.

I found support for Hypothesis 3a because the interaction term of third-person belief favorability and goal image congruence is statistically significant, and the interaction contributes unique variance. The simple slope plotted in Figure 4, indicates that the positive effect of third-person opportunity belief increases more strongly when goal image congruence is higher than when its lower. In this way, third-person opportunity belief and gain estimation is moderated by goal image congruence, such that the positive association increases as capability image congruence increases.

Hypothesis 3b was not supported because the product of third-person opportunity belief and goal image congruence was not significant and therefore did not account for unique variance above the main effects. Hypothesis 3c is that the positive association between third-person opportunity belief and perceived feasibility is moderated by goal

image congruence, such that the positive association between third-person opportunity belief and perceived feasibility increases as capability image congruence increases. The interaction term for third-person belief and goal image congruence is statistically significant, and the interaction contributes unique variance. The slopes in Figure 5 indicate that the effect of third-person opportunity belief increases more strongly when goal image congruence is high than when goal congruence is low. Therefore, Hypothesis 3c was supported.

Hypothesis 4a is that the positive association between third-person opportunity belief and gain estimation is moderated by circumstance congruence, such that the positive association increases as circumstance image congruence increases. I find support for Hypothesis 4a for the moderating effect of circumstance image congruence. Specifically, the interaction term of third-person belief and circumstance image congruence is statistically significant, and the interaction contributes unique variance. The simple slopes plotted in Figure 6 indicate that the positive effect of third-person opportunity belief increases more strongly when circumstance congruence is high.

Hypothesis 4b was not supported because the product of third-person opportunity belief and circumstance congruence was not significant and therefore did not account for unique variance above the main effects. Hypothesis 4c is that the positive association between third-person opportunity belief and perceived feasibility is moderated by circumstance congruence, such that the positive association between third-person opportunity belief and perceived feasibility increases as circumstance congruence increases. The interaction term for third-person belief and circumstance image congruence is statistically significant, and the interaction contributes unique variance.

Upon examining the simple slope plot in Figure 7, the nature of the slopes indicates that the positive effect of third-person opportunity belief increases when capability image congruence is high, but remains generally unchanged when capability image congruence is lower. Therefore, Hypothesis 4c was supported.

Reported in Table 4, the interaction term between third-person opportunity belief and entrepreneurial identity congruence was not significant nor accounted for variance over main effects for gain estimation, loss estimation, and perceived feasibility. Therefore, Hypotheses 5a-c were not supported, a point I return to in the discussion section.

TABLE 3: Descriptive statistics and correlations

	M	SD	1	2	3	4	5	6	7	8	9
1. Third-Person Opp Belief	1.21	1.85	(0.92)								
2. Capability Image Cong.	4.60	1.53	0.54**	(0.92)							
3. Goal Image Cong.	4.30	1.55	0.72**	0.74**	(0.95)						
4. Circum. Image Cong.	4.07	1.60	0.52**	0.67**	0.76**	(0.86)					
5. Identity Cong.	4.06	0.66	-0.03	0.07	-0.08	0.01	(0.66)				
6. General Self-Efficacy	4.30	0.63	0.14	0.22**	0.11	0.18*	0.38**	(0.92)			
7. Gain Estimation	3.64	1.40	0.64**	0.57**	0.75**	0.65**	-0.09	0.15*	(0.96)		
8. Loss Estimation	4.09	1.18	-0.11	-0.04	-0.08	0.01	0.03	0.12	-0.16*	(0.91)	
9. Perceived Feasibility	3.62	1.34	0.47**	0.62**	0.63**	0.68**	0.02	0.20**	0.76**	-0.15	(0.89)

N=172; non-centered means and SD reported; Alpha coefficients reported on the diagonal.

**p<.01

*p<.05

TABLE 4 (cont.)

	Circumstance Image Congruence											
	Gain Estimation		Perceived Feasibility		Loss Estimation							
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2						
b	SE	b	SE	b	SE	b	SE					
Constant	3.64**	0.07	3.50**	0.08	3.62**	0.07	3.52**	0.08	4.09**	0.09	4.08**	0.10
Gen. SE	0.04	0.12	0.02	0.12	0.15	0.12	0.11	0.12	0.23	0.15	0.23	0.15
Third-Opp	0.31**	0.05	0.32**	0.04	0.11*	0.05	0.12**	0.05	-0.11	0.06	-0.11	0.06
Cir Cong.	0.37**	0.05	0.33**	0.05	0.49**	0.06	0.46**	0.06	0.61	0.07	0.06	0.07
Third*Cir			0.09**	0.02			0.07**	0.03			0.00	0.03
R ²	0.54**		0.57**		0.48**		0.50**		0.03		0.03	
F	66.22		57.40		52.89		42.89		1.97		1.47	
N=172												
**p<.01												
*p<.05												
	Identity Image Congruence											
	Gain Estimation		Perceived Feasibility		Loss Estimation							
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2						
b	SE	b	SE	b	SE	b	SE					
Constant	3.65**	0.08	3.65**	0.08	3.63**	0.09	3.63**	0.09	4.09**	0.09	4.09**	0.09
Gen. SE	0.25	0.14	0.25	0.14	0.31*	0.16	0.31*	0.16	0.27	0.16	0.27	0.16
Third-Opp	0.47**	0.05	0.45**	0.05	0.33**	0.05	0.31**	0.05	-0.08	0.05	-0.08	0.05
ID Cong.	-0.21	0.14	-0.25	0.14	-0.05	0.15	-0.05	0.15	-0.05	0.15	-0.05	0.15
Third*ID			0.11	0.07			0.09	0.08			0.00	0.08
R ²	0.42**		0.43		0.24**		0.25		0.03		0.03	
F	41.13		31.81		17.88		13.74		1.72		1.28	
N=172												
**p<.01												
*p<.05												

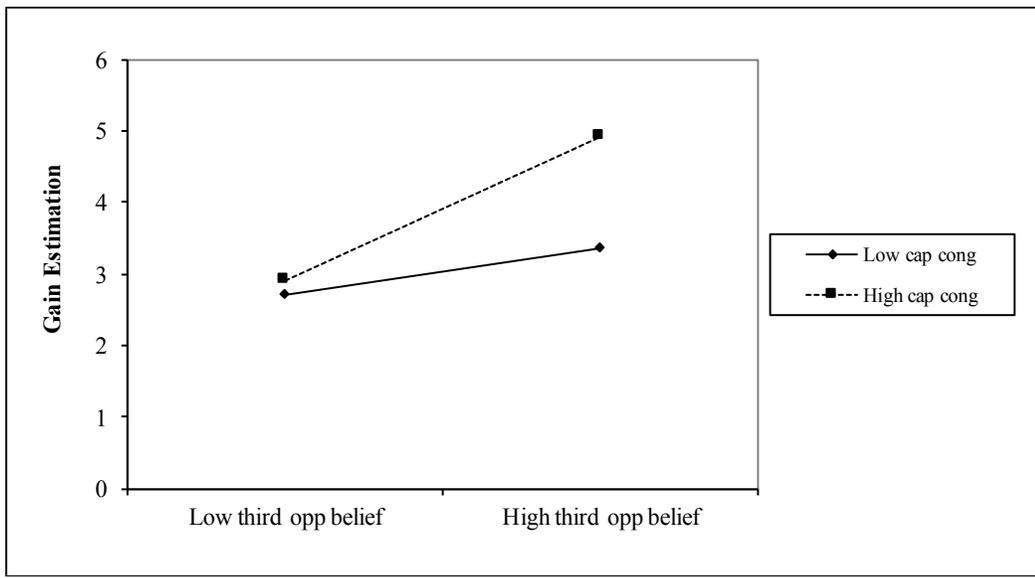


FIGURE 2: The moderating effect of capability congruence on the positive association between third-person opportunity belief and gain estimation

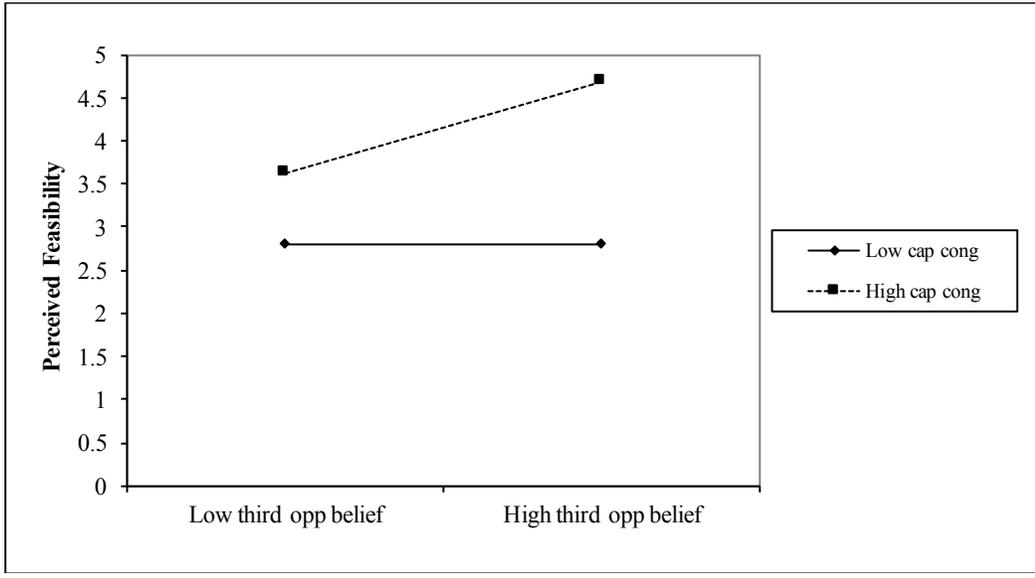


FIGURE 3: The moderating effect of capability congruence on the positive association between third-person opportunity belief and perceived feasibility

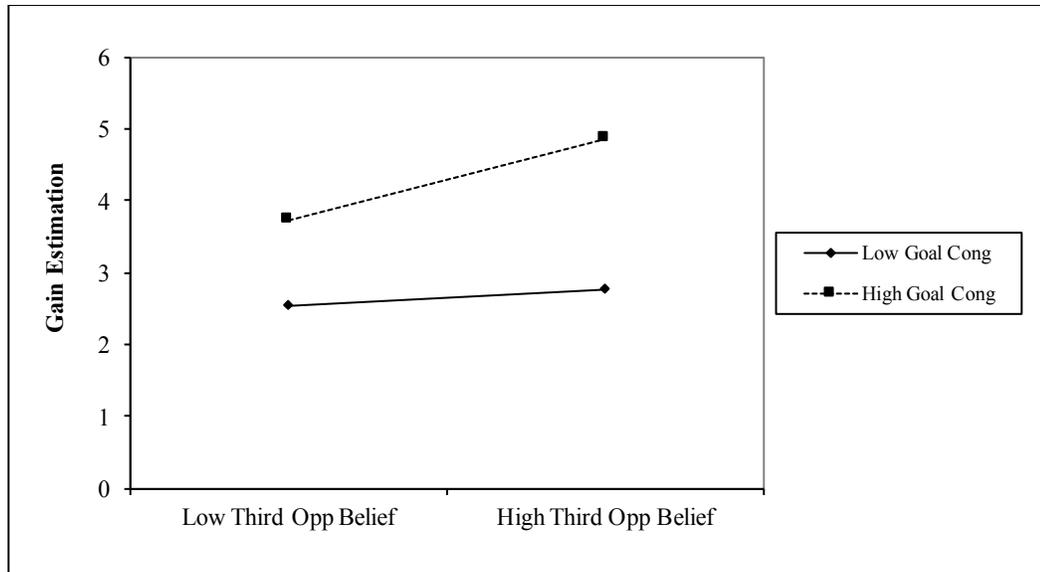


FIGURE 4: The moderating effect of goal congruence on the positive association between third-person opportunity belief and gain estimation

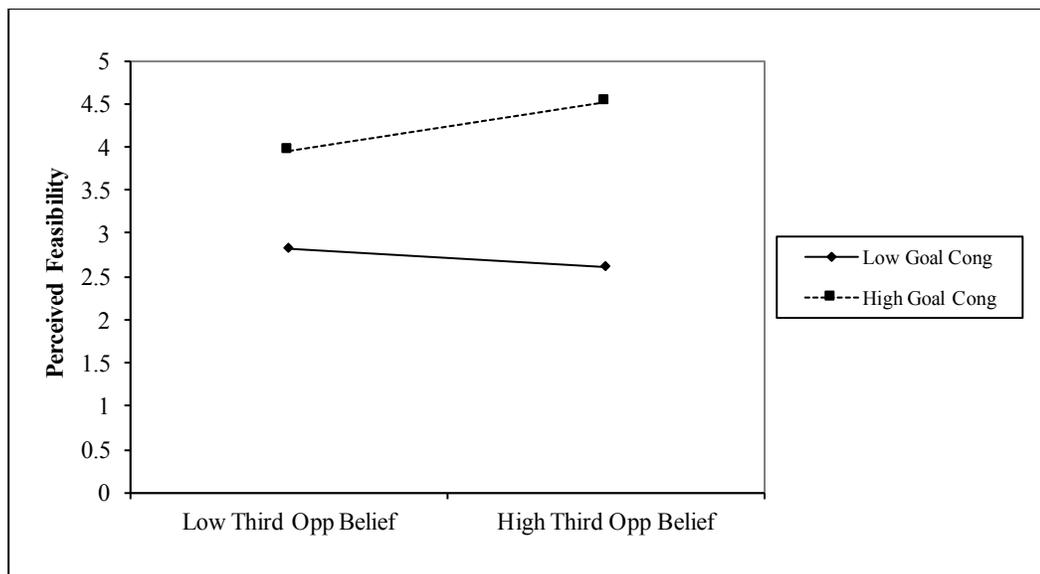


FIGURE 5: The moderating effect of goal congruence on the positive association between third-person opportunity belief and perceived feasibility

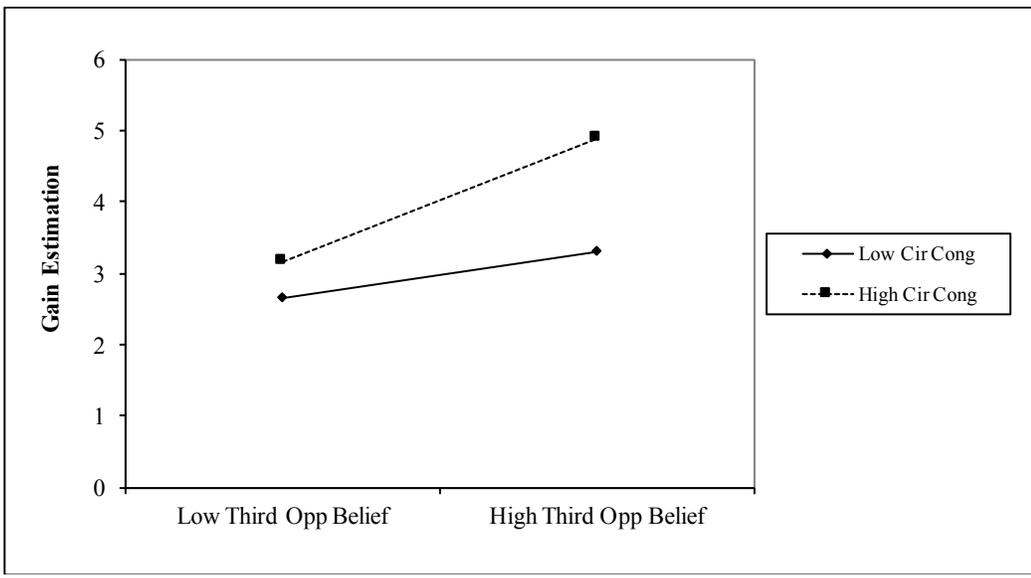


FIGURE 6: The moderating effect of circumstance congruence on the positive association between third-person opportunity belief and gain estimation

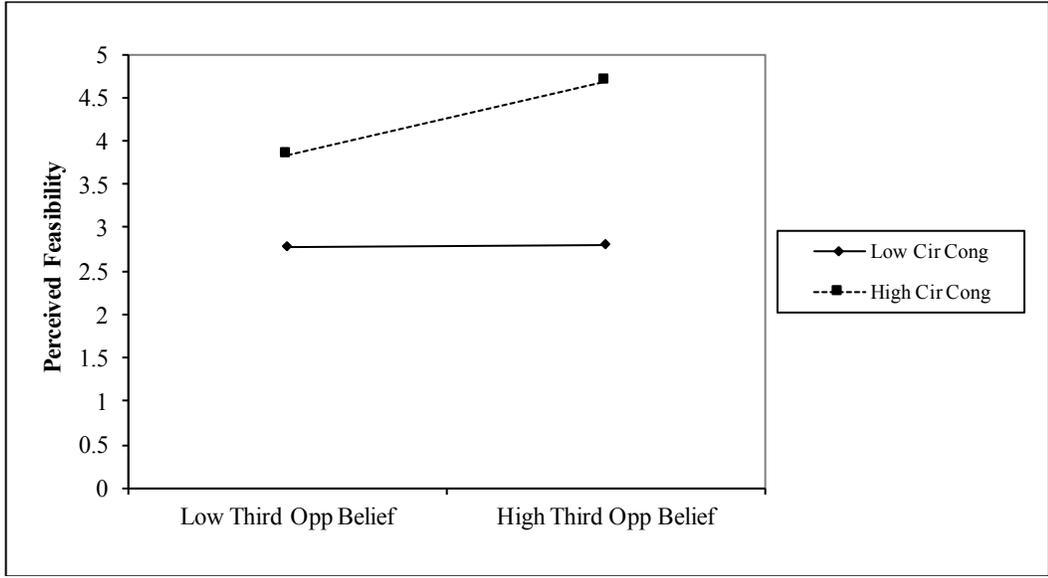


FIGURE 7: The moderating effect of circumstance congruence on the positive association between third-person opportunity belief and perceived feasibility

CHAPTER 7: DISCUSSION

Understanding opportunity beliefs and the factors which influence these beliefs are central to advancing our understanding of entrepreneurial behaviors. Opportunity belief formation is broken into two distinct phases. Third-person opportunity beliefs (i.e., an opportunity for someone) form during the opportunity recognition phase. First-person opportunity beliefs (i.e., an opportunity for me) form during the opportunity evaluation phase (McMullen & Shepherd, 2006; Wood & McKelvie, 2015). There are large bodies of research exploring the formation of third- and first-opportunity beliefs via opportunity recognition and opportunity evaluation respectively. Yet, there has been little theoretical and empirical work examining why individuals transition from favorable third-person opportunity beliefs to (un)favorable first-person opportunity beliefs and how individual differences influence this belief formation process. To address this gap in our understanding, I reviewed opportunity recognition and opportunity evaluation literatures. Building from this foundation, I synthesized a theory of congruence from extant fit theories. I tested the theoretical model using an experimental research design with 172 entrepreneurs.

The current study supports the theory that third-person opportunity beliefs are positively associated with first-person gain estimation and individual perceived feasibility, but the relationship is influenced by how well the individual “sees” themselves as fitting the ideal image for opportunity pursuit. Specifically, capability, goal, and circumstance congruence moderate the relationship between third- and first-

person gain estimation and perceived feasibility. As such, individual differences in congruence perceptions influence the belief that an opportunity for someone applies to the individual evaluator specifically. These results seek to make four contributions to the entrepreneurship literature.

The first intended contribution of the study is to draw attention to the unique effects which enhance or inhibit transition from third-person opportunity beliefs to first-person opportunity beliefs and to demonstrate how these relationships differ as a function of individuals and opportunities. That is, the belief formation process depends on the opportunity, the individual, and the individual-opportunity interaction. This specific interaction between individual and opportunity is manifest in the perceptual concepts of capability congruence, goal congruence, and circumstance congruence. In other words, individuals may believe that pursuing an opportunity might lead to benefits for someone, but the degree to which individuals believe they specifically can capture those benefits depends on the characteristics and circumstances required for ideal opportunity pursuit and whether they perceive themselves as fitting with these perceived demands.

Second, prior research has established that both third- and first person opportunity beliefs form with the use of “gists” and mental images (Shepherd et al., 2007). Moreover, the literature on opportunity recognition and opportunity evaluation has established that matching process between “gists” and mental images of opportunity and personal opportunity can occur via top-down or bottom-up matching processes. However, this framework does not fully explain why and how favorability of third-person opportunity beliefs influence first-person opportunity beliefs. The synthesized congruence model seeks to build off the foundation established within the cognitive perspective of the

entrepreneurship process. Specifically, the congruence perspective put forth in the present study explains how third-person opportunity beliefs relate to first-person opportunity beliefs and how this belief process is influenced by individual-opportunity interactions. Moreover, the congruence model highlights how closely linked opportunity recognition and opportunity evaluation are in the belief formation process. This is important because opportunity recognition and evaluation research to date have emerged separately (Short et al., 2010; Wood & Williams, 2015). Therefore, the congruence model of opportunity belief formation provides a bridge to link these bodies of research.

Third, the majority of theories applied to opportunity recognition and opportunity evaluation implicitly or explicitly assume some derivative of expected utility models. Indeed, individuals are often theorized to form opportunity related beliefs by conducting some type of cost/benefit or risk/reward calculation (McMullen & Shepherd, 2006; Grégoire, Shepherd, & Lambert, 2010). Expected utility assumptions have been fruitful and have certainly advanced our understanding on opportunity belief formation. However, expected utility models do not fully account for why individuals pursue seemingly unfavorable opportunities in poor performing industries (e.g., Johnson, 2004; Shane, 2009) or do not act on recognized favorable opportunities (e.g., Hill & Berkinshaw, 2010; Wood, Williams, & Drover, 2017). Therefore, the congruence model put forth seeks to offer a complementary lens to examine opportunity recognition and evaluation. Specifically, capability, goal, and circumstance congruence provide the theoretical rationale for why individuals perceive higher estimation of personal gains from relatively unfavorable third-person opportunity beliefs because congruence implies a higher likely to capture perceived benefits. Whereas an expected utility perspective

would predict that favorable third-person opportunity beliefs lead to increased estimations of personal gains, it does not fully account for why seemingly unfavorable third-person opportunity beliefs lead to higher estimates of personal gains. Therefore, the congruence perspective differentiates itself from the purely rational calculus of expected utility models, and provides a mechanism to account for seemingly irrational behavior.

Forth, understanding what prevents action is just as important as understanding what promotes entrepreneurial action (c.f., Drover et al., 2017). The majority of opportunity evaluation research to date has focused on why individuals act entrepreneurially (Wood & Williams, 2015). Implicit in this line of research is that the difference between individuals who act entrepreneurially and those that do not lies in accurately assessing opportunities. That is, the difference in individual ability to recognize opportunities and accurately evaluate the likelihood of exploiting the opportunity distinguishes entrepreneurial action from non-entrepreneurial action. The congruence model and results seeks to complement this perspective by introducing the notion that individuals may perceive the same environmental circumstances and have similar abilities in evaluating opportunities, but personal circumstantial factors, like money and time availability, affect personal gain estimation and individual perceived feasibility. Therefore, the timing for opportunity pursuit may not be right due to factors not directly related to opportunity pursuit. In this way, the congruence perspective provides a theoretical explanation for why many people express a desire to act entrepreneurially, but rarely follow up these desires with entrepreneurial behaviors (Kautonen et al., 2015; Van Gelderen et al., 2015).

The findings of the present study have implications for the congruence perspective of opportunity belief formation. Specifically, the present study examined each perceptual congruence concept in isolation. Indeed, the results support the moderating role of capability, goal, and circumstance congruence on personal gain estimation and individual perceived feasibility. Although each perceptual congruence concept is distinct, they likely have joint effects on belief formation. That is, individuals can be thought to have a profile of congruence. For example, having high capability and goal congruence, but low circumstance congruence might produce a different effect on opportunity belief formation than having low capability, medium goal, and high circumstance congruence. Therefore, a fruitful avenue of future research would be to examine how various profiles of congruence influence opportunity beliefs using latent profile analytic techniques (c.f., Stanley et al., 2013).

The purpose of this research was to establish the perceptual congruence model of belief formation. Having established this model, an avenue for future research can examine errors in congruence processes. For instance, Shane (2011) dispelled common myths associated with entrepreneurs and the entrepreneurship process. Examining the extent that these common misconceptions influence capability, goal, and circumstance congruence and with what effects could provide insightful answers to why there are gender differences in entrepreneurship behaviors and outcomes (Webb, Woehr, Scheaf, & Loignon, 2018).

Like all studies, this research is not without its limitations. First, the model fit statistics associated with the sweat sensors opportunity (Opp2) were below recommended cutoffs. Means scores and standard deviations for all variables were similar to the bed

tent opportunity (Opp1), but the data did not fit the theoretical model well. The research design rules out order effects because the opportunities and items were randomized. Further, potential methodological confounds were ruled out by maintaining similar reading level and text length. The sweat sensor opportunity description was based on a new technological breakthrough and therefore, likely to be more technologically complex than the bed tent (Opp1). In this way, the congruence model may have a boundary condition for differing levels of technological complexity.

I followed the recommendations for experimental designs in entrepreneurship and used vignettes to maintain a high level of control for hypothesis testing. Having control over research designs often comes at the sacrifice of realism. Even though the vignettes were based on real technologies and business concepts, the use of vignettes did not allow for the actual deployment of resources. Therefore, the participants did not have actual resources at stake to lose. This lack of realism could have been a contributing factor to the non-significant findings for loss estimation hypotheses. Another limitation potentially contributing to the lack of supportive findings for loss estimation is the level of detail in the opportunity descriptions. The length of the descriptions was designed to maintain respondent engagement. However, the brief descriptions could make it difficult to interpret the costs associated with opportunity pursuit, and therefore difficult to understand what would be at stake if the opportunity was pursued and ultimately failed.

Lastly, a limitation of the present research was that all the participants were entrepreneurs. This is usually thought of as a strength for entrepreneurship research (Hsu et al., 2017). But, an entrepreneur only sample restricted the variation in identity congruence scores. Meaning, the recruitment criteria for the study restricted the range of

entrepreneurial identity congruence to those who strongly identified as entrepreneurs. Therefore, future research should examine whether identity congruence moderates the relationship between opportunity beliefs with a mixed sample of entrepreneurs and non-entrepreneurs.

Conclusion

Opportunity beliefs are important to understanding entrepreneurial action. There is consensus that third-person opportunity beliefs form during opportunity recognition and first-person opportunity beliefs form during opportunity evaluation. Entrepreneurship process theory asserts that individuals transition from opportunity recognition to opportunity evaluation. Despite the importance of third- and first-person opportunity beliefs to process theories of entrepreneurship, there has been little theoretical and empirical work examining how and why third-person opportunity beliefs influence first-person opportunity beliefs, and to what extent individual differences influence this formation process. Herein, I reviewed opportunity recognition and opportunity evaluation literatures to take stock of what we know and to establish conceptual similarities between the phenomena. Building from this foundation, I synthesized a model of congruence from extant cognitive, motivation, and occupational choice theories of fit. Specifically, the model put forth theorized that the positive association between third-person and first-person opportunity beliefs is enhanced or buffered to the extent that individuals perceive capability, goal, circumstance, and identity congruence with ideal opportunity pursuit. Using data from 172 entrepreneurs, I found support that perceived capability, goal, and circumstance congruence moderates the relationship between third-person opportunity beliefs and personal gain estimation and individual perceived feasibility. The

development and support of the congruence perspective of opportunity belief formation provides a useful theoretical lens to answer important research questions related to the cognitive perspective of the entrepreneurship process.

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APPENDIX A: MEASURES FOR STUDY

Phase 1 Scales	Original items	Adapted items
Third-Person Opportunity Beliefs: Gregoire, Shepherd & Lambert (2010)	<ol style="list-style-type: none"> 1. The proposed business solution can be used to solve the problems of a targeted market. 2. The proposed business solution has the capabilities to answer the needs of a market. 3. There is a “match” between what the proposed business solution does, and what a targeted market demands. 4. Applying the proposed business solution with individuals/firms in a targeted market does constitute a feasible opportunity 5. The proposed business solution is sufficiently developed to be applied with individuals/firms in the targeted markets. 	<i>No adaptation</i>
Capability image congruence: Cable & DeRue (2002)	<ol style="list-style-type: none"> 1. The match is very good between the demands of my job and my personal skills 2. My abilities and training are a good fit with the requirements of my job 3. My personal abilities and education provide a good match with the demands that my job places on me 	<ol style="list-style-type: none"> 1. The match is very good between the demands of bringing [opportunity] to market and my personal knowledge, skills, and abilities. 2. My abilities and training are a good fit with the requirements of bringing the [opportunity] to market. 3. My personal abilities and education provide a good match with the demands that brining the [opportunity] to market will place on me.

Phase 1 Scales	Original items	Adapted items
Goal Image Congruence: Cable & DeRue (2002)	<ol style="list-style-type: none"> 1. The things that I value in life are very similar to the things that my organization values 2. My personal values match my organization's values and culture 3. My organization's values and culture provide a good fit with the things that I value in life 4. There is a good fit between what my job offers me and what I am looking for in a job 5. The attributes that I look for in a job are fulfilled very well by my present job 6. The job that I currently hold gives me just about everything that I want from a job 	<ol style="list-style-type: none"> 1. The things that I value in life are very similar to the benefits associated with pursuing the [opportunity] 2. My personal values match the ideal person for pursuing the [opportunity] 3. Pursuing the [opportunity] provides a good fit with the things that I value in life 4. There is a good fit between what pursuing the [opportunity] offers me and what I am looking for in an occupation 5. The attributes that I look for in an occupation will be fulfilled very well by pursuing the [opportunity] 6. Pursuing the [opportunity] will give me just about everything that I want from an occupation
Circumstance Image Congruence: Peters, O'Connor, Pooyan, & Quick (1984)	<ol style="list-style-type: none"> 1. I have the available amount of time to do the [tasks assigned]. 2. The extent to which I could use the available time flexibly in order to accomplish tasks 	<ol style="list-style-type: none"> 1. I have the available amount of time to bring the [opportunity] to market. 2. My schedule offers the flexibility required to perform the tasks needed to bring the [opportunity] to market. 3. I have enough available money to develop and bring the [opportunity] to market. I have the flexibly in my personal finances to pursue the [opportunity]

Phase 2 Scales	Original items	Adapted items
First-person opportunity beliefs: Scheaf, Loignon, Webb, Heggestad, & Wood	Gain Estimation	<i>No adaptation</i>
	1. I want to learn more about pursuing [O]	
	2. I would love working on making [O] a reality	
	3. Pursuing [O] would be enjoyable for me	
	4. I see large potential gains for myself in pursuing the [O]	
	5. The potential upside in pursuing [O] is large for me	
	6. Pursuing [O] would result in big profits for me.	
	Loss Estimation	
	7. The potential for loss in pursuing the [O] is high	
	8. The overall riskiness of pursuing [O] is high	
	9. The size of the potential loss in pursuing [O] is large	
	10. The exposure to loss in pursuing [O] is sizeable.	
	Perceived Feasibility	
	11. I have what it takes to create [O]	
12. I am well equipped to pursue [O]		
13. At this point in my life, it would be easy for me to go after [O]		
14. At this point in my life, I have no barriers preventing me from pursuing [O]		
General Self-efficacy: Chen, Gully, & Eden (2001)	1. I will be able to achieve most of the goals that I have set for myself.	<i>No adaptation</i>
	2. When facing difficult tasks, I am certain that I will accomplish them.	
	3. In general, I think that I can obtain outcomes that are important to me.	
	4. I believe I can succeed at most any endeavor to which I set my mind.	
	5. I will be able to successfully overcome many challenges.	
	6. I am confident that I can perform effectively on many different tasks.	
	7. Compared to other people, I can do most tasks very well.	
	8. Even when things are tough, I can perform quite well.	

APPENDIX B: RELATIVE IMPORTANCE ANALYSIS FOR BED TENT

Criterion = Gain Estimation ($R^2 = .60, p < .001$)						
Predictor	b	β	RW	CI-L	CI-U	RS-RW(%)
Constant	1.45*					
Third Opp	0.16*	0.21	0.15*	0.09	0.22	25.53%
Circumstance Cong.	0.18*	0.20	0.15*	0.10	0.20	24.56%
Capability Cong.	-0.1	-0.01	0.09*	0.05	0.13	15.41%
Goal Cong.	0.41*	0.45	0.20*	0.14	0.26	33.43%
Identity Cong.	-0.11	-0.05	0.01	-0.01	0.04	1.08%

Note: Third Opp = Third-person Opportunity Belief; Circumstance Cong. = Circumstance Congruence; Capability Cong. = Capability Congruence; Goal Cong. = Goal Congruence; Identity Cong. = Identity Congruence; b = unstandardized regression weight; β = standardized regression weight; RW = raw relative weight (within rounding error raw weights will sum to R^2); CI-L = lower bound of confidence interval used to test the statistical significance of raw weight; CI-U = upper bound of confidence interval used to test the statistical significance of raw weight; RS-RW = relative weight rescaled as a percentage of predicted variance in the criterion variable attributed to each predictor (within rounding error rescaled weights sum to 100%)

Criterion = Perceived Feasibility ($R^2 = .52, p < .001$)						
Predictor	b	β	RW	CI-L	CI-U	RS-RW(%)
Constant	0.88					
Third Opp	0.06	0.08	0.07*	0.02	0.11	12.44%
Circumstance Cong.	0.36*	0.44	0.20*	0.12	0.26	38.55%
Capability Cong.	0.22*	0.25	0.14*	0.08	0.20	26.93%
Goal Cong.	0.05	0.05	0.11*	0.07	0.16	21.93%
Identity Cong.	0.00	0.00	0.00	-0.04	0.01	0.16%

Note: Third Opp = Third-person Opportunity Belief; Circumstance Cong. = Circumstance Congruence; Capability Cong. = Capability Congruence; Goal Cong. = Goal Congruence; Identity Cong. = Identity Congruence; b = unstandardized regression weight; β = standardized regression weight; RW = raw relative weight (within rounding error raw weights will sum to R^2); CI-L = lower bound of confidence interval used to test the statistical significance of raw weight; CI-U = upper bound of confidence interval used to test the statistical significance of raw weight; RS-RW = relative weight rescaled as a percentage of predicted variance in the criterion variable attributed to each predictor (within rounding error rescaled weights sum to 100%)

I conducted a relative weight analysis using RWA-Web (Tonidandel & LeBreton 2014); results are summarized in Appendix B. In all cases, 95 % CIs were used. These results indicate that a weighted linear combination of the five variables explained over half of the variance in the gain estimation criterion ($R^2 = 0.60$) and roughly half of the variance in the perceived feasibility criterion ($R^2 = 0.52$). An examination of the relative weights indicates that four of the five variables

explained a statistically significant amount of variance in gain estimation and perceived feasibility as none of the 95% CIs contained zero. The most important variables for gain estimation were goal congruence (RW = 0.20), third-person opportunity beliefs (RW = 0.15), and circumstance congruence (RW = 0.15). The most important variables for perceived feasibility were circumstance congruence (RW = 0.20), capability congruence (RW = 0.14), and goal congruence (RW = 0.11).

The relative weight results differ from the multiple regression analysis. For example, in the regression analysis capability congruence did not provide a statistically significant incremental effect in the prediction of gain estimation, when holding constant all of the remaining predictors. Similarly, only capability congruence and circumstance congruence are significant predictors in the traditional perceived feasibility regression model. This deviation in the significance of the regression coefficients and the relative weights is common (Tonidandel et al. 2009). When predictors have a significant bivariate relationship with criterion, but also are correlated among themselves (Please see Table 2 in Results section), this may not lead to a significant incremental relationship when controlling for the other predictors in the model. Relative weights, however, are used to test which correlated predictors explain non-trivial variance in dependent variables. Therefore, these results suggest that capability congruence, goal congruence, circumstance congruence, and third-person opportunity beliefs are explaining non-trivial variance in gain estimation and perceived feasibility. However, the moderate to strong

correlations among these variables ultimately renders them not explaining incremental or unique variance individually when the other variables are controlled.

APPENDIX C: DESCRIPTIVE STATISTICS AND CORRELATIONS FOR SWEAT SENSORS

	M	SD	1	2	3	4	5	6	7	8	9
1. Third-Person Opp Belief	1.79	1.49	(0.90)								
2. Capability Image Cong.	4.76	1.45	0.49**	(0.91)							
3. Goal Image Cong.	4.78	1.36	0.68**	0.82**	(0.93)						
4. Circum. Image Cong.	4.24	1.58	0.45**	0.72**	0.75**	(0.86)					
5. Identity Cong.	4.06	0.66	0.10	0.12	0.11	0.06	(0.66)				
6. General Self-Efficacy	4.31	0.63	0.39**	0.23**	0.32**	0.22**	0.38**	(0.92)			
7. Gain Estimation	4.15	1.23	0.50**	0.63**	0.74**	0.63**	0.04	0.37**	(0.94)		
8. Loss Estimation	4.05	1.11	-0.11	-0.11	-0.14	-0.10	0.08	0.06	-0.22**	(0.87)	
9. Perceived Feasibility	3.76	1.32	0.38**	0.67**	0.64**	0.70**	0.11	0.26**	0.78**	-0.14	(0.90)

N=172; non-centered means and SD reported; Alpha coefficients reported on the diagonal.

**p<.01

*p<.05

APPENDIX D: MULTIPLE MODERATION REGRESSION RESULTS FOR SWEAT SENSORS

	Capability Image Congruence					
	Gain Estimation		Perceived Feasibility		Loss Estimation	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
	b	SE	b	SE	b	SE
Constant	4.15**	0.07	4.15**	0.08	3.76**	0.08
Gen. SE	0.35**	0.12	0.35**	0.12	0.22	0.13
Third-Opp	0.16**	0.06	0.16**	0.06	0.03	0.06
Cap. Cong.	0.42**	0.05	0.42**	0.06	0.57**	0.06
Third*Cap	0.00	0.03	0.00	0.03	0.03	0.03
R ²	0.47**		0.47		0.45**	
F	50.21		37.43		46.59	
N=172						
**p<.01						
*p<.05						

	Goal Image Congruence					
	Gain Estimation		Perceived Feasibility		Loss Estimation	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
	b	SE	b	SE	b	SE
Constant	4.15**	0.06	4.14**	0.08	3.76**	0.08
Gen. SE	0.30**	0.11	0.30**	0.11	0.18	0.13
Third-Opp	-0.04	0.06	-0.04	0.06	-0.13	0.07
Goal Cong.	0.65**	0.06	0.65**	0.07	0.70**	0.08
Third*Goal	0.01	0.03	0.01	0.03	0.03	0.04
R ²	0.56**		0.56		0.43	
F	71.67		53.45		41.90	
N=172						
**p<.01						
*p<.05						

Circumstance Image Congruence

	Gain Estimation				Perceived Feasibility				Loss Estimation			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	b	SE	b	SE	b	SE	b	SE	b	SE	b	SE
Constant	4.15**	0.07	4.13**	0.08	3.76**	0.07	3.71**	0.08	4.05**	0.09	4.01**	0.09
Gen. SE	0.35**	0.12	0.34**	0.12	0.21	0.12	0.20	0.12	0.23	0.15	0.23	0.15
Third-Opp	0.17**	0.06	0.18**	0.06	0.03	0.06	0.05	0.06	-0.10	0.07	-0.08	0.07
Cir Cong.	0.39**	0.05	0.38**	0.05	0.56**	0.05	0.53**	0.05	-0.05	0.06	-0.07	0.06
Third*Cir			0.02	0.03			0.05	0.03			0.04	0.04
R ²	0.48**		0.48		0.51**		0.52		0.03		0.04	
F	52.21		39.12		57.94		44.46		1.70		1.50	

N=172

**p<.01

*p<.05

Identity Image Congruence

	Gain Estimation				Perceived Feasibility				Loss Estimation			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	b	SE	b	SE	b	SE	b	SE	b	SE	b	SE
Constant	4.15**	0.08	4.14**	0.08	3.76**	0.09	3.75**	0.09	4.05**	0.09	4.07**	0.08
Gen. SE	0.47**	0.15	0.49**	0.15	0.26	0.18	0.28	0.18	0.18	0.16	0.15	0.16
Third-Opp	0.35**	0.06	0.34**	0.06	0.29**	0.07	0.28**	0.07	-0.12	0.06	-0.11	0.06
ID Cong.	-0.17	0.13	-0.17	0.13	0.06	0.15	0.06	0.15	0.10	0.14	0.10	0.14
Third*ID			0.13	0.08			0.13	0.09			-0.16*	0.09
R ²	0.29**		0.30		0.16**		0.17		0.03		0.05*	
F	23.14		18.11		10.34		8.23		1.63		2.15	

N=172

**p<.01

*p<.05

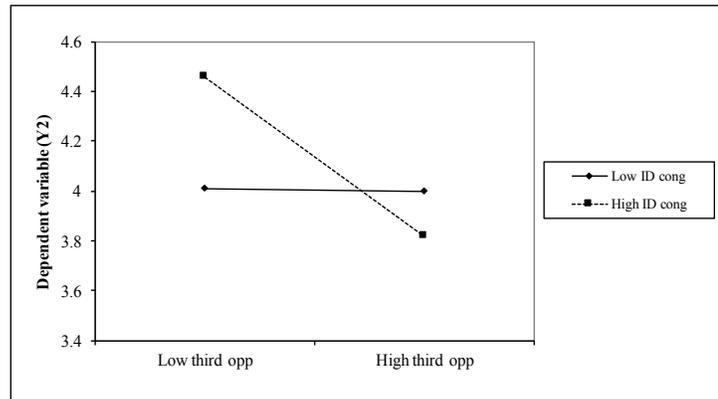


FIGURE A1: The moderating effect of identity congruence on the negative association between third-person opportunity belief and loss estimation

APPENDIX E: RELATIVE IMPORTANCE ANALYSIS FOR SWEAT SENSORS

Criterion = Gain Estimation ($R^2 = .56, p < .001$)						
Predictor	b	β	RW	CI-L	CI-U	RS-RW(%)
Constant	1.21**					
Third Opp	0.02	0.02	0.08*	0.04	0.14	14.98%
Circumstance Cong.	0.14*	0.18	0.14*	0.10	0.20	25.35%
Capability Cong.	0.02	0.03	0.13*	0.09	0.18	22.96%
Goal Cong.	0.52**	0.57	0.20*	0.15	0.27	36.57%
Identity Cong.	-0.06	-0.03	0.00	-0.02	0.02	0.15%

Note: Third Opp = Third-person Opportunity Belief; Circumstance Cong. = Circumstance Congruence; Capability Cong. = Capability Congruence; Goal Cong. = Goal Congruence; Identity Cong. = Identity Congruence; b = unstandardized regression weight; β = standardized regression weight; RW = raw relative weight (within rounding error raw weights will sum to R2); CI-L = lower bound of confidence interval used to test the statistical significance of raw weight; CI-U = upper bound of confidence interval used to test the statistical significance of raw weight; RS-RW = relative weight rescaled as a percentage of predicted variance in the criterion variable attributed to each predictor (within rounding error rescaled weights sum to 100%)

Criterion = Perceived Feasibility ($R^2 = .55, p < .001$)						
Predictor	b	β	RW	CI-L	CI-U	RS-RW(%)
Constant	0.22					
Third Opp	-0.04	-0.04	0.04*	0.01	0.07	6.50%
Circumstance Cong.	0.37**	0.44	0.22*	0.14	0.30	40.11%
Capability Cong.	0.24**	0.26	0.16*	0.10	0.23	29.31%
Goal Cong.	0.12	0.12	0.13*	0.09	0.18	23.22%
Identity Cong.	0.09	0.04	0.00	-0.01	0.04	0.86%

Note: Third Opp = Third-person Opportunity Belief; Circumstance Cong. = Circumstance Congruence; Capability Cong. = Capability Congruence; Goal Cong. = Goal Congruence; Identity Cong. = Identity Congruence; b = unstandardized regression weight; β = standardized regression weight; RW = raw relative weight (within rounding error raw weights will sum to R2); CI-L = lower bound of confidence interval used to test the statistical significance of raw weight; CI-U = upper bound of confidence interval used to test the statistical significance of raw weight; RS-RW = relative weight rescaled as a percentage of predicted variance in the criterion variable attributed to each predictor (within rounding error rescaled weights sum to 100%)