

Cleaning up the big muddy: psychological ownership and its effect on entrepreneurial
persistence

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Abstract

While research has shown that persistence is an important predictor of entrepreneurial success, evidence also indicates that entrepreneurial persistence can lead to disastrous consequences. Therefore, it is crucial to manage entrepreneurial persistence to limit an entrepreneur's exposure to failure and improve their likelihood of success. However, our current understanding of why entrepreneurs persist is fragmented, as the determinants of persistence have yet to be integrated in a meaningful way. As a result, our current understanding of entrepreneurial persistence lacks the clarity required to manage entrepreneurial persistence effectively.

I propose that psychological ownership is a key variable that facilitates the integration of the four (psychological, project, social and structural) determinants of entrepreneurial persistence. I assert that psychological ownership can provide a psychological explanation for entrepreneurial persistence by positing that entrepreneurs persist in order to address the impairment of their self-concept that results from their venture's failure. I then establish that psychological ownership can provide a link to project determinants by noting that psychological ownership enhances the expected utility of the course of action, which increases the likelihood of entrepreneurial persistence. Following, I articulate that collective psychological ownership can provide a social explanation for entrepreneurial persistence by arguing that a team of entrepreneurs persist to address the collective impairment of their identity that stems from receiving negative feedback. Finally, I demonstrate that psychological ownership can provide a link to structural determinants by noting that psychological ownership motivates entrepreneurs to increase their commitment to their venture following negative feedback in order to prevent investors from gaining control of their ventures.

In order to test my hypotheses, I modified and extended Staw's (1976) seminal research design on escalation of commitment to fit the entrepreneurial context and conducted mediated moderation tests on data collected from 229 entrepreneurs. The results of this study show that psychological ownership is positively related to commitment when controlling for the performance of the venture. Thus, the results indicate that psychological ownership predicts entrepreneurial persistence. In addition, the results suggest that there is tentative support for the notion that psychological ownership can link the four determinants of entrepreneurial persistence and provide a holistic explanation for why entrepreneurs persist.

I conclude by highlighting the importance of psychological ownership in managing entrepreneurial persistence. I note that psychological ownership can be a useful criterion for investors to identify which entrepreneurs are likely to persist and go the extra mile to advance their entrepreneurial projects. In addition, I note that an effective measure to mitigate entrepreneurial persistence, when it is time to pull the plug on an entrepreneurial project, is to reduce an entrepreneur's psychological ownership for their ideas or ventures.

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Chapter 1: Introduction

“If at first you don’t succeed, try, try again. Then quit. No use being a damn fool about it.”

W. C. Fields

“The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore all progress depends on the unreasonable man.”

George Bernard Shaw

Introducing change into an environment is a difficult endeavour. Yet, thousands of entrepreneurs embark on a journey to alter their environment on a yearly basis even though they face numerous obstacles when launching and managing their business venture (Aldrich & Auster, 1986; Aldrich & Fiol, 1994; Hannan & Freeman, 1984; Hargadon & Douglas, 2001; Stinchcombe, 1965) and face alarmingly high rates of failure (Headd, 2003; Timmons, 1990). It is not a surprise then that persistence is deemed a necessary characteristic of successful entrepreneurs (Kuratko & Hodgetts, 2007; Markman & Baron, 2003).

However, scholars have also noted that unbridled persistence can lead to the demise of entrepreneurs and have suggested that entrepreneurs are fools (Aldrich & Fiol, 1994) or filled with hubris (Hayward, Shepherd, & Griffin, 2006) when attempting to overcome seemingly insurmountable environmental constraints. Thus, persistence is regarded a double-edged sword for entrepreneurs. On one hand, entrepreneurs such as Tomas Edison, Walt Disney and Richard Branson have overcome tremendous obstacles through their perseverance and convictions and consequently changed the world that we live in (Burnes et al., 2002; Clarkson, 2015; Hargadon & Douglas, 2001). On the other hand, persistence by entrepreneurs such as Elizabeth Holmes and Ruth Kelly has cost investors hundreds of millions of dollars and resulted in the tragic loss of life (Primack, 2016; Pruden, 2017).

Given that entrepreneurial persistence can lead to success or failure, it is important that entrepreneurs are able to manage their persistence. As McMullen and Kier (2016, p. 664) eloquently point out “Entrepreneurship requires persistence. Too little of it and dreams die prematurely from lack of effort; too much of it and the entrepreneur is left looking like Moby Dick's Captain Ahab, willing to sacrifice everything and everyone to catch his white whale.” Unfortunately, our ability to manage entrepreneurial persistence effectively is limited because we lack a holistic understanding of why entrepreneurs persist, as our current understanding of entrepreneurial persistence is fragmented.

A critical and conventional perspective, which developed from the social psychology (Festinger et al., 1956) and management (Staw, 1976) literatures, suggests that entrepreneurial persistence is nothing more than escalation of commitment and a reflection of poor judgement and irrationality. On the other hand, the psychic income perspective suggests that some entrepreneurs prefer performing hara-kiri over abandoning their venture because entrepreneurial activities and ownership of ventures are infused with meaning for them (Cardon et al., 2009; Grimes, 2018; Hoang & Gimeno, 2010; Lahti et al., 2019; Ronstadt, 1986; Powell & Baker, 2014; Zuzul & Tripsas, 2019).

While both perspectives have illuminated our understanding of entrepreneurial persistence and have received support, each perspective has significant limitations. The psychic income perspective is limited because it only considers the identity of the entrepreneur as a cause of entrepreneurial persistence. However, the classical and more developed, escalation of commitment literature informs us that psychological factors are not the only drivers of persistence and that project, social and structural factors also drive individuals to continue down a path that is failing (Staw, 1981). Thus, the contemporary perspective on entrepreneurial

persistence would benefit from incorporating project, social and structural elements when explaining entrepreneurial persistence.

The escalation of commitment perspective is limited in explaining persistence in an entrepreneurial setting because it is primarily underpinned by self-justification arguments (Staw, 1976) that are more applicable to managers rather than entrepreneurs. Self-justification has limited utility in explaining entrepreneurial persistence because recent evidence suggests that entrepreneurs are comfortable with failure (Arora & Nandkumar, 2011; Haines & Townsend, 2013) and that hope rather than fear is what prompts most entrepreneurs to persist (T. Y. Huang et al., 2019). Furthermore, the escalation of commitment perspective is limited because it cannot account for the strong bond that develops between entrepreneurs and their ventures (Baron, 2008; Cardon et al., 2004; Lahti et al., 2019). The strong bond that entrepreneurs have with their entrepreneurial ventures has crucial behavioural and cognitive implications that motivate entrepreneurs to persist (Baron, 2008; Cardon et al., 2004; Lahti et al., 2019).

In order to develop a comprehensive theory of entrepreneurial persistence, I introduce a new perspective by incorporating psychological ownership (Pierce et al., 2001) into the discussion (Poole & van de Ven, 1989). I develop this perspective by building on the on self-concept (Fiske & Taylor 1991; Rosenberg 1979) and the motives of the self (Shamir, 1991) to suggest that under certain conditions entrepreneurs will naturally be inclined to persist with their ideas or ventures. I posit that the necessary condition to prompt reinvestment in a venture or idea that has received negative feedback is contingent upon the degree that the idea or venture is incorporated in the self definition of the entrepreneur (Belk, 1988; Pierce et al., 2001). The degree that the idea or venture is incorporated into the self-concept increases the amount care that will be devoted to nurture, protect and advance the entrepreneurial idea or venture that has

received negative feedback from the environment (Belk, 1988; Lahti et al., 2019; Pierce et al., 2001). The amount of care devoted to nurture, protect and advance the idea or venture will determine how long the entrepreneur will persist.

The idea that psychological ownership may be an antecedent of entrepreneurial persistence is not new (DeTienne, 2010; DeTienne et al., 2008; Townsend, DeTienne, Yitshaki & Arthurs, 2009), as studies have shown individuals to be psychologically tied to objects they develop psychological ownership for (Kline & France, 1899; Pierce et al., 2001). My contribution is that I extend the premise that psychological ownership leads to entrepreneurial persistence by arguing that psychological ownership can provide a mechanism that integrates the psychological, project, social and structural determinants of entrepreneurial persistence. I assert that psychological ownership can provide a link to project determinants by noting that that psychological ownership enhances the expected utility of the course of action being taken, which increases the likelihood of entrepreneurial persistence. I note that collective psychological ownership provides a social explanation for entrepreneurial persistence. I posit that psychological ownership can provide a link to structural determinants by noting that psychological ownership motivates entrepreneurs to increase their commitment to their venture following negative feedback in order to prevent investors from gaining control of their ventures.

An additional contribution of the psychological ownership perspective is that it can account for individual differences and as a result, enhances our ability to predict which entrepreneur is likely to persist. One of the main criticism of escalation of commitment perspective is that it offers limited utility to predict which entrepreneur is likely to persist because it does not account for individual differences (Moon, 2001b; Staw & Ross, 1978; Whyte, 1986). The psychological ownership perspective is able to distinguish which

entrepreneur is likely to persist because the extent that an entrepreneur develops ownership feelings towards their ideas and ventures will be dependent on a number of factors. As a result, the degree of ownership feelings and the motivation to persist will differ from one entrepreneur to the next.

The ability to distinguish which entrepreneurs is likely to persist provides insights into one of the foundational questions in the entrepreneurial field: Why, when and how some people and not others discover and exploit opportunities (Shane & Venkataraman, 2000). Evidence suggests that one reason why some entrepreneurs are more successful than others is because some founders are more persistent than others when developing and exploiting their entrepreneurial ideas (Markman et al., 2005). As a result, any theory on entrepreneurship would be inadequate if we cannot explain why entrepreneurs persist with their ventures.

Moreover, a firm understanding of why entrepreneurs persist is invaluable because it can inform entrepreneurs and investors how and when to pull the plug on entrepreneurial endeavours that are going awry. The importance and benefit of reducing commitment to a failing venture through reducing psychological ownership is fourfold. First, this recommendation acknowledges reducing commitment is a process and that abandoning a course of action is not instantaneous (Klinger, 1975). Second, entrepreneurs have a variety of alternatives at their disposal to reduce their psychological ownership and this flexibility should make the disengagement process more manageable and palatable. Third, reducing commitment through psychological ownership and identity work reduces counterproductive measures to curb persistence. Fourth, entrepreneurs and their allies can prevent the occurrence of undesired persistence by taking steps to ensure that increases in psychological ownership coincides with the ventures performance.

The starting point of this study, in Chapter 2, is to review the entrepreneurial persistence literature. The review will be presented in two parts. First, I will review the escalation of commitment perspective on entrepreneurial persistence. As escalation of commitment has received extensive scholarship in the entrepreneurship and management fields it is the logical place to start exploring what factors are likely to influence an entrepreneur persisting. The review will be based on the work of Sleesman, Conlon, McNamara and Miles (2012) and the aim is to identify the scope of explanations psychological ownership must account for in order to develop an integrated and consistent understanding of entrepreneurial persistence. In addition, I review a contemporary perspective that suggests entrepreneurs persist with their underperforming ventures in part because it provides them with psychic income.

In Chapter 3, I will introduce psychological ownership and provide a formal definition of this phenomenon. I will then describe the attributes of psychological ownership as they provide the psychological basis that motivates entrepreneurs to persist with their entrepreneurial vehicles. Subsequently, I will comment on how the defining features of psychological ownership differentiates it from related constructs such as commitment. I will then outline how and why entrepreneurs develop psychological ownership to explain why some entrepreneurs develop stronger ownership feelings for their ideas and ventures. Finally, I will provide my arguments that articulate why the relationship between psychological ownership and commitment will increase following negative feedback.

In Chapter 4, I explain how psychological ownership can unify the existing work by linking project, social and structural determinants of escalation of commitment that are likely to work in concert to pressure entrepreneurs to persist. I note that psychological ownership has been found to increase the attractiveness of owned objects and suggest that this will inflate the

expected utility of the entrepreneurial endeavor, which compels entrepreneurs to persist (Brockner, 1992). I argue that collective psychological ownership (Pierce & Jussila, 2010), which flows from psychological ownership, will prompt entrepreneurial teams to persist with their entrepreneurial idea or venture in order to improve the attractiveness of the venture as it is a reflection of the team. Finally, I assert that territoriality (Brown et al., 2005), a consequence of psychological ownership, will prompt entrepreneurs to persist with their entrepreneurial ventures in order to prevent investors from gaining control over their ventures.

In Chapter 5, I will outline my research method and provide a rationale for my research design and subsequent analysis for the data collected. I employ a research design based on the work of Staw (1976) which I adapted and extended. First, I modified the measures for negative feedback and commitment in order to adapt the research design to entrepreneurs, as Staw (1976) was primarily interested in persistence of senior executives. Second, I collected data from entrepreneurs through a survey rather than conducting an experiment in order to capture entrepreneurial persistence in a real life setting. Third, I included a mediated moderation tests to integrate the different determinants, while Staw's (1976) design only tested for moderation to determine the psychological effect on persistence.

In Chapter 6, I will present the results of my study. The main finding of this study is that psychological ownership increases commitment when controlling for performance of the venture. This result suggests that psychological ownership predicts entrepreneurial persistence. In addition, I found tentative evidence that supports the proposition that psychological ownership can integrate the four determinants of persistence. Contrary to Staw's (1976) finding, I found that negative feedback reduced commitment and the interaction between psychological ownership

and negative feedback was insignificant. I will provide the analysis of the mediated moderated tests I carried out Appendix 1.

In Chapter 7, I will offer a discussion that explains how the results of this study impacts our understanding of entrepreneurial persistence. I begin my discussion by explaining the insignificant interaction between psychological ownership and negative performance. I will then note that the psychological ownership perspective provides an alternative explanation for why entrepreneurs persist and suggests that entrepreneurs persist to nurture, protect and advance their entrepreneurial projects. I will then comment on how proclivity of entrepreneurs to nurture, protect and advance their entrepreneurial projects explains the excess entry of entrepreneurial ventures in the presence of suboptimal returns. Finally, I discuss how reducing psychological ownership of entrepreneurs can mitigate the excess entry of entrepreneurial ventures in the presence of suboptimal returns

In addition, I critique the research that I undertook in Chapter 7. I comment on how the study was limited due to the representativeness of participants and the low number of entrepreneurs that participated in this study. I also note that I am concerned that the common method bias may have inflated the correlations between psychological ownership and commitment (Podsakoff et al., 2003). I also note that the inflated correlation between psychological ownership and commitment may be the result of participants viewing psychological ownership and commitment in the same light.

Finally, in Chapter 8, I will offer my concluding remarks and I will discuss the importance of developing a holistic understanding of entrepreneurial persistence. I note that the decision to persist is an important decision that is effected by a multitude of factors and as a result, it is important to understand how entrepreneurs arrive at this decision holistically.

Furthermore, I note that most entrepreneurs are likely to feel compelled to persist because of the bond that develops between entrepreneurs and their creation. As a result, it is likely that most entrepreneurs are likely to sacrifice themselves in order to nurture, advance and protect their entrepreneurial creations. I suggest that the willingness of entrepreneurs to sacrifice themselves for their entrepreneurial projects is not necessarily irrational.

Chapter 2: Entrepreneurial Persistence

Entrepreneurial persistence is defined as: continuation of effortful action despite failures, impediments, or threats, either real or imagined (Gimeno et al., 1997); a propensity to undertake certain activities in the face of adverse situations (Markman et al., 2005); the positive maintenance of motivation to continue acting under challenging conditions (Holland, 2011) and the choice to continue with an entrepreneurial opportunity regardless of counterinfluences or enticing alternatives (Holland & Shepherd, 2013). Thus, broadly speaking entrepreneurial persistence describes a situation where an entrepreneur carries out multiple attempts towards a particular course of action in the face of adversity, challenges or difficulties (Markman et al., 2005).

There are currently two different schools of thought that explain entrepreneurial persistence. The psychic income perspective of entrepreneurial persistence suggests that some entrepreneurs persist because their venture fulfills a certain threshold of utility even if the venture is underperforming financially. Entrepreneurs earn psychic income from owning and managing their ventures because it allows them to engage in activities that are meaningful to them (Cardon et al., 2004; Fauchart & Gruber, 2011; Grimes, 2018; Hoang & Gimeno, 2010; Lahti et al., 2019; Powell & Baker, 2014; Zuzul & Tripsas, 2019) and thus consider abandoning their ventures as a mild form of hara-kiri (Ronstadt, 1986).

On the other hand, the escalation of commitment perspective suggests that some entrepreneurs are incapable of pulling the plug even when their venture is failing. Escalation of commitment is defined as the tendency for decision makers to persist with a losing course of action (Brockner, 1992; Staw, 1981; Whyte, 1986). The phenomenon of an escalation of commitment is characterized by situations where a) a choice is made to continue on a previous

pursuit of an objective, b) the course of action has incurred previous costs, c) the course of action has received negative feedback, and d) where there is uncertainty in whether the objective can be met (Brockner, 1992; Staw, 1981; Whyte, 1986).

These two perspectives have enabled scholars to conceptualize the antecedents of entrepreneurial persistence broadly and specifically. Scholars have suggested that there are four determinates (project, psychological, social and structural) of entrepreneurial persistence that provide general explanations for why entrepreneurs persist. In addition, research has identified over 30 specific variables that a) further improve our understanding of project, psychological, social and structural determinants and b) provide specific explanation for why entrepreneurs persist. However, both the broad determinants and specific factors of entrepreneurial persistence have been developed in isolation and consequently, linkages between the different determinants and factors have yet to be developed. As a result, we do not have a complete understanding of entrepreneurial persistence.

Developing a more complete understanding of entrepreneurial persistence is important because the antecedents of entrepreneurial persistence are likely to pressure entrepreneurs to persist in concert. Project factors are important in an entrepreneurial setting as entrepreneur's information processing and entrepreneurial cognition are critical factors that are necessary to develop and exploit opportunities (Mitchell et al., 2002; Shane & Venkataraman, 2000). The social processes established in the creation and management of an entrepreneurial venture can lead to mutually reinforcing exchanges between founding members that creates a set of interlocking behaviors that limits the ability of entrepreneurs to exit the venture (Baker & Nelson, 2005). Entrepreneurship is also fraught with principal-agent conflicts between entrepreneurs and their investors (Amit et al., 1998; Sahlman, 1990; Sapienza & Gupta, 1994)

and entrepreneurs have substantial private benefits that arise from their role in the venture and with the continued existence of the venture (Burchardt et al., 2016; Sorenson & Stuart, 2008).

Thus, in order to develop a more complete understanding of entrepreneurial persistence it is important to arrive at an explanation that encompasses both the broad factors and specific features of entrepreneurial persistence. As a result, an important step in developing a complete understanding of entrepreneurial persistence is to develop a theory that links the different determinants of entrepreneurial persistence. In the following sections, I will review the escalation of commitment literature describing more fully the attributes of the determinants of escalation of commitment. In addition, I will supplement the escalation of commitment literature with additional insight that has been garnered from the psychic income perspective, which reflects a more contemporary perspective on entrepreneurial persistence.

Escalation of Commitment

Since the seminal article by Barry Staw (1976) scholars in numerous fields (e.g. management, finance, marketing, accounting, information systems, social psychology, economics, and political science) have been interested in the phenomena of escalation of commitment. The enduring allure of escalation of commitment is that it represents apparent violations of rationality and is described as a syndrome of decision errors (Staw, 1976, 1981). Traditional economic principals suggests that the decision by entrepreneurs to reinvest, maintain or contract their assets should be based on the marginal cost and benefits to be gained from further investments (Marshall, 1898). Hence, according to this principle, decision makers should make substantially more investment in projects that are doing well and not on projects that are doing poorly. In addition, expected utility theory (Vroom, 1964), holds that individuals and firms should show preference for conditions of profit over those of non-profit. Thus decision makers

should consistently display a preference for profit by exiting a situation as soon as feedback indicates that the situation is non-profitable (Camerer & Weber, 1992).

Reinvesting in poorly performing projects rather than projects that are doing well can lead to disastrous consequences and goes against basic economic and behavioural theories.

According to Staw (1976)

“When negative consequences are incurred within an investment context, it is often possible for a decision maker to greatly enlarge the commitment of resources and undergo the risk of additional negative outcomes in order to justify prior behavior or demonstrate the ultimate rationality of an original course of action”. (p. 29)

Examples of decision makers greatly enlarging the commitment of resources to failing projects are numerous: British Columbia’s decision to host a world’s fair in 1986 led to over \$300 million loss despite original projections in 1978 that suggested it would only lose 6 million (Ross & Staw, 1986); and the Long Island Lighting Company who built a nuclear power plant with an estimated cost of 75 million dollars but by 1989 the costs had escalated to 5 billion dollars and the power plant was abandoned without ever having begun operation (Ross & Staw, 1993).

Determinants of Escalation of Commitment

Escalation of commitment is attributed to a number of factors that moderate the relationship between negative feedback and commitment whereby commitment increases following negative feedback (Sleesman et al., 2012; Staw, 1981). These factors span across four broad determinants that determine how individuals arrive at a decision to continue or abandon a course of action. Staw and Ross (1987) developed an insightful taxonomy that categorize these different factors into project, psychological, social or structural determinants of escalation of commitment.

Project determinants are characterized as objective features of decisions made under uncertainty that relate to why a course of action is being undertaken (Sleesman et al., 2012, p.542). *Psychological determinants* are characterized by various cognitive and affective processing of information that often leads decision makers to redouble their commitment to failing projects (Sleesman et al., 2012, p. 544). *Social determinants* are interpersonal dynamics between decision makers and other actors that may influence the decision makers to further their commitment (Sleesman et al., 2012, p. 544). *Structural determinants* suggest that the structural features of an organization and its interaction pattern with the environment may pressure decision makers to further their commitment (Sleesman et al., 2012, p.545).

Project Determinants

The main essence of project determinants is that the tendency to escalate one's commitment can be explained by the subjective expected utility associated with the decision to allocate additional resources to a course of action that has received negative feedback (Brockner, 1992).

Expectancy theory (Vroom, 1964) suggests that escalation of commitment can be understood by the decision maker's subjective assessment of the *probability* that additional resource allocations will lead to goal attainment and the subjective assessment of the *value* of goal attainment (i.e., rewards minus costs), and thereby generate a *subjective expected utility* associated with the decision to allocate additional resources.

Expectancy theory provides an effective framework to explain escalation of commitment as escalation decisions are made occasionally and compare between alternative actions (Steel & König, 2006). A basic tenant of expectancy theory is that individuals are more likely to be *rational* in their choice and select the alternative that is likely to maximize utility (Camerer & Weber, 1992). Thus, under this framework entrepreneurs should abandon their entrepreneurial

endeavour if they do not believe that their effort will produce the desired outcome or if the main benefits attached to the course of action is not desirable or significant to them. In other words, preference to continue with a course of action is determined by the evaluation of how feasible and desirable success is.

Decision Risk and Escalation of Commitment. In most instances, decision makers have a number of alternatives available to them to recover sunk costs. Thus, the rational choice when a course of action receives negative feedback is to evaluate different possibilities and determine the least risky alternative to recoup previous sunk costs. However, most decision makers fail to consider alternative courses of action to recoup sunk costs and thus are either trapped by or escalate their commitment to their previous decision (Schaubroeck & Davis, 1994). Schaubroeck and Davis (1994) show that when an alternative course of action is made salient to participants that are less risky than the initial course of action taken, participants de-escalated their commitment to their previous course of action. Thus, one of the causes of escalation of commitment is due to decision makers not fully investigating their options to recoup their sunk costs.

The entrepreneurial literature suggests that the decision risk explanation has considerable usefulness in an entrepreneurial setting. Studies have shown that some entrepreneurs are highly resistant to exploring their options to recover their investments due to their attachment to their entrepreneurial vehicles (Grimes, 2018; Zuzul & Tripsas, 2019). Grimes (2018) finds evidence to suggest that some entrepreneurs are reluctant to entertain changes to the course of action that they are pursuing because it would represent a threat to their identity. Zuzul and Tripsas's (2019) study informs us that when the venture becomes the embodiment of the entrepreneur's identity

they curtail the number of possibilities that they are willing to consider as it would not be authentic to whom they are.

Opportunity Costs and Escalation of Commitment. The decision to continue or abandon a course of action also entails costs that may not be salient to the decision maker. Decision makers usually frame abandoning an unsuccessful project as a certain, immediate and irretrievable loss and that persistence provides the only opportunity to salvage costs (Northcraft & Neale, 1986). Northcraft and Neale (1986) suggest that this framing is misleading and argue that most decision makers do not consider opportunity costs in their decision to maintain or abandon a course of action. Furthermore, evidence suggests that when decision makers become aware of the possibility to make gains from diverting resources then they cease to escalate their commitment (Northcraft & Neale, 1986).

The opportunity cost explanation of escalation of commitment has considerable usefulness in an entrepreneurial setting. Evidence indicates that high opportunity entrepreneurs (more educated, experienced and wealthy entrepreneurs) are aware of their opportunity cost and as a result exit their ventures quickly after experiencing negative feedback (Arora & Nandkumar, 2011; Colombo & Grilli, 2017). This finding suggests that alternative opportunities are not salient to low opportunity entrepreneurs and thus, entrepreneurs who are less educated, experienced and wealthy are more likely to persist with their ventures following negative feedback.

Information Set and Escalation of Commitment. The information set perspective suggests that escalation of commitment represents a decision dilemma rather than a syndrome of decision errors that locks decision makers into a course of action. This perspective suggests that under conditions of uncertainty decision makers face a dilemma when considering reinvesting in

a course of action as feedback may lack a discernable pattern. As a result, the decision maker cannot objectively determine whether success or failure will result from further investment and thus can not accurately estimate the subjective expected utility of further decisions (Bowen, 1987). As a result, decision makers are unsure if a) investing more in the course of action, b) adapting their current course of action or c) ceasing the current course of action will result in maximizing their utility going forward.

According to Bowen (1987: p. 57) maintaining the current course of action may alleviate the dilemma faced by decision makers. First, remaining on the course of action is beneficial because it allows for the collection of additional data that makes feedback more discernible (Cukierman, 1980). Second, gaining certainty on the viability of the course of action is especially important if additional costs are necessary to re-enter a market (Dixit, 1992). Third, staying the course may simply offer additional opportunity for the course of action to work because the environment may change in the near future (Busby & Pitts, 1995). As a result, the rational choice to reinvest in or abandon a course of action under uncertainty is determined when either uncertainty is decreased and the decision maker can predict the future or when waiting for additional information is costlier than losing the option to reinvest in the future (Ingersoll, Jr. & Ross, 1992). In essence, uncertain environments increase the value of staying the course because the value of prior investment may change in the future (Ingersoll, Jr. & Ross, 1992) and as a result decision makers are more likely to escalate their commitment to a course of action in uncertain environments (Bragger et al., 1998).

The information set explanation is extremely important in an entrepreneurial setting. The notion that decision makers should only base their investment decision on marginal costs and benefits is unrealistic because entrepreneurs do not have perfect information that the Marshallian

exit decision requires (Elfenbein et al., 2017; Elfenbein & Knott, 2015; Jovanovic, 1982; Marshall, 1898; Ryan & Lippman, 2003). The entrepreneurial process is inherently risky and as a result entrepreneurs cannot be certain of the returns they will earn from the opportunities that they discover beforehand (Aldrich & Fiol, 1994; McMullen & Shepherd, 2006; Sorenson & Stuart, 2008). Hence, entrepreneurs often have to make decisions when they have very limited information on the environment as they do not have historical trends, previous levels of performance and little if any specific market information (Miller & Friesen, 1982).

In addition, demand for new products or services and the availability of the required infrastructure are unknown beforehand (Folta, 1998). Thus, an entrepreneur cannot be certain what the market will bear for output produced at a future date (Langlois, 1984) nor can they accurately predict the costs that they will incur to establish and run a new venture (Aldrich & Auster, 1986; Baum & Locke, 2004; Sorenson & Stuart, 2008; Stinchcombe, 1965). Hence, the appropriate action for entrepreneurs is to gather information to test the veracity of their beliefs that they have identified a competitive solution for the market (Alvarez & Barney, 2007; Blank, 2013; Y. R. Choi et al., 2008; Y. R. Choi & Shepherd, 2004; Sarasvathy, 2001). The information required to test the veracity of their beliefs entails entrepreneurs taking action, and then closely observing the markets response to those actions (Choi, 1993; Huber, 1991).

While there are benefits to delaying exit in an entrepreneurial setting there is growing evidence that suggests that entrepreneurs delay their exit more than what is warranted under uncertainty (Burmeister & Schade, 2007; Elfenbein et al., 2017; Elfenbein & Knott, 2015; Sandri et al., 2010). Burmeister and Schade (2007) provide evidence to suggest that entrepreneurs are susceptible to the status quo effect (Ellsberg, 1961; Roca et al., 2006; Roca & Maule, 2009) and entrepreneurs are likely to commit to a course of action that is facing adversity because it is

familiar to them. Sandri and her colleagues (2010) found that owning equity in a venture causes entrepreneurs to discount negative information and retain overly optimistic beliefs, which delays their exit (Elfenbein et al., 2017).

Positive Trend and Escalation of Commitment. Prior success leads to a tendency for decision makers to escalate their commitment (Moon & Conlon, 2002). According to Moon and Conlon (2002, p.38) prior positive performance acts as a powerful cognitive ‘anchor’ (Tversky & Kahneman, 1974) and effects the subjective expected utility of the course of action. In other words, prior success will lead decision makers to discount current negative information and inflate the expected utility of the project. As a result, a decision maker will remain committed to the course of action despite new information indicating poor performance.

Beginning with McGrath (1999) scholars have suggested that extrapolating past success to the future can encourage entrepreneurial persistence. McGrath (1999) provides three reasons why this might occur. First, entrepreneurs are likely to amplify past success which leads them to underestimate risk and overestimate expected return (Levinthal & March, 1993), which contributes to the belief that persistence will eventually lead to success. Second, entrepreneurs are likely to take credit for past success and attribute past failure on bad luck (Campbell & Sedikides, 1999; Heider, 1958; Mezulis et al., 2004) and as a result are overconfident in their ability to achieve the goals they set. Third, previous success is likely to reduce an entrepreneur’s willingness to alter their routines and search for alternatives (Levinthal & March, 1993).

Building on reference-dependent preference models of decision making under uncertainty (March & Shapira, 1992), Wennberg, Delmar and Mckelvie (2016) suggest that entrepreneurs with previous success are likely to escalate their commitment in order to return to their aspiration level. The authors suggest that success will motivate entrepreneurs to shift their attention from

their survival to their aspiration reference of utility. Overtime as the venture sustains positive performance, entrepreneurs will become increasingly unwilling to change their aspirations levels due to 'satisficing' behaviour (Denrell, 2007). When the aspiration reference level of utility is threatened due to adversity, entrepreneurs initiate a growth strategy to restore their aspiration reference of utility (Wennberg et al., 2016).

Preference and Escalation of Commitment. Schulz-Hardt, Thurow-Kröning, and Frey (2009) suggest that escalation of commitment may be in part due to a preference for the initial course of action. Schultz-Hardt et al., (2009) reason that if the initial course of action is judged as most likely to succeed then decision makers are unlikely to change course because they believe the current course of action has a higher probability of succeeding.

The entrepreneurship literature indicates that preference for the course of action is highly relevant to explain escalation of commitment in an entrepreneurial setting. Holland and Shepherd (2010) note that entrepreneurial persistence is highly dependent on the initial decision to act on an opportunity. If entrepreneurs believe that it is highly probable that their actions will produce the desired outcome then the likelihood that they will persistence increases.

Furthermore, the entrepreneurial literature indicates that when an entrepreneur identifies a unique entrepreneurial opportunity, the entrepreneur will be confident that they will be able to exploit the opportunity. The knowledge corridor thesis (Venkataraman, 1997) suggests that opportunity recognition is in part determined by an entrepreneur's experience and knowledge (Shane, 2000) because information is distributed in a stochastic process (Nelson & Winter, 1982). Hence, identifying a unique entrepreneurial opportunity provides the entrepreneur with confidence that they have identified a particular customer problem, market characteristics, production method or service delivery better than any one else (Venkataraman, 1997). This

belief results in entrepreneurs being overly confident in their initial assessment of the viability of the opportunity and are unlikely to revise their existing assumptions and opinions following negative feedback (Fischhoff et al., 1977; Russo & Schoemaker, 1989).

Summary of Project Determinants. Summary of Project Determinants. This perspective suggests that entrepreneurs persist due to flawed decision making that result from entrepreneurs maintaining the belief that they have chosen the most effective course of action. Entrepreneurs assume that the current course of action they are taking is preferable because their prior successes and/or prior evaluation of the entrepreneurial opportunity have convinced them that they will eventually be successful. Consequently, entrepreneurs are unlikely to search for alternative options to recover sunk costs and thus continue on their course of action. Thus, there is an assumption that if an entrepreneur becomes cognisant of how dire their current predicament actually is then the entrepreneur will seek other courses of action and cease to persist with their current course of action.

Alternatively, some entrepreneurs believe that they are undertaking the best course of action available to them but are cognisant that the environment must change before the course of action is profitable. These entrepreneurs persist with their course of action in order to provide time and opportunity for their given course of action to work in an uncertain environment that is likely to change in the future. Thus, there is an assumption that if the environment does not change within a given period then entrepreneurs will cease to persist.

Thus, two processes explain why project determinants leads entrepreneurs persist. On one hand, entrepreneurs persist because they are unaware that they have made a critical mistake and that this lapse of judgement leads entrepreneurs to persist. On the other hand, entrepreneurs

intentionally persist in order to test the veracity of their assumptions in an uncertain environment.

Psychological Determinants

The core perspective of psychological determinants is that decision makers distort reality and maintain a failing course of action because they do not want to accept their predicament. The predominant psychological explanation of escalation of commitment is the self-justification explanation (Staw, 1976). Self-justification, is a process by which individuals seek to psychologically defend themselves against adverse consequences (Aronson, 1976; Festinger, 1957). The self-justification explanation is built on the premise that a tendency to escalate commitment can be explained by cognitive efforts (Aronson, 1976) of the individual to defend him or herself against cognitive dissonance (Festinger, 1957) that stems from the failure of the course of action. This explanation flows from the phenomenon that on occasion individuals instead of changing their behavior, which has resulted in a negative consequence, cognitively distort the negative consequence to more positively valenced outcome (Festinger, 1957; Festinger & Carlsmith, 1959).

In their meta-analytic review, Sleesman et al., (2012) identified nine psychological factors that increase the likelihood that escalation of commitment occurs and seven of the factors employ the self-justification hypothesis as the underlying theoretical rationale. In addition, Sleesman and his colleagues (2012) identify information framing and proximity to project completion that utilize prospect theory and goal substitution theory as the underlying theoretical mechanisms that explain escalation of commitment.

Responsibility and Escalation of Commitment. In the first empirical study of escalation of commitment in a managerial setting, Staw (1976) found evidence to suggest that a) managers are more likely to allocate resources to projects they were responsible for, b) managers are more

likely to allocate resources to a declining rather than improving project, and c) that managers allocated substantially greater resources to declining projects than an improving project. Based on these results Staw (1976) posited that managers were reinvesting in declining projects in order to justify to themselves that their previous investments were not made in vain.

There is some evidence to suggest that the self-justification explanation has predictive and explanatory power, however the evidence is tenuous because the results are confounded with other factors. McCarthy, Schoorman and Cooper's (1993) study provides evidence to suggest entrepreneurs who establish ventures are more likely to escalate their commitment rather than entrepreneurs who bought into ventures. However, it is not clear if it was responsibility, sunk cost (see below) or preference (see above) that motivates founders to persist. In addition, while DeTienne, Shepherd and De Castro (2008) suggest that self-justification is responsible for entrepreneurial persistence, their study does not establish a link between responsibility and entrepreneurial persistence. Rather, they operationalized their self-justifying factors as personal investment and other opportunities for employment. Thus, their evidence for self-justification is confounded with sunk cost (see below) and opportunity costs (see above).

Sunk Costs and Escalation of Commitment. The sunk cost perspective suggests that individuals escalate their commitment because they do not want to appear wasteful (Arkes & Blumer, 1985). Arkes and Blumer (1985) agree with the basic premise that individuals are more likely to be risk seeking when faced with losing prospect and thus invest more in a course of action that has incurred losses (Kahneman & Tversky, 1979; Thaler, 1980). Arkes and Blumer (1985) argue that the admission that prior investments have been wasted is aversive for decision makers and as a result, they escalate their commitment to a losing course of action to avoid the admission that prior investments were a waste.

Sunk costs are important drivers of escalation of commitment in an entrepreneurial context because sunk costs are personal to entrepreneurs. Evidence shows that the personal wealth of entrepreneurs are tied to their ventures (Brophy & Shulman, 1992) and most banks require personal guarantees before they lend to entrepreneurs (Churchill & Thorne, 1989). In addition, scholars have noted that entrepreneurs leverage their social relationships to raise funds to exploit the opportunities that they identify (Steier & Greenwood, 2000; Timmons, 1990). As a result, entrepreneurs have more “skin in the game” compared to managers and administrators and are more likely to be risk seeking and reinvest in a course of action that has incurred losses (DeTienne et al., 2008; Yamakawa & Cardon, 2017).

In addition, the entrepreneurial literature indicates that previous ‘side-bets’ (Becker, 1960) may compel entrepreneurs to persist (Wood & Rowe, 2011). Wood and Rowe (2011) note entrepreneurs enter into a series of semi-irrevocable commitments with investors, customers, employees and other stakeholders when they establish their ventures (Baker & Nelson, 2005). Wood and Rowe (2011) argue that when the venture is successful and growing entrepreneurs are able to pay off their side bets and honor their commitment. However, when the venture underperforms entrepreneurs are unable to pay off their side bets and thus persist in the hope of honoring their commitments when the venture’s fortune improves.

Time Investment and Escalation of Commitment. Soman (2001) posits that some sunk costs are not readily accessible to decision makers. Time is one type of cost that is not readily accessible to decision makers because: a) time cannot be inventoried or replaced, b) time is not as easily aggregated as money and c) accounting for time is not a routine activity (Soman, 2001). Soman (2001) found evidence that shows that when hidden costs, such as time, are made salient to the decision maker, they have a tendency to escalate their commitment.

There is evidence to indicate that the more time entrepreneurs invest in identifying and exploiting their opportunities the more likely they are to persist (Yamakawa & Cardon, 2017). However, the premise that if hidden time investments become salient then entrepreneurs are likely to escalate their commitment is not supported. Evidence suggests that maintaining a mental budget of time investments made will actually lead to de-escalation, if entrepreneurs decide that they will not exceed a certain threshold (Heath, 1995; Yang et al., 2015)

Experience and Escalation of Commitment. Garland, Sandefur and Rogers (1990) conducted an experiment to determine if university students or petroleum geologists were more likely to escalate their commitment when exploring for oil. The rationale behind the study was that naïve students should be more prone to irrational decision making and thus escalate their commitment. Interestingly, the trained petroleum geologists were found more likely to escalate their commitment rather than the university students (Garland et al., 1990). Garland, Sandefur and Rogers (1990) argue that oil and gas experts escalated their commitment because their prior experience taught them that they were likely to find oil if they kept drilling. In other words, individuals who had been successful from prior persistence applied what they learnt to the new failing endeavour. Thus, sequential learning and the partial reinforcement effects can explain this surprising outcome.

Sequential learning and the reinforcement effect are highly relevant in an entrepreneurial setting because the skills and knowledge that are relevant to successfully overcome the liability of newness that entrepreneurs face are acquired from experience (Politis, 2005). Specifically, scholars have noted that prior entrepreneurial experience is beneficial in developing networks (Shane & Cable, 2002), obtaining appropriate sources of financing (Starr & Bygrave, 1991), developing the necessary managerial and technical skills (Wright et al., 1998), and identifying

how to serve new and emerging market segments (Wright et al., 1997). Therefore, entrepreneurs that have succeeded from prior persistence are confident that persistence will eventually pay off again (DeTienne et al., 2008).

In addition, the entrepreneurial literature suggests that experience motivates entrepreneurs to shift their attention to their aspiration reference of utility. Entrepreneurs with experience are compelled to focus on their aspiration reference point (March & Shapira, 1992) because they have created resources and routines that are difficult to employ elsewhere (Wennberg et al., 2016). As a result, when experienced entrepreneurs face adversity they are likely to be risk seeking and opt for growth in order to restore performance (Kahneman & Tversky, 1979; Wennberg et al., 2016; Whyte, 1986).

Self-Efficacy and Escalation of Commitment. Building on self-efficacy theory (Bandura, 1977, 1982), Whyte, Saks and Hook (1997) propose that individuals with high self-efficacy are more likely to escalate their commitment. Self-efficacy theory suggests that individuals who believe they have the ability to reach their goals will increase their effort when their performance fails to meet their goals (Bandura, 1977, 1982). In other words, efficacy judgements regulate how much effort individuals exert and for how long individuals will persist when they encounter setbacks. As anticipated, Whyte, Saks and Hook (1997) found evidence that indicates that individuals with high self-efficacy had a proclivity to escalate their commitment.

The self-efficacy explanation of escalation of commitment receives strong support in an entrepreneurial setting. Research indicates that entrepreneurs tend to have high levels of self-efficacy (Markman et al., 2005) and exhibit overconfidence in their ability to be successful (Cooper et al., 1988; Forbes, 2005). Given their overconfidence, entrepreneurs are likely to inflate their subjective expected utility (Cassar, 2009; Hamilton, 2000) and persist with their

venture. Thus, overconfidence in their ability leads entrepreneurs to persist with their ventures (DeTienne et al., 2008; McCarthy et al., 1993).

Ego Threat and Escalation of Commitment. One of the consequences of investing into a course of action is that it may be reflective of, and therefore have implications for, the decision maker's self-esteem (Brockner et al., 1986; Zhang & Baumeister, 2006). Consequently, the motivation to maintain and enhance favorable views of the self may explain the tendency to escalate commitment (Brockner et al., 1986; Zhang & Baumeister, 2006). Zhang and Baumeister (2006, p. 882) argue that if individuals were in an escalation of commitment situation partly to defend their favorable views of the self, then threatened egotism should exaggerate persistence.

While it is reasonable to expect that ego-threat is likely to lead entrepreneurs to escalate their commitment, this relationship has not been directly tested. Holland and Shepherd (2010) provide indirect evidence to suggest that ego-threat is likely to lead to persistence, when they find that entrepreneurs who hope to gain recognition and social status are likely to persist in order to demonstrate their competence and success.

Anticipated Regret and Escalation of Commitment. One of the psychological factors that has been found to reduce escalation of commitment is anticipated regret (Sleesman et al., 2012; Wong & Kwong, 2007). Wong and Kwong (2007) propose that during an escalation of commitment situation individuals are more likely to choose the option that they anticipate will induce the least amount of regret. Building on the key tenant of regret theory, which predicts that most people are regret averse and as a result will seek to avoid choosing options that will induce regret (Bell, 1985), Wong and Kwong (2007, p. 546) argue:

Regret theory suggests that decision makers would compare the anticipated regret about persistence with the anticipated regret about withdrawal. With the

regret-reducing assumption, the tendency to continue the losing course of action increases as the difference in anticipated regret between withdrawal and persistence increases. That is, escalation of commitment is more likely when the anticipated regret about persistence decreases and/or when the anticipated regret about withdrawal increases. Thus, escalation of commitment would be more likely when the net anticipated regret about withdrawal increases.

Wong and Kwong (2007) find evidence to suggest that individuals are more inclined to escalate their commitment if they anticipated that the regret from abandoning the course of action was higher than the anticipated regret from persistence. In addition, empirical evidence suggests that individuals learn to de-escalate their commitment from prior regret experiences (Ku, 2008). Ku (2008) was able to demonstrate in an experiment that individuals with post escalation regret in one task were less likely to escalate their commitment in another task.

There has been limited scholarly attention paid to the role of anticipated regret in reducing escalation of commitment in an entrepreneurial setting (Markman et al., 2005; Shepherd, 2011). The limited research indicates that entrepreneurs are likely to have more intense feelings of regret than non-entrepreneurs and that entrepreneurs regret the opportunities that they did not pursue (Markman et al., 2005). Thus, anticipated regret may increase the likelihood that entrepreneurs escalate their commitment in future entrepreneurial endeavours.

In a similar fashion, fear of failure might motivate entrepreneurs to persist with their entrepreneurial vehicles (Wood & Rowe, 2011). If an entrepreneur has a propensity to experience shame and embarrassment upon failure (Atkinson, 1957) then it is likely that the anticipated regret of withdrawal would be larger than the anticipated regret of persistence.

Consequently, an entrepreneur that has high fear of failure is likely to exhaust every avenue to avoid failure in order to minimize the anticipated regret of failure.

Information Framing and Escalation of Commitment. Whyte (1986) provides a different perspective on escalation of commitment and argues that escalation of commitment is the result of decision framing. Building on the work of Kahneman and Tversky (1979), Whyte (1986) posits that following negative feedback, decision makers frame their choice as cutting their losses or continuing to commit themselves to their course of action. This frame reflects the failure of the previous decision and elicits risk seeking behavior given loss aversion (Kahneman & Tversky, 1979).

However, Schoorman et al., (1994) found evidence to suggest that an important boundary condition of information framing is the amount of information that a decision maker has. Schoorman et al., (1994) find that when decision makers have with limited information that suggests a dire situation is at hand, decision makers are effected by information framing and are likely to escalate their commitment. However, if replete information is provided that provides a more complete consideration of the situation decision makers will realize that the problem is not as dire as it seems and thus will not be compelled to escalate their commitment.

While research on the effects of information framing on escalation of commitment is in its infancy in the entrepreneurial literature, there is growing evidence to suggest that it plays a major role. The work of Wennberg, Delmar and Mckelvie (2016) provides evidence to suggest that when a venture accumulates losses entrepreneurs usually take the more risky alternative action and increase their commitment, as outlined by prospect theory and that

Proximity to Project Completion and Escalation of Commitment. Conlon and Garland (1993) put forward the notion that escalation of commitment occurs because decision makers

change their goal from profit maximization to project completion. In other words, decision makers escalate their commitment because they are motivated to complete the task that they started (Katz & Kahn, 1966; Ryan, 1970). Proximity to project completion differs from prospect theory and the self-justification explanations because the motivation to escalate one's commitment is neither to justify past decisions nor to avoid losses but rather to complete the task at hand.

There is some evidence to suggest that proximity to completion is likely to increase the likelihood that entrepreneurs will escalate their commitment. However, entrepreneurship scholars provide different rationales for why entrepreneurs persist as the closer they get to their goals (Bakker & Shepherd, 2017; McMullen & Kier, 2016). McMullen and Kier (2016) suggest that the entrepreneurial mindset is partly responsible for entrepreneurs escalating their commitment as they near completion of their projects. The authors suggest an entrepreneurial mindset is beneficial in the initial phase of opportunity exploration, as it allows the entrepreneur to meticulously analyze the future prospect and determine the best course of action. However, this gives entrepreneurs a false sense of security that they have anticipated all potential hurdles. As a result, entrepreneurs do not develop contingency plans in case any unforeseen impediments arise on their entrepreneurial journey. When entrepreneurs encounter adversity that they did not envisage they become risk seeking and increase their commitment in order to overcome the adversity and complete their task.

Bakker and Shepherd (2017) suggest that the level of expertise that entrepreneurs have in exploiting opportunities determines whether entrepreneurs will escalate their commitment the closer they are to their goals. Bakker and Shepherd (2017) note that identifying and exploiting opportunities require different skill sets and that some entrepreneurs develop more experience,

procedures and confidence in identifying rather than exploiting opportunities. As a result, entrepreneurs with limited expertise in exploiting opportunities require more information to feel confident that they can reach their goal and overcome their limited expertise in exploiting opportunities. In addition, these entrepreneurs require additional time to contemplate their course of action more thoroughly to compensate for their deficiencies in exploiting opportunities. The increased time to make decision is likely to increase the sunk-costs of the project and in order not to appear wasteful; these entrepreneurs are likely to escalate their commitment.

Summary of Psychological Determinants. This perspective suggests that entrepreneurs persist due to flawed decision making that result from entrepreneurs being focused on the potential effects that negative feedback will have on their reputation. Given that their current strategy is failing, it is essentially irrational for entrepreneurs to expect that their current course of action will result in success, reverse their losses, and salvage their reputation. Entrepreneurs overlook this fact because they are focused on retrospective thinking, are unable to adapt, are unrealistic in their assessments of their abilities, mismanage the information they receive or change their goal. Thus, the psychological determinant of escalation of commitment has the basic assumption that entrepreneurs persist because their decisions do not reflect the entrepreneur's current state of affairs and that when the entrepreneur realize their predicament they will stop persisting.

Social Determinants

In addition to financial and psychological factors, scholars have suggested that social contexts provide an additional layer of costs and benefits that decision makers consider when abandoning or reinvesting in a course of action. According to Sleesman et al., (2012) the social determinants of escalation of commitment are due to self-presentation concerns of decision makers. According to self-presentation theory people are motivated to manage the impression

that others have of them and are likely to escalate their commitment to a losing course of action in order to avoid any public embarrassment by being associated with a failing project (Grant & Mayer, 2009; Westphal & Graebner, 2010). Hence, one strategy for impression management is to escalate one's commitment in the hopes that things will turn around. Slesman et al., (2012) identified three social factors that appeared regularly in the literature that affect the likelihood that an escalation of commitment will occur: public evaluation of the decision, resistance to the decision from others, and group cohesiveness.

Public Evaluation of Decision and Escalation of Commitment. Building on the notion that the degree of entrapment may be dependent on the self-presentation strategy that individuals adopt (Teger, 1980), Brockner et al., (1981) argue that individuals will become more or less entrapped in a course of action to the extent that doing so will portray them in a more favorable light. In other words, individuals are likely to persist with a course of action in the hopes of turning the situation around and saving face.

Research has shown that when entrepreneurs fail they experience stigma – a mark of disgrace or infamy, a stain on one's reputation (Singh et al., 2015), a potentially traumatic and painful experience for entrepreneurs (Cope, 2011; Shepherd, 2003; Singh et al., 2007, 2015). The pain that entrepreneurs experience due to failure is exasperated because entrepreneurs generally leverage their social capital when creating and managing their entrepreneurial ventures (Aldrich & Zimmer, 1986; Bouwen & Steyaert, 1990; Dubini & Aldrich, 1991; Tichy, 1981; Steier & Greenwood, 2000) and thus have more to lose if their entrepreneurial project fails. As a result, it is highly likely that entrepreneurs will escalate their commitment to a failing course of action in order to save their relationships, reputation and social capital (Singh et al., 2015).

Resistance to Decisions and Escalation of Commitment. Fox and Staw (1979) note that when a decision maker's position within an organization is threatened due to poor performance, they are motivated to prove that their initial decision was correct. Consequently, these decision makers escalate their commitment in order to reverse their losses and save their jobs. Thus, Staw and Fox (1979) argue that the justification for the decision may also be directed externally.

Most entrepreneurs are unlikely to lose their position with their venture or face the same type of political pressure for unpopular policies as managers or public administrators, as they own their ventures. However, this is not the case when entrepreneurs raise finances from venture capitalists. Venture capitalists receive a significant stake in the venture and gain control over the board of governors when they invest in entrepreneurial venture (Fried & Hirich, 1995; Sapienza, 1992). In addition, most venture contracts stipulate that control rights transfer to venture capitalists in the event that the venture does not make adequate returns. Therefore, venture capitalists are able to apply political pressure and threaten the entrepreneur's position in the venture if the venture is failing (Burton, Fried & Hisrich, 1997, 2000; Rindova, Barry & Ketchen Jr., 2009). Thus, when the control rights of the entrepreneur are threatened due to poor returns, entrepreneurs are likely to escalate their commitment in order to reverse their losses and save their venture.

Group Identity or Cohesiveness Strength and Escalation of Commitment. Empirical evidence suggests that groups, like individuals, have a tendency to escalate their commitment (Bazerman et al., 1984; Whyte, 1993). Furthermore, Whyte (1993) found evidence to suggest that groups amplified the tendency to escalate their commitment more than individuals would do on their own. Groups have a tendency to escalate their commitment because of 'groupthink' (Janis, 1972). Groupthink predicts that in cohesive groups members will strive for unanimity and

thus decline to appraise alternative courses of action (Janis, 1972). As discussed earlier, failure to search and appraise alternative courses of action increases the likelihood of escalation of commitment (Northcraft & Neal, 1986).

Group identity and cohesiveness is very relevant to explain why entrepreneurs persist. McCarthy et al., (1993) found evidence that suggests that entrepreneurial teams are more likely to escalate their commitment to their venture rather than a sole entrepreneur. Baker and Nelson (2005) found evidence that indicates that increased group identity and cohesiveness introduces mutually reinforcing pattern of behavior and expectation amongst stakeholders of a venture, which severely limits the ability of the venture to change. Furthermore, as most entrepreneurial teams are homophilic (McPherson et al., 2001; Ruef et al., 2003) group identity is likely to influence entrepreneurs more than managers or public administrators.

Summary of Social Determinants. This perspective suggests that entrepreneurs persist due to flawed decision making that result from entrepreneurs focusing on the potential social effects that negative feedback will have. When entrepreneurs become fixated on their social standing they fail to realize that continuing on a course of action that is failing is unlikely to provide the opportunity to maintain or enhance their social standing. Entrepreneurs that obsess over maintaining their social standing, internal group dynamics, and/or their political power are likely distort reality and convince themselves that the failing course of action will correct itself overtime. Thus, the social determinant of persistence assumes that entrepreneurs distort their reality in an attempt to preserve their social world and that when entrepreneurs realize their actual predicament they will stop persisting.

Structural Determinants

The structural determinates suggest that escalation of commitment occurs because the contextual conditions surrounding the project may force entrepreneurs to reinvest in their

ventures. Structural determinants are the least studied cause of escalation of commitment and as a result, our understanding of structural determinants is limited. The limited scholarly work indicates that agency (e.g., Jensen & Meckling, 1976) contributes to the reinvestment of failing projects. The agency perspective suggests that agents will continue on a course of action that is failing to protect their interests.

Agency. Harrison and Harrell (1993) propose that agents will continue investing in a failing project to secure their interest at the cost of principles. Harrison and Harrell (1994) further refined their proposition and argue that two conditions must be met for agents to continue reinvesting in failing projects:

When the manager's own economic interests diverge from those of the firm, the manager is said to have an incentive to shirk. When the manager possesses relevant information that is not available to senior management, he or she is said to have privately held information. Agency theory posits that a manager who both has an incentive to shirk and possess relevant privately held information will reach decisions, which reflect the managers own interests, which may conflict with the objectives of his or her firm. Under these circumstances it may be rational from the manager's viewpoint to continue projects which are expected to become unprofitable when doing so furthers his or her own interest (p.570).

Interestingly, while Harris and Harrell (1994) find evidence to suggest that the presence of both conditions increase escalate their commitment, they find that managers who held private information were more likely to escalate their commitment than those who had an incentive to

shirk. This would suggest that the ability rather than the motive of securing one's interests is the main driver of escalation of commitment.

The entrepreneurship literature suggests that the agency problem has predictive power when explaining escalation of commitment in an entrepreneurial context. Information asymmetry is prevalent in an entrepreneurial setting because entrepreneurs have more information on the opportunities that they discover and their proposed means of exploiting opportunities (Shane, 2003; Stuart et al., 1999). Consequently, entrepreneurs may misrepresent facts in order to receive funding. For example, entrepreneurs may make the claim that they are established industry leaders when they are not (Martens et al., 2007). Hence, in an entrepreneurial context the conditions for information asymmetry are present and may contribute to escalation of commitment.

In addition, the relationship between entrepreneurs and their investors gives rise to principal-agent conflicts because entrepreneurs and investors have potentially diverging interests (Sahlman, 1990; Sapienza & Gupta, 1994). Scholars note that wealth constrained entrepreneurs will always want to obtain investments for their project because they can make significant gains without bearing any risk (Admati & Pfleiderer, 1994; Cornelli & Yosha, 2003; Dessein, 2005; Gompers, 1995; Sahlman, 1990). In addition, scholars have noted that entrepreneurs can gain substantial private benefits from managing their venture and thus have a vested interest in the continued existence of the venture (Aghion & Bolton, 1992; Bergemann & Hege, 1998; Burchardt et al., 2016; Gompers & Lerner, 1998). Hence, both an incentive to shirk and information asymmetry are present in an entrepreneurial context.

Summary of Structural Determinants. This perspective suggests that entrepreneurs persist if they can enrich themselves at the expense of their investors. Thus, the underlying

assumption of this perspective is that if entrepreneurs can earn rewards and hide the ventures failure from their investors then they are likely to persist. Consequently, entrepreneurs will cease persisting when the rewards they earn disappear or investors discover that the venture is failing.

Psychic Income

The seminal article by Gimeno, Folta, Cooper, and Woo (1997) introduced a different perspective on entrepreneurial persistence when they found evidence to suggest that the utility of owning a venture does not only depend on financial returns but includes other psychic income. Entrepreneurs earn psychic income from owning and managing their ventures because it allows them to engage in activities that are meaningful (Cardon et al., 2004; Fauchart & Gruber, 2011; Grimes, 2018; Hoang & Gimeno, 2010; Lahti et al., 2019; Powell & Baker, 2014; Zuzul & Tripsas, 2019) and thus abandoning their ventures will be akin to committing a mild form of hara-kiri (Ronstadt, 1986). Hence, entrepreneurs persist because their venture satisfies a certain threshold of utility.

Scholars have noted that entrepreneurial activities are meaningful to entrepreneurs because of a number of identity related factors. In the following section, I will outline how entrepreneurial aspirations, enacting entrepreneurial identities, harmonious multiple identities, identity standard, ownership and entrepreneurial passion enhances the psychic income that entrepreneurs earn.

Entrepreneurial Aspirations. Hoang and Gimeno (2010) argue that entrepreneurial activities are infused with meaning because some individuals aspire to attain the founder role. When aspirations for the founder role is a salient and represents a significant aspect of the self-definition, the possible self (Markus & Nurius, 1986) guides and motivates behaviour so that the aspiring entrepreneur attains the founder role (Burke & Stets, 2009; Tajfel, 1978; Turner, 1978). As aspiring entrepreneurs near their goal of becoming an actual entrepreneur they will

increasingly earn psychic income as they earn the social and internal validation that results from attaining the founder role (McCall & Simmons, 1978; Rosenberg, 1979; Stryker & Serpe, 1994). Thus, when the motivation to become an entrepreneur is intense, individuals are likely to persist in order to achieve the founder role that is important to them (Farmer et al., 2011).

Enacting Entrepreneurial Identities. Various scholars have argued that entrepreneurial activities are meaningful because it enables entrepreneurs to enact certain behaviors that are consistent with an entrepreneurial identity that is salient and represents a significant aspect of their self-definition (Fauchart & Gruber, 2011; Grimes, 2018; Zuzul & Tripsas, 2019). When entrepreneurs are able to create and manage an entrepreneurial venture that is in accordance with their entrepreneurial identity they are able to consider themselves worthy and competent individuals (Gecas, 1982) and earn psychic income (Gimeno et al., 1997; Shepherd & Haynie, 2009; Zuzul & Tripsas, 2019).

These distinctive entrepreneurial identities are fundamental in understanding the choices that entrepreneurs make because they guide entrepreneurs along a certain path (Fauchart & Gruber, 2011; Grimes, 2018; Zuzul & Tripsas, 2019; Hogg & Terry, 2000; Stryker & Burke, 2000b; J. C. Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). As a result, some entrepreneurs refuse to consider alternative courses of action because it represents a threat to identity (Grimes, 2018; Zuzul & Tripsas, 2019). Zuzul and Tripsas's (2019) study indicates that when the venture becomes the embodiment of the entrepreneur's identity they curtail the number of possibilities that they are willing to consider as it would not be authentic to whom they are. Thus, when these entrepreneurs encounter adversity they are unlikely to change their course of action because doing so would be a threat to their identity and their psychic income (Grimes, 2018; Zuzul & Tripsas, 2019).

Identity Standards. People's behavior, to a large degree, is motivated and regulated by internal standards that individuals set for themselves (Bandura, 1986; Burke & Stets, 2009; Hogg & Terry, 2000; Stryker & Burke, 2000; Swann & Hill, 1982; J. C. Turner, 1985; J. C. Turner et al., 1987). As a result, some entrepreneurs are likely to earn psychic income from persisting in and of itself because the identity standard of certain entrepreneurial identities requires persistence (Baum & Locke, 2004; Farmer et al., 2011; Grimes, 2018; Markman & Baron, 2003; Murnieks et al., 2019; Patel & Thatcher, 2014; Shamir, 1991; Stryker & Burke, 2000; Van Gelderen, 2012).

The view that persistence is required for entrepreneurs is epitomized by the visionary founder (Grimes, 2018). This conceptualization of an entrepreneur emphasises that an entrepreneur must protect the fragility of their genius and passion, overcome hurdles faced in their entrepreneurial journey by the force of their conviction and to persist in response to misunderstanding or rejection (Grimes, 2018, p. 1705). Notable archetypes of this conceptualization are Steve Jobs and Richard Branson, who succeeded by persisting and overcoming adversity through the force of their convictions. Richard Branson best describes this sentiment: "When you believe in something, the force of your conviction will spark other people's interest and motivate them to help you achieve your goals. This is essential to success" (Clarkson, 2015).

Thus, when entrepreneurs that identify with the visionary founder role persist; they will deem themselves worthy individuals, as self-worth is based on a sense of virtue and moral worth and is grounded in norms and values of a particular standard (Gecas, 1982). Viewing themselves as worthy individuals generates pride and belonging because they are able to affirm their identity

(Stryker & Burke, 2000; J. C. Turner et al., 1987). Thus, entrepreneurs who prescribe to the visionary founder role are unlikely to seek alternative courses of action to recoup previous sunk costs (Grimes, 2018).

Congruence of Multiple Identities. Powell and Baker (2014) note that entrepreneurial activities are consequential because they allow entrepreneurs to express and behave in accordance with different identities that are a salient and represents a significant aspect of their self-definition. As the work of Powell and Baker (2014) informs us, multiple social and role identities may be activated and salient to entrepreneurs and that these identities may be either congruent or incongruent with each other. In other words, the values and goals of the different identities may be aligned or in conflict with each other. For example, an entrepreneur who employs environmentally unsound practices but also considers himself or herself as an environmentalist will have conflicting identities.

When multiple identities are salient and congruent, entrepreneurs manage their ventures in a manner that supports their significant identities. Entrepreneurs generate psychic income as they are able to express and behave in accordance with the meanings imparted by their different identities (Powell & Baker, 2014). Consequently, when these entrepreneurs encounter adversity they define the adversity as a challenge to be countered and escalate their commitment to their entrepreneurial vehicle in order to maintain enacting valued identities (Powell & Baker, 2014). When multiple identities are incongruent, entrepreneurs experience tension because they have to suppress a salient and significant identity (Powell & Baker, 2014). When entrepreneurs with incongruent identities encounter adversity they seek to capitalize on the adversity and transform their ventures to bring harmony among their disparate identities. Thus, entrepreneurs with incongruent identities are likely to chart a new course of action following adversity.

Ownership. Ownership in and of itself provides entrepreneurs with psychic income. This phenomenon is known as the mere ownership effect or the endowment effect (Beggan, 1992; Kahneman et al., 1990; Morewedge et al., 2009; Nelson & Winter, 1982). Studies have shown that the endowment effect increases the value of the owned object instantaneously (Kahneman et al., 1990). The immediate increase of value cannot be attributed to sentimental reasons or a gain in utility but rather to a psychological factor (Morewedge et al., 2009). This would suggest that owning an object has value in itself to individuals (Beggan, 1992; Kahneman et al., 1990). The positive emotions generated from ownership leads entrepreneurs to retain optimistic beliefs and discount negative information and thus are likely to persist longer than required (Elfenbein et al., 2017; Lahti et al., 2019).

Entrepreneurial Passion. Underpinning the psychic income perspective is the notion of entrepreneurial passion, which is perhaps the most observed phenomenon in the entrepreneurial process (Smilor, 1997). Cardon and her colleagues (2009) suggest that entrepreneurial activities are worthwhile to some individuals because they enable individuals to engage in roles that are a salient and represent a significant aspect of their self-definition. Thus, engaging in entrepreneurial activities provides some entrepreneurs with intense positive feelings.

Entrepreneurs that experience passion in their entrepreneurial journey will continue to engage in the activity because they want to maintain the positive feelings generated by the entrepreneurial process (Fredrickson, 1998; Vallerand et al., 2003). Intense positive feelings motivate entrepreneurs to overcome the adversity that they encounter and to persist in the face of obstacles (Bierly et al., 2000) and tirelessly pursue challenging goals (Smilor, 1997). Cardon, Wincent, Singh and Drnovsek (2009, p. 511) note that “dating back to Schumpeter's early writings (1951) , researchers and practitioners alike have invoked passion to explain

entrepreneurial behaviors that defy reason based explanations, such as unconventional risk taking, uncommon intensity of focus, *and unwavering belief in a dream*” [emphasis added]. The negative effects of passion, such as obsession, discounting negative information, blind or misdirected behaviors (Vallerand et al., 2003), are also likely to motivate entrepreneurs persist (Baron, 2008). Thus, passionate entrepreneurs are likely to engage in behavior that is characterized by continuation of a course of action despite failures, impediments, or threats either real or imagined (Cardon et al., 2009).

Summary of Psychic Income. This perspective suggest that entrepreneurs persist because the course of action they are undertaking is central to their identity and as a result persisting provides a means to safeguard their identity and self-definition. In essence, this perspective suggests that entrepreneurial persistence is driven by the entrepreneurs desire to lead a meaningful life. Thus, the psychic income perspective assumes that entrepreneurs persist because entrepreneurial activities and engaging with their venture is meaningful to entrepreneurs and that entrepreneurs will cease to persist when entrepreneurial activities and engaging with their venture ceases to be meaningful.

Summary of Entrepreneurial Persistence

My review of the entrepreneurial persistence literature indicates there are project, psychological, social and structural determinants that explain entrepreneurial persistence. While each determinant enhances our understanding of entrepreneurial persistence, our overall understanding of the phenomenon is limited as the determinants have been developed in isolation and have yet to be integrated. As a result, our ability to manage entrepreneurial persistence is curtailed because there is limited information on how the different determinants interact with each other.

An integrated explanation of entrepreneurial persistence is critical because my review does not indicate that the determinants are mutually exclusive. Rather, my review suggests that the determinants are likely to act in concert. For example, an entrepreneur's identity may restrict the entrepreneur from considering alternative courses of action because it would represent a threat to their identity. Thus, the factors that lead entrepreneurs to persist are likely to be mutually reinforcing and it is important to develop an integrated explanation of entrepreneurial persistence that can account for the four determinants of entrepreneurial persistence.

Developing an integrated explanation is also beneficial as it may provide additional insights into entrepreneurial persistence. For example, the escalation of commitment literature suggests that entrepreneurs may persist with a course of action because they do not consider alternative options. However, the escalation of commitment literature is rather silent as to why an entrepreneur does not explore alternative options to recover sunk costs. The psychic income suggests that entrepreneurs may not pursue an alternative course because the current course of action is an extension of the entrepreneur's identity and as a result, pursuing an alternative course of action may threaten the identity of an entrepreneur. Thus, developing an integrated explanation for entrepreneurial persistence is critical in order to develop a better understanding of the determinants of entrepreneurial persistence.

In order to develop an integrated explanation for why entrepreneurs persist it is critical to advance a theory of entrepreneurial persistence that incorporates project, psychological, social and structural factors. The first step in developing a unified theory of entrepreneurial persistence is to establish a construct that is able to link the various determinates of entrepreneurial persistence. My analysis indicates that a psychological factor is likely to drive entrepreneurial persistence because most of the explanations have the assumption that entrepreneurs persist to

maintain or enhance their self-concept. Project determinants assume that entrepreneurs persist because they believe they have chosen the most effective course of action and as a result are resistant to deviate from their course of action because it will diminish their self-concept. The social perspective indicates that entrepreneurs persist in order to preserve their social dynamics and as a result are resistant to deviate from their course of action because it will diminish their self-concept. Finally, the structural perspective indicates that entrepreneurs persist in order to safe guard their benefits and as a result are resistant to deviate from their course of action because it will diminish their self-concept. Thus, it is likely that a psychological factor that can provide the linkage between the different determinants.

I propose that psychological ownership is a psychological factor that is able to provide the necessary linkages amongst the four determinates to develop an integrated theory on entrepreneurial persistence. Psychological ownership and collective psychological ownership are closely related constructs to commitment because entrepreneurs that develop psychological ownership for their venture use elements of the venture to define themselves and thus are motivated to maintain their affiliation with their venture to maintain their self-concept (Pierce et al., 2001). Thus, there is evidence to suggest that psychological ownership and collective psychological ownership will motivate entrepreneurs to nurture and advance their ventures following negative feedback in order to maintain or enhance their collective and individual identities (Pierce et al., 2001; Pierce & Jussila, 2010).

In addition, there is evidence to suggest psychological ownership motives individuals to increase their valuation of their objects (Beggan, 1992; Huang et al., 2009; Nesselroade et al., 1999), which suggests that entrepreneurs that develop psychological ownership are likely to rate their course of action as highly effective. Furthermore, there is evidence to suggest that

psychological ownership motivates individuals to protect their objects (Brown et al., 2005; Pierce et al., 2001), which suggests that psychological ownership will motivate entrepreneurs to persist in order to prevent investors from gaining control their venture following negative feedback.

To this end, I will start developing my integrated theory of entrepreneurial persistence using psychological ownership in the following chapter. I begin the chapter by describing the attributes, antecedents and motives of psychological ownership. I will then articulate my arguments for why psychological ownership motivates entrepreneurs to persistence.

Chapter 3: Psychological Ownership

The phenomenon of psychological ownership is rooted in the psychology of possessions- individuals experience a psychological connection between themselves and the objects that they own (Kline & France, 1899). Essentially, psychological ownership answers the question ‘what do I feel is mine?’ Pierce, Kostova and Dirks (2001) define the connection as a state in which an individual feels as though the target of ownership is ‘theirs’.

Psychological ownership usually describes the connection between individuals and material objects (Pierce et al., 2001). Hence, in an entrepreneurial setting, psychological ownership usually describes the connection between entrepreneurs and the venture that they establish (Ikävalko et al., 2010). However, it is important to note that psychological ownership can also describe the connection between individuals and immaterial objects such as ideas, arguments, and roles (De Dreu & van Knippenberg, 2005; Pierce et al., 2003). As a result, entrepreneurs can develop psychological ownership for entrepreneurial opportunities and entrepreneurial ideas. Furthermore, the work of Brown, Pierce, and Crossley (2014) suggests that entrepreneurs can develop psychological ownership towards their role or work. Thus, entrepreneurs can also develop ownership for their entrepreneurial role or work. For ease and simplicity, I will use the term entrepreneurial vehicle to mean the venture that entrepreneurs establish or the business ideas that entrepreneurs develop.

In the following section, I will present my arguments how the connection between entrepreneurs and their ventures and ideas causes entrepreneurial persistence. Before I present my arguments, I will first describe psychological ownership in detail and describe its distinguishing features. I will then outline how and why psychological ownership develops to articulate why some entrepreneurs develop psychological ownership while others do not.

Attributes of Psychological Ownership.

The defining characteristics of psychological ownership are a) a cognition or perception of owning an object b) the introjection of the object into the self-concept and c) an affective or emotional connection with the object (Belk, 1988; Dittmar, 1992; Furby, 1978a, 1978b; Pierce et al., 2001). It is important to note that psychological ownership develops when an individual perceives that they own an object and as a result many scholars suggest that psychological ownership can exist in the absence of legal ownership (Etzioni, 1991; Furby, 1980; Isaacs, 1933). While legal ownership is likely to strengthen and accelerate the development of psychological ownership, the recognition of ownership by others or society is not a necessary condition for the feelings of ownership to develop (McCracken, 1986; Pierce et al., 2003).

Most entrepreneurs perceive that they own their entrepreneurial vehicles because they have legal ownership and are responsible for creating and managing them. However, there can be instances where entrepreneurs do not feel like they own their entrepreneurial vehicle. For example, portfolio entrepreneurs usually establish ventures with partners (Westhead & Wright, 1998) and they may not be the lead entrepreneur (Ensley et al., 2000; Harper, 2008). The lead entrepreneur is the key person in the entrepreneurial team and in whose mind all of the major elements of the entrepreneurial activities come together (Shaver & Scott, 1992). Thus, in some entrepreneurial teams the lead entrepreneur may perceive owning the venture while the other members of the entrepreneurial team do not.

The introjection of the object into the self-concept of the owner is another core concept of psychological ownership. Possessions can play a vital role in shaping the owner's identity (Heider, 1958) and as a result possessions become part of the extended self (Belk, 1988; Dittmar, 1992). James (1890) notes the importance of possessions to the identity of the individual when he notes:

A man's self is the sum total of all he can call his, not only his body and his psychic powers but his cloths and his house, his wife and children, his ancestors and friends, his reputation and works, his land, and yacht and bank account. All these things give the same emotions. If they grow and prosper, he feels triumphant; if they dwindle and die, he feels cast down (p.291).

Normally, entrepreneurs incorporate their entrepreneurial vehicles into their self-concept (Cardon et al., 2004; Grimes, 2018; Lahti et al., 2019) and weave their entrepreneurial vehicles into their life narratives (Lounsbury & Glynn, 2001; Martens et al., 2007; Navis & Glynn, 2011; Z. Zhang & Chun, 2018). However, research indicates that there are entrepreneurs that are detached from their entrepreneurial vehicles and are not invested in their ventures (Fauchart & Gruber, 2011; Grimes, 2018; Katz, 1995; Powell & Baker, 2014; Woo et al., 1991). According to Fauchart and Gruber (2011) detached entrepreneurs usually have a professional mindset and apply solid business competencies in order to establish strong and profitable firms. These entrepreneurs only view the venture as a means to make money and are constantly looking to explore other business ideas. In essence, these entrepreneurs have little connection to their ventures (Powell & Baker, 2014)

The final core concept of psychological ownership is that it is accompanied by an affective or emotional states (Pierce et al., 2001). Feelings of ownership are said to be pleasure producing because objects provide comfort and security to their owners (Porteous, 1976), make life more convenient, and enable activities to occur which leads to enjoyment and satisfaction (Furby, 1978b). Furthermore, objects are said to be pleasure producing as they allow individuals to personalize their environment and assert their identity (Porteous, 1976).

Typically entrepreneurs exhibit intense positive feeling toward their venture (Baron, 2008; Bird, 1989; Cardon et al., 2009; Lahti et al., 2019; Smilor, 1997). However, research indicates that some entrepreneurs are only passionate about certain entrepreneurial activities such as identifying, inventing and exploring new opportunities and not necessarily their venture as a whole (Cardon et al., 2009; Mitteness et al., 2012; Warnick et al., 2018). In addition, as noted above there are entrepreneurs that maintain an objective and detached relationship with the ventures that they create (Fauchart & Gruber, 2011).

Therefore, entrepreneurs develop psychological ownership when they perceive they own their venture, b) introject the venture into their self-concept and c) have an affective or emotional connection with their venture.

Conceptual distinctiveness of Psychological Ownership

It is important to note that the cognition of owning an object is what distinguishes psychological ownership from related constructs such as commitment –the entrepreneur’s desire to remain affiliated to the venture; identification –the entrepreneur’s use of elements of the venture to define oneself; and internalization-the entrepreneurs’ adoption of values and goals of the venture (Pierce et al., 2001). The close proximity of psychological ownership to these constructs suggests that psychological ownership can provide additional insights into entrepreneurial persistence.

Psychological ownership may provide an answer to the question ‘why should I maintain affiliation with the venture if it is performing poorly’. The close proximity of these constructs indicates that the answer may lie in entrepreneurs using elements of the venture to define themselves and because they embody the values and goals of the venture. Hence, as the venture is critical for the self-definition of an entrepreneur, the entrepreneur may feel compelled to maintain affiliation with the venture.

Antecedents of Psychological ownership

The extant literature has identified three antecedents of psychological ownership: control of the object, intimate knowledge of the object, and investment of the self in the object (Pierce et al., 2003).

Control

The psychological ownership literature suggests that control over an object is what eventually gives rise to feelings of ownership (Csikszentmihalyi & Halton, 1981; Furby, 1978a; McClelland, 1951; Sartre, 1969). The critical role of control in the development of ownership feelings is based on the idea that individuals conceive their body as part of themselves because they have control over them (Furby, 1978a). Thus, the greater the amount of control a person exercises over an object; the more they will feel that the object is a part of them. Therefore, entrepreneurs will develop psychological ownership to the degree that they control their entrepreneurial vehicle.

In most cases, entrepreneurs have control of their ventures. However, some entrepreneurs may have to give up considerable control if they receive venture capitalist funding (Hellmann, 1998). In addition, entrepreneurs may establish governance structures that weakens their control over their ventures. Baron, Hannan and Burton (1999) identify a number of ‘blueprints’ that entrepreneurs employ to govern their ventures that range from personal direct oversight to informal control through peers or organizational culture. Thus, even if entrepreneurs have legal ownership, the amount of control that they have will be determined by the mechanism they employ to govern their venture.

Familiarity

The more intimate knowledge an individual has on their object, the more they feel the object is theirs. James (1890) suggests individuals develop feelings of ownership toward objects through a living relationship with them. As Weil (1952, p. 33) affirms “All men have an

invincible inclination to appropriate in their own minds, anything which over a long uninterrupted period they have used for their work, pleasure or the necessities of life". Building on this theme, Beaglehole (1932) argues that it is through intimate knowledge of an object that a fusion of the self with the object can take place. Thus, the more information is possessed about the object; the more intimate the connection between the individual and the object (Beaglehole, 1932). Thus, the more intimate the connection between an entrepreneur and their venture, the more deeply the entrepreneur becomes attached to their venture.

Generally, entrepreneurs will have a high degree of familiarity with their venture because they are the ones responsible for creating it (Gartner, 1990). Entrepreneurs are usually highly familiar when they establish their venture because new ventures are small and highly dependent on the entrepreneur (Venkataraman, 1997). However, as the venture grows the opportunity to have intimate knowledge over all aspects diminish (Mathias & Williams, 2018). Thus, the degree that an entrepreneur is intimately familiar with his or her venture is determined by the size of the venture.

Entrepreneurs differ in how actively they participate in the management of their venture. Scholars have indicated that some entrepreneurs perform limited tasks while others perform a multitude of tasks within the venture (Cardon et al., 2009; Mathias & Williams, 2018; Warnick et al., 2018). Entrepreneurs that actively perform multiple tasks are likely to develop intimate knowledge and develop a deep connection with their entrepreneurial vehicle. In addition, Fauchart and Gruber (2011) distinguish between entrepreneurs who use individualized, artisanal production methods and those who use outsource their production, usually to low-wage countries. Entrepreneurs that employ artisanal production methods are more likely to have an

intimate connection with their venture because they pay extremely close attention to their modes of production.

Investment of Self

Individuals become attached to their object when they invest their energy, time, effort and attention into objects (Csikszentmihalyi & Halton, 1981). The link between an individual's investment and feelings of ownership has been suggested as early as the 17th century when Locke (1690) notes that individual's feel that they own their labor and hence are likely to feel that the product of their labor is also theirs. Marx (1976) suggests that our creations represent us because we invest our psychic energy into the products that we create. Hence, objects which are the results of the individual's own effort are more central to the self (Rosenberg, 1979) because they represent accomplishments of the individual (Furby, 1978b) which enhances the self-esteem of the individual (Rosenberg, 1979; Furby, 1978b).

In most instances, entrepreneurs invest a lot of their time, energy and resources in order to establish their ventures (Aldrich & Fiol, 1994; Steier & Greenwood, 2000). In addition, most entrepreneurs invest their reputation, competence and trustworthiness in their ventures, as they leverage their social capital in order to mobilize resources and foster business relationships with prominent stakeholders (Baron & Markman, 2000). Finally, psychic investment may be required by entrepreneurs in order to infuse their venture with symbolic or cultural meaning in order to attract resources (Lounsbury & Glynn, 2001; Martens et al., 2007; Zott & Huy, 2007).

However, not all entrepreneurs are likely to invest similar amounts of energy, time, effort and attention to their entrepreneurial vehicles. For example, not all entrepreneurs are wealth constrained and some do not have to invest a lot of time, energy and resources to establish their ventures (Westhead & Wright, 1998). In addition, Zuzul and Tripsas (2019) note that while some entrepreneurs create novel business models, technologies and infrastructure others simply

appropriate existing ones. Thus, it is more likely the former are likely to invest more of themselves in their ventures.

Motives of Psychological ownership

Pierce and his coauthors (2001, 2003) note that there are four reasons why individuals develop psychological ownership for objects. These should not be confused with the antecedents (control, familiarity and investment of self) of psychological ownership, which provide an explanation of how individuals develop psychological ownership and not why. The four reasons provided for why individuals develop psychological ownership are efficacy and effectance; self-identity; having a place and stimulation.

Efficacy and Effectance

One of the main drivers of humans is the exploration of, and ability to control, one's environment (White, 1959). People feel competent when they are able to alter their environment through their actions. The efficacy and effectance motive for psychological ownership is an instrumental one because one avenue individuals have to explore and manipulate their environment is through the objects that they own (Furby 1978b). Furby (1978a) concludes that the desire to experience causal efficacy leads people to take possessions of objects in one's environment:

“Possessions have an instrumental function-they make possible certain activities and pleasures. In other words, they enable one to effect desired outcomes in one's environment. The importance of this instrumental factor at all ages (and for all three cultural groups) is provocative... The results here suggest possession may be a manifestation of effectance motivation in that a central feature of possession is the ability to affect and control the object in whatever way one wishes” (p.60).

The entrepreneurship literature indicates that a hallmark of entrepreneurship is to launch a venture that triggers a new industry (Schumpeter, 1951; Zuzul & Tripsas, 2019). More recently, Rindova, Barry and Ketchen (2009) argue that entrepreneurial projects seek to disrupt the stat quo and create new economic, social, institutional and cultural environments. Thus, some entrepreneurs are motivated to radically disrupt the existing landscape and create a new industry (Zuzul & Tripsas, 2019) and leave a lasting impression that will solidify their legacy (Yitshaki & Kropp, 2016).

Some entrepreneurs have aspirations, that are more modest and aim, to alter the structure of an existing market. These entrepreneurs are typically disenchanted by current conditions in the market and strongly question the functional, social or ethical legitimacy of prevailing practices (Aldrich & Fiol, 1994;Cliff, Jennings & Greenwood, 2005; Suchman, 1995). For example missionary entrepreneurs that are motivated to be change agents and alter the practices of an existing industry use their venture as a platform to pursue their political visions and advance their agenda (Fauchart & Gruber, 2011) .

There are also entrepreneurs that aspire to introduce some novelty into an industry. Fauchart and Gruber (2011) comment that some entrepreneurs are happy to create new products or services that addresses a particular customer need. These entrepreneurs are primarily interested in changing the attributes of a product or services in order to create new functionalities.

It is important to note that some entrepreneurs have no ambition to become change agents whatsoever. Some entrepreneurs are motivated to make significant returns by identifying and exploiting market opportunities that are created by others (Fauchart & Gruber, 2011; Zuzul & Tripsas, 2019). These entrepreneurs simply repackage existing technologies and practices,

usually from other domains, in a manner that meets customer needs that have already been identified (Fauchart & Gruber, 2011; Zuzul & Tripsas, 2019). Thus, when entrepreneurs are motivated to change the environment, the more likely they will develop psychological ownership for their entrepreneurial vehicle because it is what allows the entrepreneur to alter their environment. If the entrepreneur is not interested in changing the environment then they will have little connection to their entrepreneurial vehicle.

Self-Identity

In addition to serving an instrumental purpose, possessions play a symbolic role and are a vehicle for defining, maintaining and expressing one's self (Hillenbrand & Money, 2015; Pierce et al., 2003). Possessions allow individuals to define themselves as they provide one avenue of self-understanding (Dittmar 1992; Mccracken, 1986). Objects have meaning, which are bestowed upon by society and when individuals interact with objects they learn about themselves (Mead, 1934). Specifically, individuals learn which objects provide them with pleasure and comfort and they then internalize the symbolic property of these objects (Mccracken, 1986). Dittmar (1992, p.90) comments that it is through our interaction with our possessions, coupled with reflections on their meaning that our sense of identity, our self-definition, are established, maintained, reproduced and transformed.

In addition, Hillenbrand and Money (2015) posit that psychological ownership develops so that the individual can embody a congruent way of living. Building on personal and social identity theories (Bargh et al., 2002; Higgins, 1987), Hillenbrand and Money (2015) argue that owning an object allows individuals to enact their innermost personal identity because it would not be possible to experience the emotions and cognitions that are associated with an identity without ownership of an object that epitomizes that identity.

In contemporary societies, especially in the west, entrepreneurs have emerged as cultural heroes that will somehow make tomorrow better (Ogbor, 2000). Entrepreneurs are routinely celebrated in the media and in the market place as the entrepreneurial identity signals creativity, wealth and freedom (Anderson & Warren, 2011; Lounsbury & Glynn, 2001). The entrepreneurial experience is portrayed in a glowing manner that is replete with pride (Bierly et al., 2000), love (Baum & Locke, 2004; Cardon et al., 2004) enthusiasm, joy (Smilor, 1997) and passion (Cardon et al., 2009; Smilor, 1997). As a result, many people aspire to become entrepreneurs (Welter & Bergmann, 2002) and define themselves in the terms that are culturally ascribed to entrepreneurs (Mallon & Cohen, 2001; Zhang & Chun, 2016). It follows then that those that have a desire to become entrepreneurs are motivated to own an entrepreneurial vehicle.

Objects provide a means to express personal values, qualities, attitudes and social affiliation (Levy, 1959). As a result, possessions play an important role in social interactions because individuals can use the symbolic properties of the object to communicate their identity to others (Dittmar, 1992). Individuals are motivated to communicate their identity in part to gain affirmation from others. Affirmation as a legitimate member of a particular group is important because identity claims must be socially legitimized (Goffman, 1959) so that the individual can validate his or her identity (Gecas & Burke, 1995; Stryker & Burke, 2000; J. C. Turner et al., 1987). Thus, psychological ownership develops in part to allow the identity of an individual to be verified (Hillenbrand & Money, 2015).

As the entrepreneurial identity is a valued identity, there is a desire for affirmation as a legitimate member (Lounsbury & Glynn, 2001; Martens et al., 2007; Murnieks et al., 2019; Navis & Glynn, 2011; Zuzul & Tripsas, 2019). The desire to have the entrepreneurial identity

validated by society is both instrumental and symbolic for entrepreneurs. Instrumentally, entrepreneurs need to have their identity validated in order to mobilize resources and obtain a license to operate (Lounsbury & Glynn, 2001; Martens et al., 2007; Navis & Glynn, 2011). The identity of the entrepreneur plays a crucial role because there is limited information to make objective assessments on the capabilities of the new venture (Navis & Glynn, 2011).

Symbolically, entrepreneurs will want to appraise the congruence between their interpretation of what it means to be an entrepreneur and the prototypical characteristics of an entrepreneur ascribed by society (Murnieks et al., 2019; Zuzul & Tripsas, 2019). In both cases the entrepreneurial vehicle takes center stage in the narrative that entrepreneurs use to express their identity (Lounsbury & Glynn, 2001; Martens et al., 2007; Murnieks et al., 2019; Navis & Glynn, 2011; Zuzul & Tripsas, 2019)

Finally, possessions have the ability to maintain the identities of individuals. Dittmar (1992) indicates that possessions act as guardians of the self-concept and that if prized possessions are taken away, individuals experience an erosion of the self. Thus, maintaining possessions allows individuals to maintain a sense of self-continuity (Cram & Paton, 1993).

Scholars have noted the tenuous nature of the entrepreneurial identity and indicate that an entrepreneur ceases being an entrepreneur the moment they cease entrepreneurial activities (Davidsson, 2007). As ownership of an entrepreneurial vehicle is critical to carry out entrepreneurial activities, maintenance of the entrepreneurial vehicle is important to self-continuity of the entrepreneur. Losing the entrepreneurial vehicle would mean that the entrepreneur ceases being an entrepreneur. Thus, if the entrepreneurial identity is a salient and significant aspect of the self-definition of the entrepreneur then it is likely that they will develop psychological ownership for their entrepreneurial vehicle. However, if the entrepreneurial

identity is not central to the entrepreneur then there will be little connection between the entrepreneur and the entrepreneurial vehicle.

Having a Place

Individuals have an innate need to possess a certain space (Ardrey, 1966; Lorenz & Leyhausen, 1973; Porteous, 1976). This desire arises from the need to have a space where people can structure their life and reality (Porteous, 1976). Porteous (1976) refers to this preferred space as 'home' and suggests that it enables freedom of self-determination because it serves to promote security, identity, and individualism. People establish their preferred space when a territory offers a reflection of who they are and when this occurs, the territory stops becoming a location and instead becomes a part of individual (Heidegger, 1927/1967; Polani, 1962). The transformation of a space into a home occurs when individuals personalize their surroundings and make considerable emotional investment into the location. Thus, they become more familiar with the space and develop a sense of being one with location (Porteous, 1976). In other words, when individuals infuse themselves into a particular space it reflects the discovery of personal meaning and comfort.

Entrepreneurs are motivated to create private kingdoms (Schumpeter, 1934) and the ambition to build a little empire is entrenched as an entrepreneurial cliché (Down & Warren, 2008). More recently, this motivation has been articulated as a desire for people to gain freedom and to be one's own boss (Ageev et al., 1995; Baker & Nelson, 2005; Herron & Sapienza, 1992; Kolvereid, 1996; Litvak & Maule, 1976). The entrepreneurial venture is seen as a safe haven where entrepreneurs can foster their independent spirit and pursue their innovative and creative desires (Cardon et al., 2009; Lafuente & Salas, 1989; Smith & Miner, 1983; Warnick et al., 2018). Hence, to some entrepreneurs the venture represent a 'home'.

However, securing a territorial core may not appeal to all entrepreneurs. For example, serial entrepreneurs launch and subsequently sell their ventures (Westhead & Wright, 1998). These entrepreneurs are primarily interested in identifying new opportunities and not necessarily nurturing, growing and expanding a venture (Cardon et al., 2009). Portfolio entrepreneurs own many several ventures and may consider one venture to be more of a home than another one (Westhead & Wright, 1998). Thus, if the entrepreneur has the desire to build a personal kingdom, then it is likely that they will develop psychological ownership for their entrepreneurial vehicle. However, if securing a personal territory is not appealing to the entrepreneur, then there will be little connection between the entrepreneur and the entrepreneurial vehicle.

Stimulation

Individuals need to be stimulated. People have a have a characteristic level of activation that defines their equilibrium state and are motivated to maintain this state (Fiske & Maddi, 1961; Scott, 1966). Individuals are motivated to maintain their characteristic level of activation in order to function effectively and efficiently. Any deviation (positive or negative) reduces the ability to function at a high level (Gardner, 1986, 1990; Scott, 1966).

“At low levels of activation performance is handicapped by a lack of alertness, a decrease in sensory sensitivity and lack of muscular coordination... and at high levels performance is again handicapped by hypertensiveness, loss of muscular control, “impulsion to action”, and in the extreme, and total disorganization of responses” (Scott, 1966, p. 13).

Thus, there is an inverted U relationship between experienced activation and performance.

Possessions offer one route by which people can satisfy their need to be stimulated (Darling, 1937, 1939; Duncan, 1981; Furby, 1978a; Kamptner, 1989; Porteous, 1976). Primarily,

possessions allow for activities to occur and thus provide enjoyment to their owners (Furby, 1978). In addition, objects allow people to control and alter their environment, which engenders a sense of pride, satisfaction and competence (White, 1959; Furby, 1978). Possessions allow people to assert their influence and power (Isaccs, 1993) and people are stimulated when they communicate that an object is theirs and limit access to an object (Porteous 1976).. Thus, being able to exert social control over objects and regulate the access or use of one's possession is stimulating (Furby, 1978a; Porteous 1976).

Introducing change is stimulating for entrepreneurs (Fauchart & Gruber, 2011; Yitshaki & Kropp, 2016; Zuzul & Tripsas, 2019). The ability to do something new that no one has done before is an exciting prospect for entrepreneurs (Zuzul & Tripsas, 2019). The self-fulfillment that entrepreneurs feel is especially gratifying when they are able to create their venture from scratch (Yitshaki & Kropp, 2016). Thus, entrepreneurs are thrilled when they meet novel needs in their community and are recognized for their contributions (Fauchart & Gruber, 2011).

Entrepreneurs derive stimulation from their entrepreneurial vehicle because it allows them to partake in entrepreneurial activities. Fulfilling their desire to engage in entrepreneurial activities translates into entrepreneurs developing intense positive emotions (Baum & Locke, 2004; Cardon et al., 2004, 2009; Lahti et al., 2019; Shane et al., 2003; Schumpeter, 1934; Smilor, 1997). In addition, entrepreneurs enjoy owning ventures because it provides an enriched work environment. The tasks that entrepreneurs engage in increases their satisfaction, as it allows for more autonomy, variety, task identity and feedback (Hackman & Oldham, 1975, 1976; Hundley, 2001; Schjoedt, 2009).

Entrepreneurs are stimulated by the ability to express their identity through their entrepreneurial vehicles (Cardon et al., 2009; Fauchart & Gruber, 2011; Hoang & Gimeno, 2010;

Powell & Baker, 2014; Shepherd & Haynie, 2009; Yitshaki & Kropp, 2016; Zuzul & Tripsas, 2019). Entrepreneurs are motivated to identify and engage in activities that represents their uniqueness (Yitshaki & Kropp, 2016). Entrepreneurs are excited to be able to exemplify their identity through their ventures (Zuzl & Tripsas, 2019) and are motivated to construct unique identities for their ventures that go beyond competitive maneuvering and market positioning (Shepherd & Hayine, 2009, p. 321).

Entrepreneurs are stimulated when they defend their entrepreneurial vehicles. Entrepreneurs experience positive emotions when they protect and make sacrifices on behalf of their venture (Lahtia et al., 2019). The increase in positive emotions when defending ones entrepreneurial vehicle is exemplified by the following:

“It’s fueling my fire. I want it to succeed that much more just so I can say, “I told you it’d work.” And that’s really honestly how I operate. So, all these advisors should be telling me “It’s a horrible idea, you’ll never do it,” and then, you know, I’ll whip it out in six months. Might speed up the process for me.”(Grimes, 2018, p. 1710).

It is important to recall that people have different optimum levels of stimulation (Gardner & Cummings, 1988). Some individuals may find entrepreneurial activities overstimulating and are less inclined to own an entrepreneurial vehicle. In addition, some entrepreneurs may find constantly overcoming adversity as overstimulating and unbearable. As Morris et al., (2011, p. 24) succinctly describe the entrepreneurial journey may provide more stimulation than some can cope with:

A beginning point for deciphering the affective nature of the entrepreneurial experience is to consider general characteristics of the venture creation context. Various observers have noted ambiguous qualities (McClelland, 1986); a multiplicity of obstacles and demands, unclear job responsibilities, and high levels of uncertainty (Schindehutte et al., 2006); relative autonomy coupled with a sense of loneliness (Boyd & Gumpert, 1983); stress that produces health problems and difficulties in relieving work-related tension (Buttner, 1992); ongoing exposure to novelty (Dew & Sarasvathy, 2007); a rapid and volatile pace (Shane & Khurana, 2003); the passion involved in venture creation (Cardon et al., 2009); and, when facing impending failure, depression and grieving (Shepherd, 2003).

Thus, if the entrepreneur has the desire for stimulation, then it is likely that they will develop psychological ownership for their entrepreneurial vehicle. However, a life of vim and vigor is not appealing to the entrepreneur, then there will be little connection between the entrepreneur and the entrepreneurial vehicle.

Psychological ownership and entrepreneurial persistence

One would expect that continued commitment to an entrepreneurial vehicle would depend on the venture receiving positive feedback. However, I argue that entrepreneurs will be *more* committed to their entrepreneurial vehicle following negative feedback, if they have developed psychological ownership for their venture. It is to be recalled from earlier that following the development of psychological ownership the entrepreneurial vehicle is incorporated into the self-concept of the entrepreneur. Thus, the motives of the self (Shamir, 1991) will apply to the entrepreneurial vehicle as well and the entrepreneur is pressured to enhance the image of their entrepreneurial vehicle following negative feedback.

In the subsequent section, I will provide brief introduction on the self-concept and the motives of the self. I will then present my arguments that detail how the motives of the self will motivate entrepreneurs to persist. I argue that the possible self will prompt entrepreneurs to persist in order to realize their entrepreneurial dream and to avoid a future self that is a failure. I note that the self-esteem will motivate the entrepreneur to revive the entrepreneurial vehicle in order to feel competent and capable. I contend that the self-consistency motive will prompt entrepreneurs to maintain their entrepreneurial vehicle in order to maintain the entrepreneurial identity. I posit that the self-worth motive will compel entrepreneurs to persist with entrepreneurial vehicle in order to prove that they are real entrepreneurs. Finally, I assert that self-presentation considerations will prompt the entrepreneur to persist with their entrepreneurial vehicle in order to save face.

Self-Concept and Motives of the Self.

The self-concept is the totality of an individual's thoughts and feelings with reference to itself as an object (Rosenberg, 1979). The self is reflective and it places itself in society by categorizing, classifying or naming itself in a way to relate to other social categories or classifications. This process is referred to as self-categorization (J. C. Turner et al., 1987) in social identity theory and identification (McCall & Simmons, 1978) in identity theory. Through the process of self-categorization or identification, identities are formed.

A consequence of this process is that individuals view themselves in terms of the meanings, imparted by society and interpreted by the individual, that are associated with these identities (McCall & Simmons, 1978; Stryker, 1980; J. C. Turner et al., 1987). Thus, when an individual categorizes themselves as a member of a social group they acquire the norms and values of the group, which informs group members of the rules, standards and beliefs about appropriate conduct and attitudes. In addition, the group is used as the basis for social

comparison and evaluation (J. C. Turner et al., 1987). In a similar fashion, when an individual identifies with a particular social position or role, they see themselves embodying the identity standard, which represents the meanings and norms attached to a particular social position or role (Burke & Stets, 2009; McCall & Simmons, 1978). This suggests that identities imply action and it is through action that identities are realized and validated (Callero, 1985; Terry et al., 1999).

The self is motivated to increase pleasurable experiences and decrease unpleasant ones, which is accomplished by maintaining and enhancing a positive self-concept and by reducing negative self-views (Alicke & Sedikides, 2009). When individuals are able to behave in accordance with an identity standard they will be able to verify and validate their identity (Burke & Stets, 2009; Gecas, 1982; Hogg, 1993, 2001; Shamir, 1991). If an individual consistently meets the internal standards that they have set for themselves, then the individual will regard themselves as competent, worthy, capable and desirable, which will enhance their self-concept (Bandura, 1986; Burke & Stets, 2009; Burke & Stets, 2009; Christensen et al., 2004 Gecas, 1982; Hogg, 1993, 2001; J. C. Turner, 2005; J. C. Turner et al., 1987).

Thus, individuals are motivated to reach, maintain or exceed the internal standards that they set for themselves (Alicke & Sedikides, 2009; Bandura, 1986; Burke & Stets, 2009; Swann & Hill, 1982; J. C. Turner et al., 1987). When individuals fail to meet their identity standard, they counteract negative self-views and unpleasant feeling by engaging in behaviors that will atone for any deficiencies (Burke & Stets, 2009; Gómez et al., 2011; Jamieson et al., 2010; Swann & Hill, 1982; Williams et al., 2000; Williams & Sommer, 1997). It is important to note that individuals will exert more effort in order to approach their identity standard and atone for any deficiencies and reaffirm their self-conceptions (Gómez et al., 2011; Swann & Hill, 1982; Williams & Sommer, 1997).

Critical to this perspective is the assumption that individuals have multiple groups that they belong to and identify with multiple role identities and that some group or role identities are more part of the self than others (McCall & Simmons, 1978; Stryker, 1980; J. C. Turner et al., 1987). Thus, the degree that an identity will motivate an individual to aspire to meet appropriate standards of behavior will be in part determined by how central the identity is to the individual. In other words, if the group is not a psychological group (J. C. Turner et al., 1987) or the role is not central (Rosenberg, 1979), salient (Stryker, 1980) or prominent (McCall & Simmons, 1978) then it is unlikely that the individual will be motivated to embody the characteristics and standards of the group or the role.

Possible Selves. Possible selves refers to how individuals think about their future and relates to questions an individual asks about “who I want to be” (Markus & Nurius, 1986). Possible selves are the ideal selves that people hope to achieve as well as what people are afraid of becoming (Higgins, 1987; Markus & Nurius, 1986; Rosenberg, 1979). Possible selves are an important driver of behaviour because they provide an evaluative and interpretive context for the current view of self (Cropanzano et al., 1993; Higgins, 1987; Lord et al., 1999; Markus & Nurius, 1986; Oyserman et al., 2006)

The possible self is composed of knowledge structures that organize and direct information about the self (Markus & Nurius, 1986). These knowledge structures identify who the individual wants to be and includes a roadmap to attain the desired identity (Oyserman et al., 2006). Hence, these structures contain an individual’s perception of approaching and realizing a particular identity (Cropanzano et al., 1993). As an individual is able to evaluate how far along they are on their road map, the possible self provides a vital link between identity and motivation

(Markus & Nurius, 1987) and as a result can influence an individual's current behaviour (Lord et al., 1999).

When an individual aspires to become an entrepreneur, their possible self develops a roadmap to attain an entrepreneurial identity. This roadmap will invariably contain the ownership of an idea, product and/or a venture, as they are critical to the entrepreneurial identity. Furthermore, the aspiring entrepreneur is likely to develop strong psychological ownership for the ideas, products or a venture that they establish on the road to becoming an entrepreneur, as they are critical for the self-definition of the aspiring entrepreneur. Consequently, when aspiring entrepreneurs are met with adversity they will be motivated to protect and nurture their entrepreneurial vehicle in order to realize their future desired identities (Farmer et al., 2011; Grimes, 2018; Hoang & Gimeno, 2010). The motivation to protect and nurture their entrepreneurial vehicle will be stronger the closer the individual is to realizing their goal of becoming an entrepreneur.

In addition, the possible self is likely to motivate entrepreneurs to persist with their venture in order to alleviate the possibility of severely diminishing their self-concept (Markus & Nurius, 1986). As the prospect of the venture worsens, entrepreneurs will become more anxious and fearful of becoming a failure (Burke & Stets, 2009; Cope, 2011; Markus & Nurius, 1986; J. R. Mitchell & Shepherd, 2010; Shepherd, 2003; Shepherd et al., 2009; Singh et al., 2007). Entrepreneurs will also have to contend with the possibility of losing their entrepreneurial identity and their 'home' that may be critical to their self-definition (Cardon et al., 2009; Murnieks et al., 2019; Porteous, 1976). Thus, psychological ownership for the entrepreneurial vehicle will intensify the associated fears and anxieties of the anticipated failure and the resulting

negative self-views. Consequently, the entrepreneur will invest more into their ventures to revive their fortunes and alleviate their anxieties and fears of greatly diminishing their self-concept.

Self-esteem. Self-esteem is an evaluative dimension of the self-concept (Gecas, 1982). Generally self-esteem refers to an individual's overall self-evaluation and is closely tied to effective performance because it is based on a sense of competence, power, achievement or ability to cope with and control one's environment (Bandura, 1978; Gecas, 1982). Thus, when individuals have high self-esteem they view themselves as a capable and competent and will hold themselves in high regard. To hold oneself in high regard and to be able to maintain this positive conception is highly motivational to people and is thought to be a universal driver of people's behavior (Rosenberg, 1979).

Thus, if an entrepreneur's venture is unsuccessful the entrepreneur's self-esteem will be impaired because they have demonstrated that they are unable to achieve success and cope with their environment. As a result, an entrepreneur is likely to experience shame and embarrassment because they are unable to attain the internal standards that they have set themselves (Cope, 2011; J. R. Mitchell & Shepherd, 2010; Shepherd, 2003; Shepherd et al., 2009; Singh et al., 2007). Psychological ownership is likely to exacerbate the impairment of the entrepreneur's self-esteem and increase the embarrassment and shame that entrepreneurs feel because the entrepreneur will have lost their 'home' and identity as well. Consequently, the self-enhancement motive will pressure the entrepreneur to enhance the performance of the venture in order to regain his or her self-esteem following negative feedback (Brockner et al., 1986; Shamir, 1991; L. Zhang & Baumeister, 2006).

Self-consistency. The self-consistency motive predicts that people want to live in accordance with a consistent self-concept and to maintain it intact in the face of potentially

challenging evidence (Lecky, 1945; Swann, Jr., 1983). Possessions play an important role in maintaining people's self-concept over time (Cram & Paton, 1993; Dittmar, 1992; McCracken, 1986) and entrepreneurial vehicles have the capacity to achieve this motivation for entrepreneurs (Hillenbrand & Money, 2015). Consequently, maintaining ownership of an entrepreneurial vehicle is important to maintain an entrepreneurial identity. Thus, the self-consistency motive predicts that entrepreneurs need to maintain and confirm their self-concept by engaging in entrepreneurial activities in ways that confirm the role expectations and validate the behavioral implications of the entrepreneurial identity (Burke & Reitzes, 1981a, 1991). Consequently, an entrepreneur may become inextricably bound to the venture and increase his or her commitment to the venture in order to maintain his or her self-concept regardless of the effectiveness of the venture.

Self Worth. When individuals conduct themselves in a manner that is consistent with the standards and beliefs ascribed to their identities they will deem themselves worthy individuals, (Gecas, 1982). One characteristic of entrepreneurs is that they persist and as a result an entrepreneur may view him or her self as worthy and a *real* entrepreneur because they are persisting in the face of adversity (Farmer et al., 2011; Grimes, 2018; Murnieks et al., 2019; Shamir, 1991; Stryker & Burke, 2000). Maintaining ownership of their entrepreneurial vehicle is critical for entrepreneurs to be able to persist and express that they embody the persistence characteristic of entrepreneurs. Thus, in order to gain affirmation that they are real entrepreneurs and validate their identity, entrepreneurs are likely to persist.

Authenticity. Authenticity is about being true to one's self (Shamir, 1991; Vannini & Franzese, 2008). People feel positive about themselves when they are able to be authentic and as a result one of the motives of individuals is to live an authentic life (Gecas, 1986, 1991, 1994;

Hochschild, 1983; Shamir, 1991; Vannini & Franzese, 2008). However, it is important to note that achieving authenticity is a difficult endeavour because so much of social life requires compromise from individuals (Vannini & Franzese, 2008). This is especially the case in the work place (Hochschild, 1983). In addition, it is important to note that the self-concept of individuals are composed of a number of identities and if these identities are incongruent with each other, then it is difficult to live an authentic life, as one or more identities may have to be suppressed (Burke, 2003; McCall & Simmons, 1978; Oakes et al., 1991; Powell & Baker, 2014; Stryker, 1980; J. C. Turner et al., 1987).

Ownership of a venture affords entrepreneurs the opportunity to live an authentic life. As they are in control of their ventures, entrepreneurs have the ability to establish, manage and transform their venture in a manner that reduces the compromises they make and bring harmony to their multiple salient and significant identities (Powell & Baker, 2014). Thus, the entrepreneurial vehicle serves as a secure space where the entrepreneur can express their individualism and live an authentic life. Thus, entrepreneurs are unlikely to abandon their ventures when they encounter adversity because they will be abandoning their home where they can live an authentic life.

Presenting self. It is important to note that individuals are also concerned about how other people evaluate them and as a result, peoples actions are in part aimed to influence the impressions that others have about them (Steele, 1988). This concern is partly instrumental as the valuation that others have can affect the quality and quantity of interactions and rewards a person receives from society (Jones, 1964; Jones & Pittman, 1982; Jones & Wortman, 1973; Schlenker, 1975). Consequently, people are motivated to maximize social approval and reduce social disapproval in order to gain favorable outcomes (Goffman, 1959). As a result, self-presentation

is an integral component of social interactions and the presenting self is the intentional and tangible component of an individual's identity (Goffman, 1959).

When an entrepreneurial vehicle that has been incorporated into the self-concept of an entrepreneur is failing, the failure of the venture becomes a reflection of the entrepreneur because the entrepreneurial vehicle epitomizes the entrepreneur (Belk, 1988; Cope, 2011; Dittmar, 1992; Grimes, 2018; James 1980; Heider, 1958). Consequently, the entrepreneur will develop the perception that they have lost their social status and tarnished their image (Cardon & McGrath, 1999; Cope, 2011; Savitsky et al., 2001; Shepherd, 2003). As a result, the entrepreneur will be motivated to enhance their social standing and are likely to reinvest their efforts into the venture in order to save face (Brockner et al., 1981).

Hypothesis 1: Negative feedback moderates the relationship between psychological ownership and commitment

Summary

In this chapter, I have introduced psychological ownership and presented my arguments on why psychological ownership will motivate entrepreneurs to persist. The basic premise of my arguments is that due to psychological ownership the entrepreneurial vehicle is incorporated into the self-definition of the entrepreneur. Consequently, evaluations of the entrepreneurial vehicle will partly determine the entrepreneur's self-evaluation. When the entrepreneurial vehicle receives negative feedback, entrepreneurs will become be *more* committed to their entrepreneurial vehicle in order to increase the attractiveness of the entrepreneurial vehicle and thereby enhance their self-concept. In addition, I have outlined how and why some entrepreneurs and not others are likely to develop a strong connection with their entrepreneurial vehicle. Thus,

psychological ownership can account for individual differences and be used to identify which entrepreneur is likely to persist.

Chapter 4: Cleaning up the big muddy

In this chapter, I will present my arguments that articulates how psychological ownership links project, social and structural determinants. I begin mapping out my arguments by demonstrating the effect that psychological ownership has on subjective expected utility, the underlying mechanism that explains how project factors lead to persistence. Subsequently, I will argue that psychological ownership can explain social factors of entrepreneurial persistence through collective psychological ownership. Finally, I will tie structural determinant with psychological ownership through territoriality and will present a hypothesis that captures this relationship.

Psychological ownership and project determinants

People are motivated to rate their possessions more favorably than other similar objects in order to improve their self-image (Beggan, 1992; Y. Huang et al., 2009; Nesselroade et al., 1999). As a result, psychological ownership leads individuals to develop favorable evaluations of their possessions (Beggan, 1992; Heider, 1958; Pierce et al., 2001, 2003) and judge owned objects more favorably than similar unowned objects (Y. Huang et al., 2009; Nesselroade et al., 1999; Nuttin, 1987). Thus, when entrepreneurs develop psychological ownership for their entrepreneurial vehicle, they are motivated to rate the probability that additional resource allocations will lead to goal attainment favourably (Elfenbein et al., 2017). In addition, they will be motivated to rate the benefits of running a successful venture as highly desirable because their identity is implicated (Baron, 2008; Cardon et al., 2004; Grimes, 2018; Lahti et al., 2019). Hence, psychological ownership is likely to increase the expected subjective utility of owning an entrepreneurial vehicle.

When the entrepreneurial vehicle performs worse than expected, entrepreneurs will have to revise their inflated subjective expected utility. This revision will diminish the entrepreneur's

self-concept and elicit risk seeking behaviour (Kahneman & Tversky, 1979). Consequently, the entrepreneur will be motivated to reverse the losses that the entrepreneurial vehicle has suffered and increase their commitment.

Hypothesis 2a: Negative feedback moderates (second stage) the mediating effect of probability of goal attainment on the relationship between psychological ownership and commitment, as well as the direct relationship between psychological ownership and commitment

Hypothesis 2b: Negative feedback moderates (second stage) the mediating effect of value of goal attainment on the relationship between psychological ownership and commitment, as well as the direct relationship between psychological ownership and commitment

Psychological ownership and social determinants

Applying the concept of psychological ownership to the group level, Pierce and Jussila (2010) posit that groups can deem an object as ‘theirs’. The key differentiation between individual and collective ownership is that the object is considered ‘ours’ rather than ‘mine’. In other words, the group collectively perceives they own an object, the object is introjected into the definition of the group, and the group has an affective and emotional connection with the object.

According to Pierce and Jussila (2010) there are three stages by which psychological ownership transforms from an individual to a group level phenomenon. First, objects are incorporated into the psyche of the individual when the individual finds him or herself present in object. Thus, an individual must develop psychological ownership for an object before collective psychological ownership emerges. Second, individuals become aware that others are also psychologically tied to the object. Third, interactive exchanges within the group bestows emergent symbolic properties onto the object, which is more than the sum of the individual

attributes of the object. The newly created symbolic properties of the object transforms the cognitive and affective connection to the object from the individual to the group.

Pierce and Jussila (2010) note that while the antecedents and the consequences of collective and individual psychological ownership are virtually the same, two conditions must be met for collective psychological ownership to emerge. First, there needs to be a strong need for group members to identify with the social group (Tajfel, 1981; J. C. Turner et al., 1987). Individual must first be comfortable with and want others to see that they are part of the claiming group before they claim an object along with other members of a social group. In other words, group members are motivated to be a part of the social group and want to be recognized as belonging to that group (Hogg & Terry, 2000). Therefore, the history of the group is pertinent in the development of collective psychological ownership as it reflects the way group members sense their reality and attitudes towards themselves.

Second, collective psychological ownership requires cognitive interdependence amongst group members that facilitates the formation of collective cognition (Gibson, 2001; Sandelands & Stablein, 1987) of the object (Pierce & Jussila, 2010). Collective mind within the group is critical to develop a shared understanding of the symbolic properties of the object and for group members to be aware of their rights and responsibilities towards the object (Pierce & Jussila, 2010). Consequently, close and continued interactions amongst group members that pursue a common goal that requires interrelatedness between members is important for collective psychological ownership to develop (Gibson, 2001; Weick & Roberts, 1993).

The entrepreneurship literature suggests that collective psychological ownership is likely to develop in emergent entrepreneurial teams where team members are on an equal footing and co-tune their conceptualizations of their vision for the entrepreneurial vehicle (Harper, 2008).

These types of entrepreneurial teams are likely to facilitate the development of collective ownership for three reasons. First, due to shared leadership in emergent teams, entrepreneurs are likely to perceive that they as a team control the entrepreneurial vehicle and have the opportunity to become intimately familiar with and invest themselves into the entrepreneurial vehicle

Second, collective mind is likely to develop in these teams because there is greater collaboration and cooperation amongst the team members, which results in a better understanding of the interdependence and the needs of each group member (Manz & Sims, 1993; Perry et al., 1999; Yeatts & Hyten, 1998). In addition, shared leadership is likely to lead to group cohesion, which increases close and continued interaction amongst group members and commitment to organizational goals (Katz & Kahn, 1966; Ouchi, 1980) .

Third, an increase in group cohesion and shared leadership within emergent entrepreneurial teams is likely to facilitate the formation of a collective identity, which entrepreneurs can identify with (Hogg & Terry, 2000; Powell & Baker, 2017). Whether entrepreneurs identify with the entrepreneurial team will depend on the degree of fit between their identity and the collective identity that emerges within the entrepreneurial team (Hogg & Terry, 2000; Powell & Baker, 2017; J. C. Turner et al., 1987). Generally, the entrepreneur will be motivated to identify with the collective identity that emerges because most entrepreneurial teams are homogenous and are likely to be composed of family members, friendship circles, former colleagues and neighbors (Hogg & Terry, 2000; McPherson et al., 2001; Powell & Baker, 2017; Ruef et al., 2003)

I propose that when the venture receives negative feedback entrepreneurs with collective psychological ownership will become *more* committed to their venture in order to revive the fortunes of their venture. First, poor performance will threaten the very existence of the

psychological group, as continued negative performance is likely to lead to the collapse of the venture and thus the dissolution of the entrepreneurial team. As a result, the entrepreneurs will be motivated to turn the situation around so that the group, which is psychologically important to them, can survive.

Second, following negative feedback the symbolic properties of the entrepreneurial vehicle will be devaluated for the entrepreneurial team (Dutton et al., 1994; Dutton & Dukerich, 1991). The devaluation of the symbolic properties of the entrepreneurial vehicle will threaten the entrepreneurial team's collective identity (Dutton et al., 1994; Dutton & Dukerich, 1991; Tajfel & Turner, 1986; J. C. Turner et al., 1987). Which in turn will threaten the self-concept of the entrepreneurs, as the entrepreneurial team and vehicle are incorporated in to self-concept of the entrepreneurs (Dutton et al., 1994; Dutton & Dukerich, 1991; Pierce & Jussila, 2010; Tajfel & Turner, 1986; J. C. Turner et al., 1987). Consequently, these entrepreneurs will be motivated to enhance the entrepreneurial vehicle to reverse the loss of self-esteem and enhance their self concept (Brockner et al., 1986; Shamir, 1991; L. Zhang & Baumeister, 2006).

Third, negative feedback will diminish the identity standard established by the entrepreneurial team. When a group of entrepreneurs create a new collective identity they develop an identity standard, which determines "the way we do things here", and is just as important as what the group is trying to accomplish with the new venture (Powell & Baker, 2017, p. 2406). When these entrepreneurs fail, their self-worth is diminished because they perceive their identity standard is inadequate. As a result, these entrepreneurs will be motivated to redouble their efforts in order to make their venture profitable so that their identity standard is seen as valuable (Zuzul & Tripsas, 2019).

Fourth, group cohesiveness and collective mind that is present in groups that develop collective psychological ownership is likely to increase commitment following negative feedback. The single and shared mindset will compel a team of entrepreneurs to enhance their self-concept that has been impaired due to the poor performance of the entrepreneurial vehicle and thus strive for a unanimous decision (Ensley et al., 2003; Janis, 1972) that will override any motives to appraise other alternative courses of action that are subtractive (Baer & Brown, 2012). Consequently, entrepreneurs will be motivated to increase their commitment to the course of action being currently undertaken (Northcraft & Neale, 1986; Schaubroeck & Davis, 1994).

Hypothesis 3: Negative feedback moderates (second stage) the mediating effect of collective psychological ownership on the relationship between psychological ownership and commitment, as well as the direct relationship between psychological ownership and commitment

Psychological ownership and structural determinants

As there is inherent value in owning objects, individuals are motivated to protect their objects (Brown et al., 2005; Darling, 1937, 1939; Porteous, 1976). Consequently, individuals actively engage in territorial behaviors- actions and behaviors with the purpose of constructing, communicating, maintaining and restoring their connection to their objects (Brown et al., 2005). It is important to note that territorial behaviors are not simple expressions of an individual's connection to an object, rather territoriality behaviors arise from the need to protect one's object from others (Brown et al., 2005). The need to protect an object arises because it is only when an object has been claimed and protected in a social sphere that the object becomes 'mine' (Brown et al., 2005). Thus, territoriality reflects the social meanings of actions that aim to claim and protect an object that are negotiated in a social context (Brown et al., 2005, p.579).

Therefore, entrepreneurs will be motivated to engage in territorial behaviours if they perceive or anticipate that their proprietary claim to their entrepreneurial vehicle will be challenged. Generally, the threat to an entrepreneur's proprietary claim is minimal because entrepreneurs have legal ownership of their entrepreneurial vehicles. The threat to an entrepreneur's proprietary claim increases when they receive venture capitalist funding because they have to give up considerable equity stakes and control of the board of governors (Hellmann, 1998). In addition, research shows that over time venture capitalists and entrepreneurs are likely to engage in a power struggle over the entrepreneurial vehicle, as they are likely to have conflicting interests (Hamm, 2002; Sahlman, 1990; Sapienza & Gupta, 1994; Wasserman, 2008).

Therefore, entrepreneurs are likely to engage in territorial behaviours in order to maintain control of their entrepreneurial vehicle, when they receive venture funding (Gorman & Sahlman, 1989). It should be noted that maintaining and reclaiming territories have significant cost associated with them, as they are likely to entail competitive tactics and political action (Deutsch, 1973; Eisenhardt & Bourgeois, 1988; Tjosvold, 1998). Engaging in competitive tactics and political action will require that the entrepreneur make investments of time, energy as well as financial resources (Eisenhardt & Bourgeois, 1988).

Entrepreneurs whose ventures are performing poorly are expected to engage in more robust territorial behaviours for three reasons. First, the prospect that an entrepreneur will lose their proprietary claim to venture capitalists is realised in the event that the venture performs poorly. Most investment contracts between entrepreneurs and venture capitalists are structured to give venture capitalists control rights if the new venture does not meet certain financial targets (Burchardt et al., 2016; Hellmann, 1998; Sahlman, 1990). Second, poorly performing entrepreneurs are unlikely to receive a large pay out when they lose control of their

entrepreneurial vehicles and thus are unable to mitigate the pain of losing their entrepreneurial vehicles (Wennberg et al., 2010). Third, entrepreneurs are likely to have the perception that their ability to launch future entrepreneurial endeavours will be curtailed by their current failure because venture capitalists seek entrepreneurs with a good track record (Macmillan et al., 1987; Riquelme & Watson, 2002; Zacharakis & Meyer, 2000).

The preceding discussion indicates that when entrepreneurs face the prospect of losing their propriety claim, they are motivated to revive the fortunes of their venture in order to maintain control of their venture. Psychological ownership will increase entrepreneurs' desire to turn the situation around and defend their proprietary claim their ventures because psychological ownership is an important driver of territoriality (Brown et al., 2005). Since objects that a person develops psychological ownership for are important for the self-definition, losing control of the object will result in the owner's identity being impaired. In order to prevent their identity from impairment, the owner will be motivated to protect their object vehemently.

Hypothesis 4: Negative feedback moderates (second stage) the mediating effect of Territoriality on the relationship between psychological ownership and commitment in the presence of conflict, as well as the direct relationship between psychological ownership and commitment

Summary

Above, I have outlined my arguments on how psychological ownership links project, social and structural determinants of escalation of commitment. Thus, I have articulated how psychological ownership can provide an integrated explanation for entrepreneurial persistence. In the following chapter, I will articulate the research methodology that used to test the hypotheses developed. I will begin this chapter by clarifying why I chose my research method

and detail my analytical approach to test my hypotheses. I will then introduce the participants for my study and I will explain how I ensured the validity of my measures. Finally, I will disclose the scales I used to measure the constructs employed in this study.

Chapter 5: Methodology and analytical procedures

Choice of Research Method

In order to test my hypotheses, I modified and extended the research design used by Staw (1976) to investigate escalation of commitment. I modified the research design in a number of ways in order to adapt the research design to an entrepreneurial setting, as Staw's (1976) investigation aimed at understanding senior managers' tendencies to persist. I extended the research design and incorporated mediated moderation tests in order to capture psychological ownership's indirect effects through project, social and structural factors, as Staw's (1976) study was limited to a simple moderation test. In the next section, I will provide an overview of Staw's (1976) research design and I will describe how I extended and modified the research design.

Staw's 1976 study

In 1976, Staw used a financial case to study the phenomenon of escalation of commitment. Participants of Staw's (1976) study were asked to assume a senior managerial role and to make an investment up to twenty million in any way they see fit in two divisions of a company that was experiencing a decline in sales and earnings over the previous ten years. Staw (1976) manipulated responsibility and negative feedback in order to test their effect on the investment made by the participants. Responsibility was manipulated by allowing half the participants to invest ten million in one of two divisions prior to the twenty million dollar investment. Following the ten million investment, participants were provided additional financial information and were asked to invest the twenty million dollars. Thus, half of the participants made consecutive investment decisions, while the other half only made one decision to invest. Negative feedback was manipulated by providing half the participant's data that showed that the division they invested in had increased revenues and earnings while the other participants were

provided financial information that showed a further decline in performance in their chosen division.

Research design

While Staw's (1976) study employed a laboratory experiment, I will employ a survey research design to test my hypotheses because one of the main criticisms of Staw's (1976) study is that it is artificial and lacks external validity (Sleesman et al., 2012). A survey research design is more appropriate for this study as it captures the phenomenon of psychological ownership and entrepreneurial persistence in its real-life setting. A result of a more naturalistic setting, the results of this study should be more authentic and increase the generalizability of the findings. In addition, I answer the call of Sleesman, Conlon, McNamara and Miles (2012) to study persistence in ways that go beyond traditional lab studies.

Analysis

I intended to conduct a longitudinal study to capture the relationships hypothesized above. A longitudinal research design would have been appropriate in order to investigate how an entrepreneur's commitment to his or her venture changes over time (Singer & Willett, 2003), because the level of commitment is not independent from one period to the next period (Bliese & Ployhart, 2002). Furthermore, a longitudinal study would have been beneficial because it would have captured the change of the actual commitment that entrepreneurs have for their venture.

However, due to a high attrition rate, I did not have enough data points to conduct a longitudinal analysis. As a result, I was forced to conduct a cross sectional analysis on the first wave of data I collected. While, a cross sectional research design is not ideal, Staw's (1976) study on persistence used only one data point when studying escalation of commitment and as a result, I felt comfortable with this approach.

In order to analyze and interpret the results of the mediated moderation, I will follow the procedures outlined by Edwards and Lambert (2007). I will use structural equation models to test the interactions effects outlined in my hypotheses. The benefit of using structural equation models to test for mediated moderation is that it offers higher power in detecting interaction effects (Busemeyer & Jones, 1983) because structural equation models can control for measurement errors and as a result, the estimates produced from structural equation models are more accurate (Bollen, 1989). Specifically, I will use latent moderated structural equations (LMS) (Klein & Moosbrugger, 2000), as this method is superior to other latent interaction methods because it does not violate normality assumptions (Marsh et al., 2004).

Participants

Accelerators

While Staw (1976) collected data from university students, I intended to collect data from early stage entrepreneurs in accelerators or incubators for three reasons. First, as these entrepreneurs are in the very early stages of their entrepreneurial journey the likelihood that these entrepreneurs would encounter adversity is high. Research indicates that 40% of venture capitalist investment fail to provide satisfactory returns (Ruhnka et al., 1992; Smart, 1999) and I expect that accelerator or incubator success rates to be slightly worse or comparable to those of venture capitalists as incubators and accelerators employ less stringent requirements in accepting entrepreneurs and offer less support.

Second, the relationship between entrepreneurs and the accelerators provides an ideal context to examine the effect that psychological ownership has on structural determinants. In accelerators and incubators, entrepreneurs work intensely with mentors and coaches to grow their ventures, set the right objectives and focus on the right priorities. Studies indicate that

entrepreneurs do not always heed the advice they are provided and engage in conflict over the direction of their venture (Grimes, 2018).

Third, in order to ensure that entrepreneurs are meeting their objectives, mentors and coaches provide feedback and evaluations on a bi-weekly basis. In addition, entrepreneurs keep track of their financial goals every quarter. As a result, the performance of the venture will be salient to the entrepreneur and more importantly is likely to be less biased.

In total, I reached out to 40 incubators and accelerators in Canada, representing 30,000 current and alumni entrepreneurs. Out of the 40 incubators and accelerators 4 agreed, representing 9000 current and alumni entrepreneurs, to send out my survey to their entrepreneurs and 37 entrepreneurs responded. As I was not able to recruit a large enough sample of entrepreneurs from accelerators or incubators, I had to expand my participant pool in order to gather enough data to test my hypotheses.

Entrepreneur centers

I first expanded my participant pool by including entrepreneurs who have a relationship with entrepreneur centers. Entrepreneur centers are non-profit organizations that are devoted to helping individuals start, lead and grow their business. These centers provide loans, business skills training, personalized business advice, mentoring, practical business resources and a supportive business community. The aim of these centers is to help business owners gain the skills, mindset, finance and network needed to realize their business potential.

In total, I reached out to 10 entrepreneurial centers in Canada, representing 6,500 entrepreneurs/business owners. One entrepreneurial center agreed to participate in the study, representing 4,300 current and alumni entrepreneurs/business owners. A total of 34 entrepreneurs responded.

Amazon Mechanical Turk

As the response rate was far below what I needed, I expanded my participant pool to Amazon Mechanical Turk (Mturk). Mturk is a marketplace offered by Amazon.com for sellers to find workers willing to perform tasks for pay. Benefits associated with this service is that it provides ready access to a large and diverse pool of potential participants and is often used by scholars in the field of psychology, management and entrepreneurship to recruit research participants (Converse et al., 2012; Forstmann et al., 2012; Zhu et al., 2018). In addition, recent studies have demonstrated the efficacy of using Amazon Mturk and indicated that it is a reliable source of data for research, as participants recruited through Mturk are as reliable as those recruited through traditional means (Buhrmester et al., 2011; Kittur et al., 2008).

Procedure

I garnered participants for my study in the following manner. To enroll participants from accelerators and entrepreneur centers, I built my questionnaire Survey Monkey and sent the survey link to the management teams of accelerators, incubators and entrepreneur centers. The managers then sent the link to their entrepreneurs via email, slack channels and newsletters. I sent the survey to incubators and accelerators two weeks after the third quarter of the financial year (Mid-October) and to entrepreneur centers one month after the third quarter of the financial year (end of October).

This was not an ideal, as I had to rely on intermediaries to recruit participants for my study. Furthermore, I had no way of knowing if the intermediaries actually sent out the survey as they did not send me a copy of emails sent out nor did I have access to their slack channels. As a result, I am not sure how persuasive the invitation to participate was.

To enroll participants from Mturk, I posted a link of my survey on Mturk requesting participation from anyone meeting two criteria. Participants were required to a) own a business

and b) participate in the management of the business. As an incentive, \$2 was provided for completion of the survey. I administered the questionnaire one month and half after the third quarter of the financial year (Mid-November).

Measures

Commitment. As most of the entrepreneurs participating in this study are wealth constrained it is highly unlikely that they will respond to adversity with an infusion of cash investments and as a result, it was important to modify Staw's (1976) measure of commitment for this study. Most studies employ the entrepreneur's choice to exit or to delay exit when they study persistence (Elfenbein et al., 2017; Wennberg et al., 2016; Yamakawa & Cardon, 2017), however this measure does not fully capture the commitment that entrepreneurs devote to their ventures. As a result, I employed a commitment measure that captures not only the intention of the entrepreneur to remain engaged with their venture but also the degree of effort that they were willing to devote to their venture.

Thus, the dependent variable, commitment to the venture was measured by asking the entrepreneurs to respond to adapted commitment measures developed by Gray, Knight and Baer (2019). The measure was adapted by changing idea to company: I am willing to put a great deal of effort to help this company be successful; This company really inspires the best in me; I really care about the fate of this company, and; I intend to continue working on this company. This was measured on a seven point Likert scale where 1= strongly disagree and 7= strongly agree. The measure had an alpha of 0.81.

Psychological ownership was measured by adapting the psychological ownership measure developed Van Dyne and Pierce (2004) . The measure was adapted by switching job for company. The items included: This is my company; I feel a very high degree of personal ownership for this company; I sense that this is my company and; It is easy for me to think about

this company as mine. The items were measured on a seven point Likert scale where 1 = strongly disagree and 7 = strongly agree. The measure had an alpha of 0.85

Collective Psychological Ownership for the company was measured by adapting the collective psychological ownership measure developed by Pierce, Jussila, and Li (2018) . I adapted the measure by substituting company for job. The items included: We (my team members and I) collectively agree that this is our company; We (my team members and I) collectively feel that this company belongs to us together; We (my team members and I) feel a very high degree of collective (team) ownership for this company, and ;All of the members of my work team feel as though we own this company collectively. The items were measured on a seven point Likert scale where 1 = strongly disagree and 7 = strongly agree. These items had an alpha of 0.81.

Probability of Goal attainment participants were asked to provide their estimation to the extent that the company will be successful: “How likely is it that this company will be successful”. These items were measured on a seven point Likert scale where 1 is very unlikely and 7 very likely.

Value of Goal Attainment participants were asked how valuable it was to them that they develop a successful company: “How valuable is the success of this company to you”? This item was measured on a five point Likert scale where 1= not at all valuable to 5= extremely valuable.

Territorial Attitude was measured on a four item measurement scale that was developed by (Peng, 2013). Territorial attitude was measured by asking participants: I feel I need to protect my ideas from being used by others; I feel that people should bit use my information and ideas without my permission; I feel that I need to protect my knowledge from being used by others; I feel I have to tell people not to use the information, ideas and know-how that are mine. These

items were measured on a seven point Likert scale where 1= strongly disagree and 7= strongly agree. These items had an alpha of 0.71

Negative Performance. Most new ventures are not profitable for the first few years and as a result, most new ventures do not have positive returned earnings. In addition, most entrepreneurs are reluctant to provide objective financial information (Wood & Rowe, 2011) Thus, it was important to modify Staw's (1976) measure of negative performance and identify a measure of performance that did not depend on the returns of the venture. Consequently, I measured the performance of the venture based on how well it performed against the expectations of the entrepreneur.

Negative performance was measured by asking: "How did the venture perform versus what was expected over the last 18 months" (Zhu et al., 2018). These items were measured on a five point Likert scale where 1= much worse and 5= much better.

Conflict was measured by three items that were adapted from Gray, Knight and Baer (2019). The measure was adapted by replacing idea with company. Participants were asked to respond to the following questions. How much tension is there about who owns the company; how often do people have disagreements about who controls the company, and; how much conflict is there about to whom the company belongs. These items were measured on a five point Likert scale where 1= none at all and 5= a great deal. These items had an alpha of 0.91

Validity of survey measures.

To examine the validity of my measures, I followed the multi-step process outlined by Churchill (1979). I began by assessing the quality of the instruments by measuring the internal consistency of the scale items by testing the coefficient alpha of the measure. If the coefficient alpha is low (below 0.7), then items that correlate at less than 0.4 with all other variables will be deleted from the analysis (Kim & Mueller, 1978). If the coefficient alpha remains low after

removing low inter item correlations, then the construct will be dropped from the study altogether.

If a measure survived the coefficient alpha test, I then conducted a factor analysis on the measures to identify the number of dimensions underlying the construct. I will retain only those items that clearly load on a single factor to insure that the measures are unidimensional. I will use the .40 criterion level in order to judge if the factor loadings are meaningful (Ford et al., 1986). In addition, I checked if the percentage of total item variance that I explained is larger than 60% (Hinkin, 1998).

Finally, I assessed the quality of the measures by assessing the factor structure of my measurement model using confirmatory factor analysis. I assessed the quality of the factor structure by statistically testing the significance of the overall model and of item loading on factors. When fitting the measurement model survey items will be loaded on their expected underlying factors and all factors will be allowed to covary with one another. This will ensure that the multiple-indicator measurement model has external consistency (J. C. Anderson & Gerbing, 1988).

Chapter 6: Results

Descriptive statistics

In total 229 entrepreneurs responded to my survey. Of the 229 entrepreneurs, 87 were women and 142 were male. The average age of entrepreneurs was 35 years old and they had on average 7.5 years of entrepreneurial experience. The entrepreneurs were fairly well educated and most had attained a four-year college education (67%). Most entrepreneurs were married (55%) or were single (27%). Fifty four percent of the participants had one parent that was an entrepreneur. Finally, the average venture employed 92 people.

An analysis of the demographic characteristics shows that entrepreneurs from accelerators and centers shared similar profiles but were significantly different from Mturk participants. As shown in table 1, Mturk participants were generally male, younger, managed bigger ventures and were less likely to have entrepreneurs as parents. Entrepreneurs from entrepreneur centers were generally older, had the most extensive entrepreneurial experience and had more female entrepreneurs compared to the other participants. Participants from accelerators were generally likely to be the most educated and have a parent that was an entrepreneur.

Table 1 Demographic composition by data site

	Accelerator		Center		Mturk	
	mean	S.D	mean	S.D	mean	S.D
Age	39.86	10.38	49.4	12.29	30.81	7.02
Gen	1.68	0.474	1.03	0.177	1.72	0.449
education	6.11	1.09	5.31	1.28	5.61	1.2
Size	7.41	10.4	4.47	7.98	61.2	79.9
Experience- years	11.2	10.3	11.3	11.1	6	6.05
Experience-extent	2.92	1.34	3.84	1.14	2.75	1.32
Alternative opportunity	5.11	2.07	4.78	2.3	5.21	1.5
Parent	1.7	0.463	1.59	0.499	1.38	0.487

Participants had elevated scores on most of the key variables and indicated they had high levels of commitment, psychological ownership, subjective expected utility, and collective psychological ownership. Interestingly, entrepreneurs did not rate themselves as having territorial attitudes and indicated that conflict was not prevalent in their ventures. As a result, most of the indicator variables were skewed to the right. To normalize the data I raised the raw scores exponentially. I applied this treatment to the scores of all commitment, psychological ownership, expected utility, performance and collective psychological ownership scores. In addition, I transformed two territoriality scores in this manner. The resulting descriptive statistics are presented in table 2

Table 2 Descriptive Statistics of dependent and independent variables

	Mean	S.D	Min	Max
Commitment				
Comm1	7.11	4.14	0.027	10.97
Comm2	5.89	4.14	0.027	10.97
Comm3	6.78	4.21	0.027	10.97
Comm4	6.51	4.12	0.027	10.97
Psychological Ownership				
PO-1	7.09	4.25	0.027	10.97
PO-2	6.64	4.17	0.027	10.97
PO-3	6.74	4.23	0.027	10.97
PO-4	6.62	4.21	0.027	10.97
Expected utility 1- probability of success	5.36	4.15	0.027	10.97
Expected utility 2- value of success	6.69	4.04	0.546	10.97
Collective psychological ownership				
cpo1	4.53	4.06	0.027	10.97
cpo2	4.55	4.00	0.027	10.97
cpo3	4.17	3.64	0.027	10.97
cpo4	3.79	3.80	0.027	10.97
Territoriality				
terr1	4.88	1.65	1	7
terr2	4.39	3.94	0.027	10.97
terr3	3.35	3.71	0.027	10.97
terr4	4.52	1.88	1	7

Negative performance	15.33	3.10	10	22.36
Conflict				
con1	2.32	1.41	1	5
con2	2.34	1.43	1	5
con3	2.46	1.52	1	5

The descriptive statistics (table 3) indicates that entrepreneurs from accelerators and entrepreneur centers had similar profiles, while participants from Mturk were notably different. Respondents from Mturk had lower mean scores on all but territoriality, conflict and performance measures when compared to the other participants.

Table 3 descriptive statistics of dependent and independent variables by source

	Accelerator		Center		Murk	
	Means	S.D	Means	S.D	Means	S.D
Commitment						
Comm1	9.28	3.23	8.95	3.45	6.26	4.17
Comm2	7.45	4.33	8.08	3.93	5.13	4.02
Comm3	9.67	2.98	8.77	3.47	5.73	4.06
Comm4	8.57	3.76	8.73	3.89	5.61	3.94
Psychological Ownership						
PO-1	8.38	3.89	8.78	3.61	6.45	4.32
PO-2	8.73	3.56	9.07	3.38	5.65	4.10
PO-3	8.35	3.67	9.32	3.54	5.83	4.20
PO-4	8.54	3.62	9.38	3.35	5.64	4.11
Expected utility-probability of success	6.76	4.33	7.53	4.36	4.57	3.86
Expected utility-value of success	7.06	3.94	8.61	3.62	6.22	4.05
Collective psychological ownership						
cpo1	5.40	4.41	4.00	4.31	4.42	3.94
cpo2	5.00	4.40	4.01	4.31	4.55	3.86
cpo3	3.61	3.65	4.15	4.23	4.30	3.53
cpo4	3.27	3.74	3.45	3.99	3.98	3.80
Territoriality						
terr1	4.08	1.81	4.13	1.78	5.19	1.49
terr2	3.18	3.84	4.48	4.28	4.65	3.88

terr3	1.77	2.66	1.78	2.81	3.99	3.89
terr4	3.36	1.84	3.33	1.83	5.01	1.69
Negative performance	16.69	3.29	16.37	3.21	14.81	2.92
Conflict						
con1	1.43	0.867	1.16	0.448	2.49	1.42
con2	1.46	0.869	1.25	0.803	2.52	1.46
con3	1.32	0.669	1.22	0.659	2.67	1.55

The different profiles and scores of the participants garnered from the different data sites indicates that it might not be ideal to combine the data. An analysis conducted on means of the key constructs indicates that Mturk participants were significantly different from the other participants (table 4). In addition, the analysis revealed that participants from incubators and centers were significantly different in their perception of the value of attaining their goal. However, I did not want to throw out valuable information from entrepreneurs in accelerators and entrepreneur centers that would reflect older, more experienced and female entrepreneurs. Thus, while the situation is not ideal, I decided to incorporate all the data into the study.

Table 4 Analysis of means for different samples

	Incubator- Center			Mturk- Incubator			Mturk- Center		
	Mean	S.E.	P value	Mean	S.E.	P value	Mean	S.E.	P value
Commitment	-0.059	0.110	0.295	-3.360	0.553	0.000	-2.967	0.615	0.000
Psychological ownership	0.678	0.687	0.324	-2.440	0.571	0.000	-3.010	0.573	0.000
Probability of goal attainment	-0.771	1.048	0.463	-2.190	0.722	0.000	-2.965	0.766	0.000
Value of goal attainment	-1.549	0.916	0.048	-0.846	0.735	0.125	-2.395	0.771	0.001
Collective psychological ownership	-0.315	0.943	0.738	-0.390	0.643	0.603	0.465	0.734	0.527
Territoriality	0.106	0.410	0.797	1.320	0.291	0.000	1.244	0.322	0.000
Negative performance	0.319	0.785	0.343	-1.880	0.546	0.000	-1.562	0.575	0.004
Conflict	-0.454	0.770	0.555	1.462	0.161	0.000	0.882	0.144	0.000

The pairwise correlation of the dependent and independent variables (table 5) reveal some notable relationships. As expected commitment, psychological ownership, expected utility and collective psychological ownership are all positively and significantly related to each other. In addition, as expected conflict was negatively and significantly related to commitment as expected. Interestingly, negative performance and territoriality were not significantly related to commitment.

Table 5 pairwise correlation of dependent and independent variables

	Commitment	Psychological Ownership	Probability	Success	Collective psychological ownership	Territoriality	Negative performance	Conflict
Commitment	1							
Psychological Ownership	0.654**	1						
Probability	0.484**	0.380**	1					
Success	0.582**	0.458**	0.286**	1				
Collective psychological ownership	0.204**	0.256**	0.231**	0.155*	1			
Territoriality	-0.0381	-0.0932	0.0593	0.0466	0.138*	1		
Negative performance	-0.101	0.0135	-0.198*	-0.0463	-0.161*	-0.283**	1	
Conflict	-0.451**	-0.473**	-0.0796	-0.316**	0.0929	0.443**	-0.331**	1

* p < .05; ** p < .01

Hypothesis Testing

Hypothesis 1

Hypothesis 1 predicted that negative performance moderates the relationship between psychological ownership and commitment. In order to test this hypothesis I conducted a simple moderation test. I first ran a baseline model that included all the variables in question but did not include the interaction terms (Table 1). Overall the structural model provided an excellent fit to

the data ($\chi^2 = 24$, D.F. = 25, RMSEA=0.000, CFI=1, TLI=1) and the model explained 66% of the variance of commitment.

Table 6 Psychological Ownership and Negative Performance on Commitment

commitment	Estimate	P value
Psychological Ownership	0.878	0.000
Negative Performance	-0.116	0.042
R ²	0.658	0.000

N= 229, all coefficients are unstandardized

I then ran a model that included the interaction term. As shown in table 7 psychological ownership is positively related to commitment and this relationship is significant ($\beta = .855$, $p = 0.002$) and the relationship between negative performance and commitment is negative and significant ($\beta = -0.116$, $p = 0.045$). The interaction between psychological ownership and performance was positive, however it was not significant ($\beta = 0.002$, $p = 0.930$).

Table 7: Interaction of Psychological Ownership and Negative Feedback on Commitment

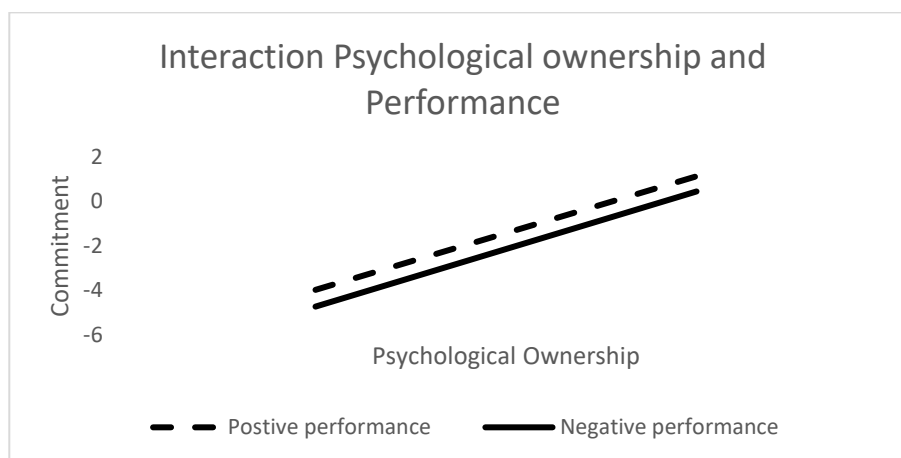
Commitment	Estimate	P value
Psychological Ownership	0.855	0.002
Negative Performance	-0.116	0.045
PO * NP	0.002	0.930
R ²	0.658	0.000

N= 229, all coefficients are unstandardized

Notwithstanding the insignificant interaction between psychological ownership and performance, the results do suggest that an increase in psychological ownership leads to entrepreneurial persistence. The results indicate that an increase in psychological ownership will result in higher commitment levels when controlling for the performance of the venture (figure

1). However, the results indicate that commitment levels are higher when the performance of the venture is positive, which suggests that psychological ownership does not increase commitment when the performance of the venture is poor.

Figure 1 Simple Slopes of Interaction between Performance and Psychological ownership on Commitment



Hypothesis 2a

Hypothesis 2a predicted that probability of goal attainment mediates the relationship between psychological ownership and commitment and that negative performance moderates this relationship. In order to test this hypothesis I conducted a mediated moderation test. I first ran a baseline model that included all the variables in question but omitted the interaction terms (table 8). Overall, the structural model provided a very good fit to the data ($\chi^2 = 47$, D.F. = 32, RMSEA=0.046, CFI=0.983, TLI=0.976) and the model explained 59% of the variance for commitment and 19% of expected utility.

Table 8 Mediation of Psychological Ownership on Commitment by Expected Utility

	Probability of goal attainment		Commitment	
	Estimate	P value	Estimate	P value
Psychological Ownership	0.618	0.000	0.760	0.001
Expected Utility			0.165	0.001
Negative performance			-0.067	0.215
	R ² = 0.19, p=0.000		R ² = 0.69, p=0.000	

N= 229, all coefficients are unstandardized

I then ran a model that included the interaction terms. As shown in table 9 psychological ownership is positively and significantly related to expected utility ($\beta=.571$, $p=0.000$) and commitment ($\beta=1.22$, $p=0.001$). Probability of goal attainment had a negative relationship with commitment but this relationship was not significant ($\beta=-0.383$, $p=0.166$). The interaction between psychological ownership and performance was negative and is insignificant ($\beta=-0.383$, $p=0.166$). The interaction between probability of goal attainment and negative performance is positive and significant ($\beta=0.036$, $p=0.041$). In addition, the model increased the explanatory power of the model by 8% to 77%.

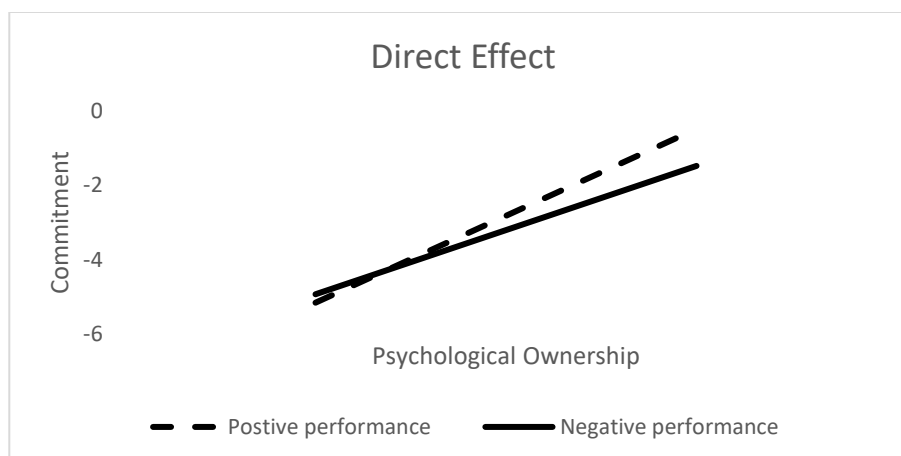
Table 9: Mediation of psychological ownership on commitment by expected utility being moderated by negative feedback

	Probability of goal attainment		Commitment	
	Estimate	P value	Estimate	P value
Psychological Ownership	0.571	0.000	1.221	0.001
Expected Utility			-0.383	0.166
PO*NP			-0.034	0.138
EU*NP			0.036	0.041
Negative performance			-0.255	0.026
	R ² = 0.18, p=0.000		R ² = 0.77, p=0.000	

N= 229, all coefficients are unstandardized

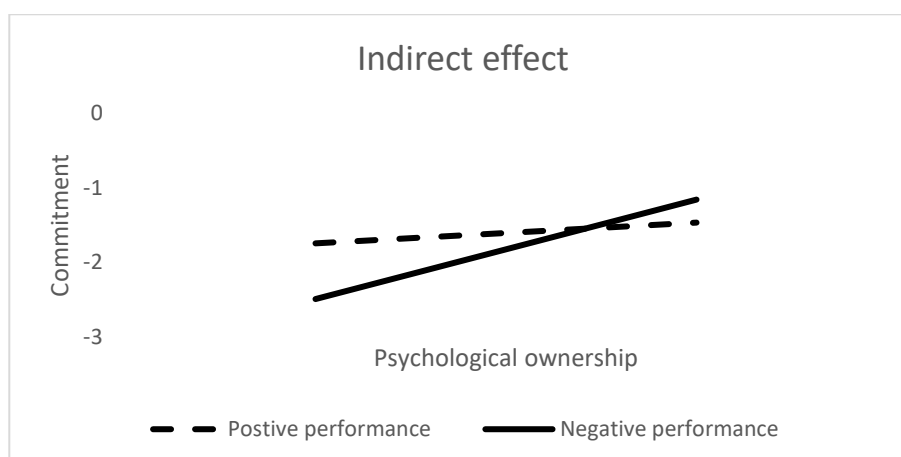
The results show that psychological ownership is positively related to commitment. However, when the venture's performance is positive the relationship between psychological ownership and commitment is slightly stronger (figure 2), as the slope for commitment is steeper when the venture's performance is positive. Thus, the results indicate that the direct effect of psychological ownership leads to persistence, but does not indicate that negative performance moderates the direct relationship between psychological ownership and commitment.

Figure 2 Simple slope of the Direct effect Psychological Ownership on Commitment



However, the results indicate that negative feedback moderates the indirect effect of psychological ownership on commitment (figure 3). The results indicate that when entrepreneurs perceive that they are likely to be successful they increase their commitment to their ventures. Furthermore, the results indicate that the relationship between probability of goal attainment and commitment increases when the venture performs poorly, as the slope for commitment is steeper for entrepreneurs that are underperforming.

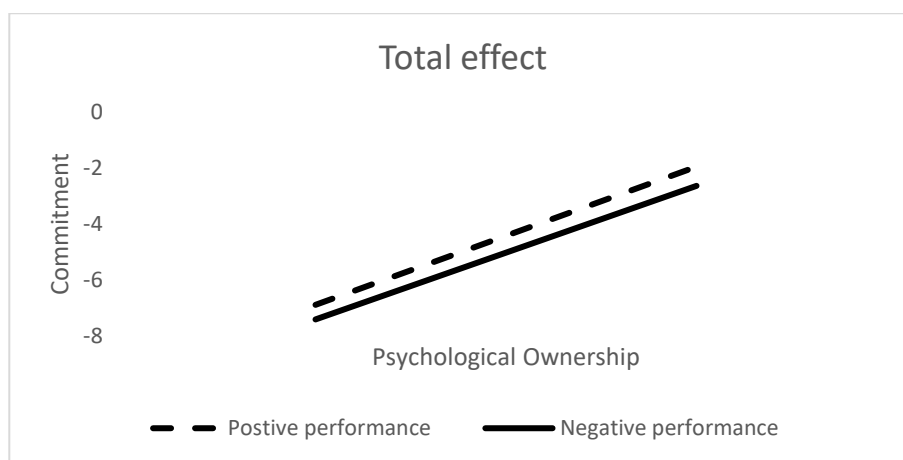
Figure 3 Simple Slope of the indirect effect of Psychological ownership on Commitment



The results of the total effect show that psychological ownership is positively related to commitment when controlling for probability of goal attainment and performance. In addition,

the results indicate that psychological ownership predicts entrepreneurial persistence, as entrepreneurs remain highly committed when the venture’s performance is negative. However, the results do not indicate that entrepreneurs that underperform will be more committed to their ventures, as the results indicate that commitment is on a higher plane when the venture’s performance is positive (figure 4).

Figure 4 Simple Slope of the Total Effect of Psychological Ownership on Commitment



Hypothesis 2b

Hypothesis 2b predicted that the value of goal attainment mediates the relationship between psychological ownership and commitment and that negative feedback moderates this relationship. In order to test the hypothesis, I first ran a baseline model that included all variables except for the interaction terms (Table 10). Overall the structural model provided an excellent fit to the data ($\chi^2 = 27$, D.F. = 32, RMSEA=0.000, CFI=1, TLI=1) and the model explained 37% of the variance of commitment and 25% of the variance of expected utility.

Table 10 Results of Structural Equation Modeling: Mediation of Psychological Ownership on Commitment by Expected Utility

Value of goal attainment		Commitment	
Estimate	P value	Estimate	P value

Psychological Ownership	0.499	0.000	0.638	0.000
Expected Utility			0.328	0.016
Negative performance			-0.096	0.056
	R ² = 0.25, p=0.000		R ² = 0.38, p=0.000	

N= 229, all coefficients are unstandardized

I then ran a model that included the interaction term. As shown in table 11 psychological ownership is positively and significantly related to expected utility ($\beta=.635$, $p=0.000$), and commitment ($\beta=.967$, $p=0.003$). Value of goal attainment is negatively related to commitment but not significantly ($\beta=-0.196$, $p=0.488$). The interaction between psychological ownership and performance is negative and is insignificant ($\beta=-0.022$, $p=0.279$). The interaction between expected utility and negative performance is positive and significant at the 10% level ($\beta=.031$, $p=0.073$). In addition, the explanatory power of the model increased by 2%.

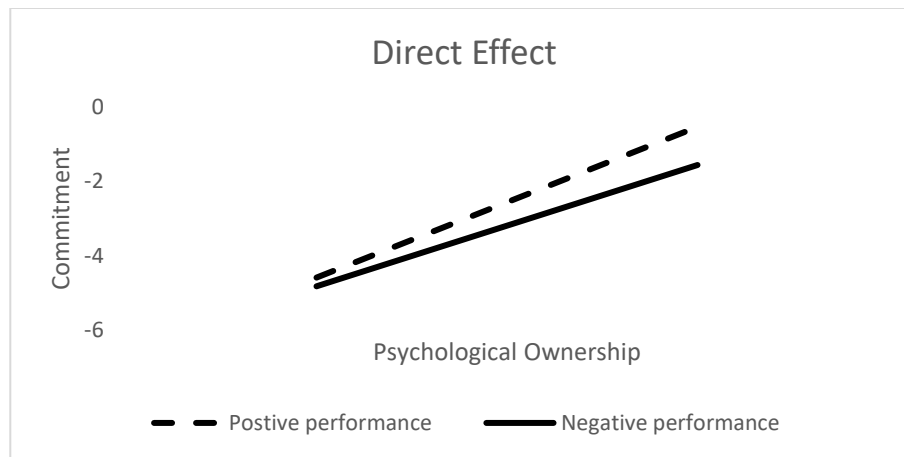
Table 11 Results of structural equation modeling: Mediation of psychological ownership on commitment by expected utility being moderated by negative feedback

	Value of goal attainment		Commitment	
	Estimate	P value	Estimate	P value
Psychological Ownership	0.635	0.000	0.967	0.003
Expected Utility			-0.196	0.448
PO*NP			-0.022	0.279
EU*NP			0.031	0.073
Negative performance			-0.309	0.023
	R ² = 0.24, p=0.000		R ² = 0.72, p=0.000	

N= 229, all coefficients are unstandardized

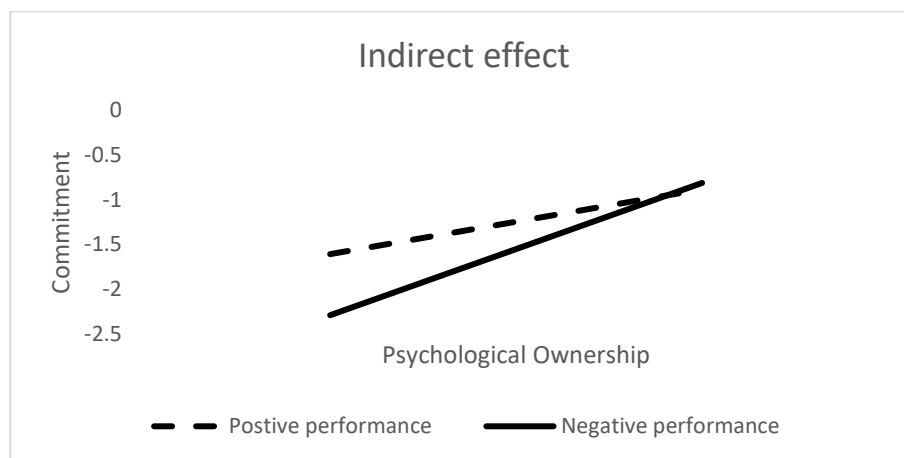
The results indicate that the direct effect of psychological ownership on commitment is stronger when the venture's performance is better than expected (figure 5), as the slope for commitment is much steeper. This suggests that as psychological ownership increases entrepreneurs whose ventures are performing well will increase their commitment levels more than entrepreneurs who are struggling. Thus, the effect of psychological ownership on commitment is weaker when the venture performs poorly.

Figure 5 Simple slope of the Direct effect Psychological Ownership on Commitment



The results indicate that the indirect effect of psychological ownership on commitment is stronger for entrepreneurs whose venture are doing poorly (figure 6). The results show that when entrepreneurs believe the value of goal attainment is high, they increase their commitment to their ventures. Furthermore, the relationship between value of goal attainment and commitment is stronger for entrepreneurs whose ventures are underperforming.

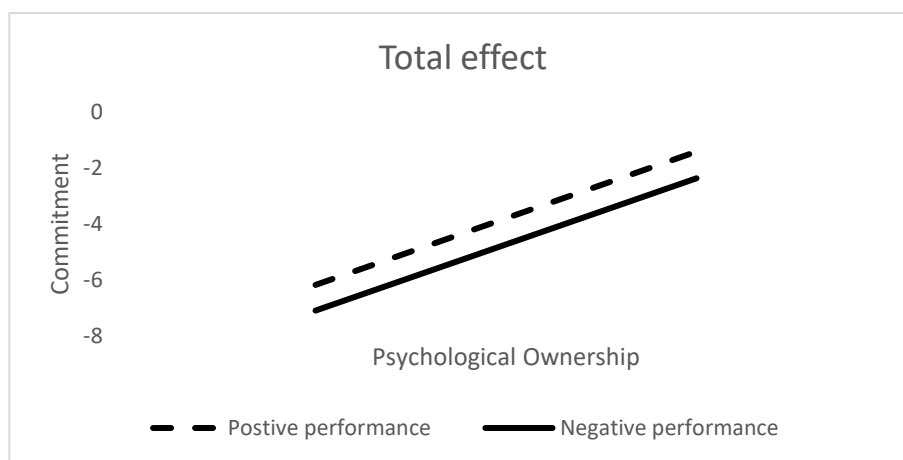
Figure 6 Simple Slope of the indirect effect of Psychological ownership on Commitment



The total effect of psychological ownership on commitment suggests that psychological ownership predicts entrepreneurial persistence, as entrepreneurs remain highly committed even

when the venture performs poorly (figure 7). However, the results do not indicate that entrepreneurs that underperform will be more committed to their ventures, as the results indicate that commitment is on a higher plane when the venture's performance is positive.

Figure 7 Simple Slope of the Total Effect of Psychological Ownership on Commitment



Hypothesis 3

Hypothesis 3 predicted that collective psychological ownership mediates the relationship between psychological ownership and commitment and that negative performance moderates this relationship. In order to test the hypothesis, I first ran a baseline model that included all the independent variables but not the interaction terms (Table 12). Overall the structural model provided a very good fit to the data ($\chi^2 = 85$, D.F. = 61, RMSEA=0.041, CFI=0.979, TLI=0.974) and the model explained 62% of the variance of commitment and 9%.

Table 12 Mediation of the relationship between psychological ownership and Commitment by Collective Psychological Ownership

	Collective Psychological Ownership		Commitment	
	Estimate	P value	Estimate	P value
Psychological ownership	0.293	0.000	0.868	0.000
Collective psychological ownership			0.004	0.956
Negative Performance			-0.109	0.059

$R^2 = 0.090, p = 0.044$	$R^2 = 0.620, p = 0.000$
N = 229, all coefficients are unstandardized	

I then ran a model that included the interaction term. As shown in table 13, psychological ownership is positively and significantly related to commitment ($\beta = 1.049, p = 0.001$), and collective psychological ownership ($\beta = .294, p = 0.000$). Collective psychological ownership is negatively related to commitment and is significant at the 10% ($\beta = -0.700, P = 0.06$). The interaction term psychological ownership and negative performance is negative but insignificant ($\beta = -.0012, p = .547$) and the interaction term collective psychological ownership and negative performance is positive and is significant at 10% ($\beta = .046, p = 0.072$).

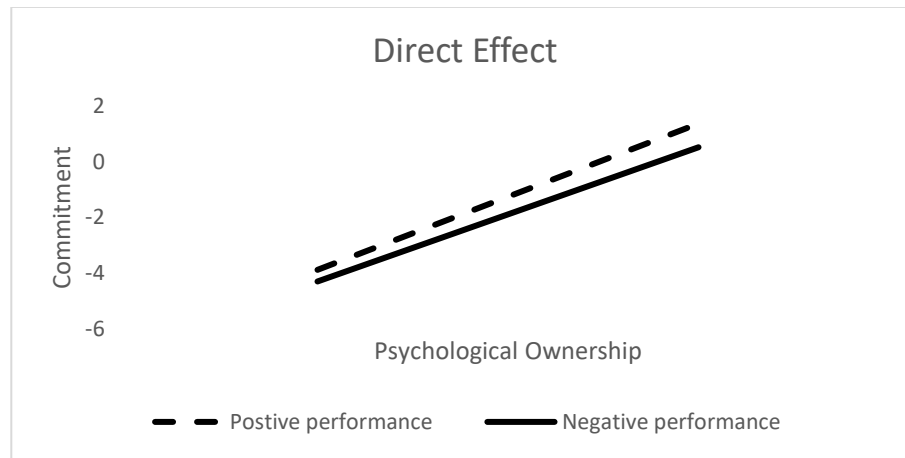
Table 13 Mediation of the relationship between Psychological Ownership and Commitment by Collective Psychological Ownership moderated by Negative Feedback

	Collective Psychological Ownership		Commitment	
	Estimate	P value	Estimate	P value
Psychological Ownership	0.294	0.000	1.049	0.001
Collective psychological ownership			-0.700	0.060
PO*NP			-0.012	0.547
CPO*NP			0.046	0.072
Negative performance			-0.102	0.03
	$R^2 = 0.09, p = 0.047$		$R^2 = 0.66, p = 0.000$	

N = 229, all coefficients are unstandardized

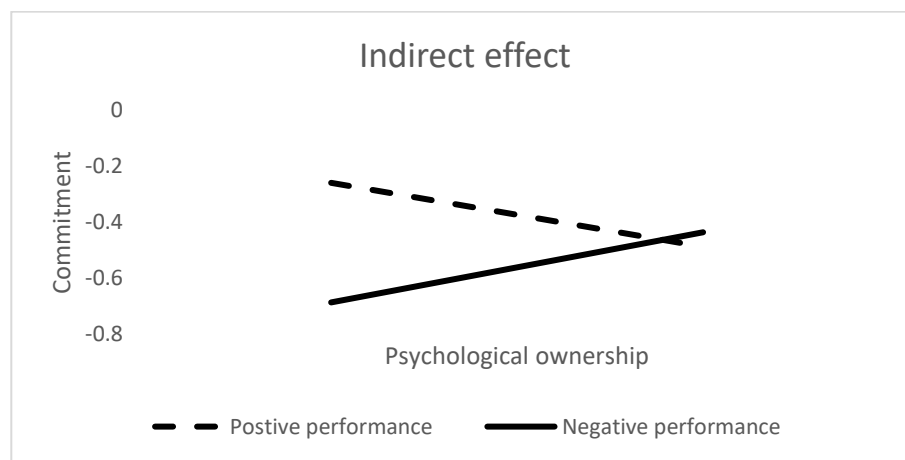
The results show that the direct effect of psychological ownership on commitment is slightly more pronounced when the venture has positive performance (figure 8), as the slope is steeper. However, the results indicate that when the venture's performance is negative the relationship between psychological ownership and commitment is positive, which suggests that entrepreneurs will persist due to psychological ownership.

Figure 8 Simple Slope of the Direct effect Psychological Ownership on Commitment



The results indicate that the indirect effect of psychological ownership leads to higher commitment when the venture is underperforming (figure 9). The results show that when collective psychological ownership increases within an entrepreneurial team the commitment shown by entrepreneurs experiencing negative feedback is steeper than when entrepreneurs experience positive feedback.

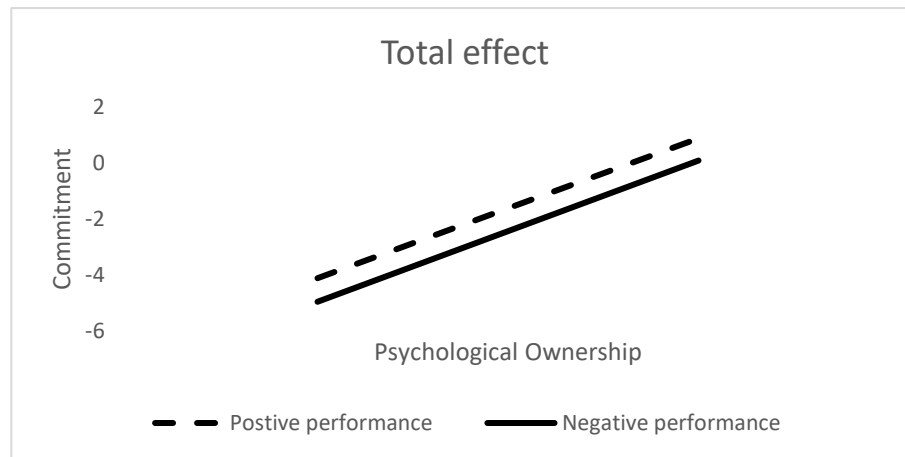
Figure 9 Simple Slope of the Indirect effect Psychological Ownership on Commitment



The total effect of psychological ownership on commitment suggests that psychological ownership predicts entrepreneurial persistence, as entrepreneurs remain highly committed even

when the venture performs poorly (figure 10). However, the results do not indicate that entrepreneurs that underperform will be more committed to their ventures, as the results indicate that commitment is on a higher plane when the venture's performance is positive

Figure 10 Simple Slope of the Total effect Psychological Ownership on Commitment



Hypothesis 4

Hypothesis 4 predicted that territoriality, in the presence of conflict, mediates the relationship between psychological ownership and commitment and that negative feedback moderates this relationship. In order to test the hypothesis, I first ran a baseline model that included all the independent variables but did not include the interaction terms (Table 14). Overall the structural model provided an adequate fit to the data ($\chi^2 = 223$, D.F. = 97, RMSEA=0.076, CFI=0.930, TLI=0.914) and the model explained 70% of the variance of commitment and 33% of territoriality.

Table 14 Mediation of the relationship between Psychological Ownership and Commitment by territoriality

	Territoriality		Commitment	
	Estimate	P value	Estimate	P value
Psychological ownership	0.114	0.010	0.703	0.000
Territoriality			0.262	0.136
Negative Performance			-0.193	0.001

Conflict	0.700	0.000	-0.719	0.001
	R ² =0.326, p= 0.000		R ² =0.704, p= 0.000	

N= 229, all coefficients are unstandardized

I then ran a model that included the interaction terms. As shown in table 15 psychological ownership is positively and significantly related to commitment ($\beta=.670$, $p=0.000$), and territoriality ($\beta=.114$, $p=0.012$). Territoriality is negatively related to commitment but is not significant ($\beta=-0.696$, $p=0.179$). The interaction term psychological ownership and negative performance is positive but insignificant ($\beta= 0.002$, $p= 0.889$) and the interaction term territoriality and negative performance is positive at 10% ($\beta= 0.062$, $p=0.081$).

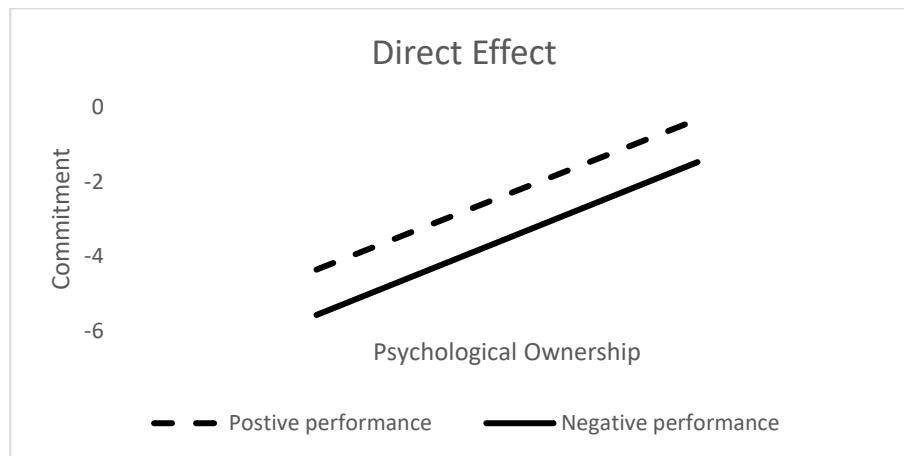
Table 15 Mediation of relationship between psychological ownership and commitment by Territoriality moderated by Negative Feedback

	Territoriality		Commitment	
	Estimate	P value	Estimate	P value
Psychological Ownership	0.114	0.012	0.670	0.008
Territoriality			-0.696	0.179
PO*NP			0.002	0.889
TER*NP			0.062	0.081
Negative performance			-0.191	0.001
Conflict	0.700	0.000	-0.889	0.002
	R ² =0.31, p= 0.000		R ² =0.71, p= 0.000	

N= 229, all coefficients are unstandardized

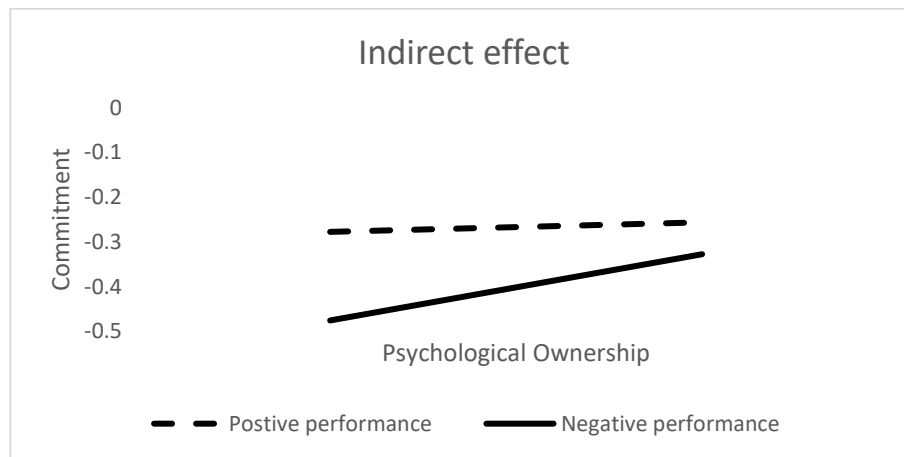
The results show that the direct effect of psychological ownership on commitment is slightly more pronounced when the venture has positive performance (figure 11), as the slope is on a higher plane. However, the results indicate that when the venture's performance is negative the relationship between psychological ownership and commitment is positive, which suggests that entrepreneurs will persist due to psychological ownership.

Figure 11 Simple Slope of the Direct effect of psychological ownership on Commitment



The results indicate that the indirect effect of psychological ownership on commitment is stronger when the venture underperforms, as the slope for commitment is steeper when performance is negative (figure 12). Thus, the results indicate that the effect of territoriality on commitment is stronger when the venture is underperforming. However, the results indicate that commitment is higher when the venture performs well because the slope is on a higher plane.

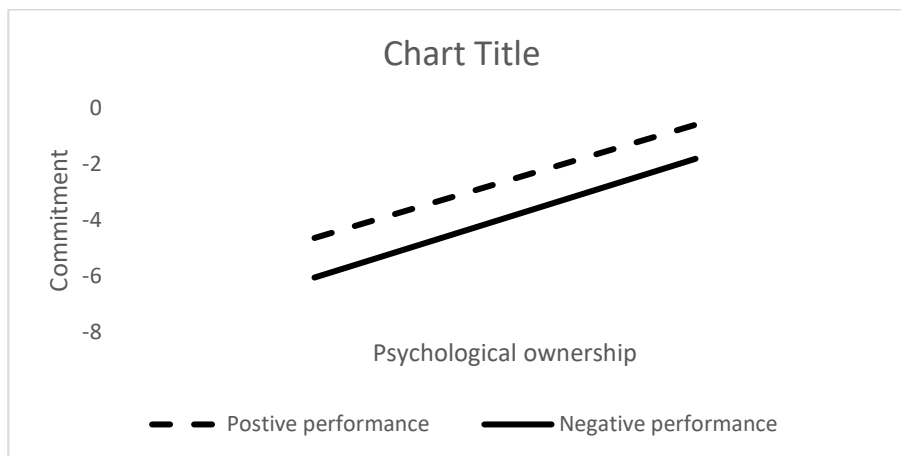
Figure 12 Simple Slope of the indirect effect of psychological ownership on Commitment



The total effect of psychological ownership on commitment suggests that psychological ownership predicts entrepreneurial persistence, as entrepreneurs remain highly committed even when the venture performs poorly (figure 13). However, the results do not indicate that

entrepreneurs that underperform will be more committed to their ventures, as the results indicate that commitment is on a higher plane when the venture's performance is positive

Figure 13 Simple Slope of the Total effect of Psychological Ownership on Commitment



Summary

Overall, the results of this study indicate that entrepreneurs are likely to persist with their underperforming ventures due to psychological ownership. Thus, the main finding is that entrepreneurs with high psychological ownership are likely to remain committed to their venture when controlling for performance. However, it is worth noting that all the hypotheses are rejected. It is to be recalled that all the hypotheses developed suggested that overall commitment would increase following negative feedback but the results of the total effects do not show an increase in commitment following negative feedback. Thus, the results indicate that psychological ownership motivates entrepreneurs to persist but it does not lead to an increase in commitment following adversity.

While the findings are tentative, the results indicate that the indirect effects of psychological ownership does motivate entrepreneurs to increase their commitment following negative feedback. The results indicate that probability of success, value of goal attainment, collective psychological ownership, and territoriality are factors that lead entrepreneurs to

increase their commitment following negative feedback. Furthermore, the results indicate that the direct effect of psychological ownership generally tempers the pressure to increase commitment following negative feedback.

In the next chapter, I will discuss how the results of this study influences our current understanding of entrepreneurial persistence. I will comment on how the results of this study effects current theories on entrepreneurship and its implications on practise. In addition, I will provide a critique on my study and present recommendations on how to improve this study. Finally, I offer a recent agenda to improve our understanding of entrepreneurial persistence.

Chapter 7: Discussion

I had aspired to fundamentally change how we understand entrepreneurial persistence. I was unsuccessful in this regard and this study comes agonisingly close to providing empirical evidence to establish psychological ownership as the missing link that binds the different determinants of entrepreneurial persistence. While there is tentative evidence to suggest that psychological ownership can link the four determinants of entrepreneurial persistence, the relationships are not significant at the desired confidence intervals.

Thus, the main finding of this study is that when entrepreneurs develop psychological ownership for their entrepreneurial vehicle they are likely to remain committed even when they encounter adversity. This finding suggests that persistence may be a natural phenomenon that flows from the natural bond that develops between an entrepreneur and their creation. The bond that develops is likely to motivate entrepreneurs to nurture, protect and advance their entrepreneurial vehicle, even if it comes at some cost to the entrepreneur. Thus, persistence may be the result of entrepreneurs sacrificing a part of themselves for their entrepreneurial vehicles, rather than a syndrome of decision errors that results from irrationality (sunk cost fallacy), hubris (invulnerability effect), or the delusional attempts to protect the self-image (self-justification effect).

The willingness for entrepreneurs to sacrifice a part of themselves for their entrepreneurial vehicles can be beneficial and can aide entrepreneurs overcoming the adversity and challenges that they encounter (Aldrich & Baker, 2001; Aldrich & Fiol, 1994; Battilana et al., 2009; Beckert, 2010; Fligstein & McAdam, 2011; Gurses & Ozcan, 2015; Hoffman, 1999; Lawrence, 1999; Santos & Eisenhardt, 2009). In other words, psychological ownership can improve our understanding of why some entrepreneurs are better able to exploit the opportunities

that they discover. Thus, psychological ownership can provide one possible answer to the fundamental question why some people and not others exploit opportunities (Shane & Venkataraman, 2000). On the other hand, the willingness of entrepreneurs to sacrifice themselves for their entrepreneurial vehicles can also partly explain the excess entry of entrepreneurial ventures in the presence of suboptimal returns (Caves, 1998; Geroski, 1995). In other words, psychological ownership can compel entrepreneurs to persist beyond what is reasonable. Thus, psychological ownership can lead entrepreneurs to success or ruin.

Another finding of this study is that negative feedback has an inverse relationship with commitment and that entrepreneurs are more committed to their ventures when they perform positively. This finding is important because it is in sharp contrast to Staw's (1976) finding that negative feedback increases commitment. This difference can be partly attributed to entrepreneurs intuitively adhering to general economic and expectancy principles and as a result are less susceptible to bias decision making than managers or students (Burmeister & Schade, 2007; Elfenbein et al., 2017; Sandri et al., 2010). Alternatively, the inverse relationship between commitment and negative performance can be explained by temporal differences between this study and Staw's (1976) study. Studies have shown that overtime negative feedback generally decreases commitment (Staw & Fox, 1977). Staw's (1976) study effectively captures the initial reaction to negative feedback, while this study captured the effect of negative information over an 18 month period.

Another important finding of this study was that the interaction between psychological ownership and negative feedback was insignificant. One possible explanation for this finding is that entrepreneurs have lower levels of loss aversion when compared to managers (Koudstaal, Sloof, & Van Praag's, 2016). As entrepreneurs have lower levels of loss aversion, the impairment

of their self-concept will be less severe following negative feedback and as a result, the pressure to restore the self-concept will be attenuated for entrepreneurs. Thus, entrepreneurs may not be compelled to increase commitment following a setback.

In addition, studies have showed that individuals experience positive emotions when their objects flourish and prosper (Furby, 1980; James 1890). Thus, entrepreneurs are also likely to increase their commitment to their ventures when it is successful as the growth of the venture produces a positive and uplifting effect (Formanek, 1991), as the entrepreneur will regard him or herself as competent and worthy (Shamir, 1991). Thus, another explanation for the insignificant interaction is because gains may loom larger than losses for entrepreneurs.

An alternative explanation for the insignificant interaction between psychological ownership and negative feedback could be due to the size of the ventures in my sample. Research has shown that entrepreneurs that own small ventures focus on their survival reference point rather than their aspirational reference point (March & Shapira, 1992; Wennberg, Delmar & Mckelvie, 2016). Furthermore, when these new ventures face adversity they respond by maintaining their commitment rather than choosing the riskier strategy of increasing their commitment (Wennberg et al., 2016). Research indicates that larger firms are more likely to increase their commitment following negative feedback because they focus on their aspiration levels.

On the other hand, the interactions may have failed to be significant because entrepreneurs were experiencing low adversity (Carver & Scheier, 1998). The measure used for negative feedback was rather crude and as a result may not have been able to distinguish between ventures that were distressed and those that were merely underperforming. Thus, the interaction

failed to be significant because not enough entrepreneurs were experiencing high adversity or were near failure.

Implications

Selection Criteria

Research indicates that the energy, enthusiasm, motivation and persistence to overcome challenges are valued characteristic that angel investors (Murnieks et al., 2016) and venture capitalists (Hsu et al., 2014; Macmillan et al., 1987) seek in entrepreneurs. However, investors have limited capabilities to assess for these attributes and qualities (Smart, 1999). Thus, it may be beneficial for investors to use psychological ownership as a selection criteria to increase their confidence that an entrepreneur will work diligently to maximize the viability of the entrepreneurial vehicle (Breugst et al., 2012).

The added utility of employing psychological ownership as a selection criteria is that measuring the degree of psychological ownership is straightforward, easy and objective when compared to other criteria, such as entrepreneurial passion. Determining an entrepreneur's passion is difficult as investors measure passion indirectly and often involves subjective assessments on the part of investors (Mittens et al., 2012). Furthermore, it is not always clear what entrepreneurs are passionate about in the entrepreneurial journey (Warnick et al., 2018) which may impede an entrepreneur working diligently to maximize the viability of the current business.

However, it is important that investors seek out entrepreneurs with high psychological ownership but low levels of territoriality. Territorial entrepreneurs are unlikely to be receptive to strategic initiatives that deviate from their vision, as they may consider the feedback as infringement of their proprietary claim and a threat to their identity (Baer & Brown, 2012; G. Brown et al., 2005; Grimes, 2018; Pierce et al., 2001). Reluctance to accept the guidance of

investors can be damaging to the relationship as investors see strategic involvement as their most important role in their relationships with entrepreneurs (Sapienza et al., 1996). Thus, an important caveat is that investors should seek entrepreneurs that exhibit low territorial attitudes.

Mitigating Persistence

Research has shown that entrepreneurs experience great difficulty when it comes to pulling the plug on their entrepreneurial endeavours that are failing (Shepherd et al., 2009; Wennberg et al., 2010; Yamakawa & Cardon, 2017) and as a result, there is an abundance of entrepreneurial ventures that fail to make adequate returns (Caves, 1998; Geroski, 1995).

Viewing persistence as a natural phenomenon that stems from ownership feelings suggests that an effective method to curtail undesirable persistence is for entrepreneurs to reduce their psychological ownership by engaging in identity work to untangle the entrepreneurial vehicle from their self-definition (Grimes, 2018; Petriglieri, 2011; Rouse, 2016).

The importance and benefit of reducing commitment to a failing venture by reducing psychological ownership is fourfold. First, this recommendation acknowledges that reducing commitment is a process and that abandoning a course of action is not instantaneous (Klinger, 1975). Under this perspective, the process of disengagement begins when entrepreneurs begin to untangle themselves from their creation, by extricating or compartmentalizing their ideas and ventures from their self-concept, and ends when the entrepreneurial vehicle is no longer an integral aspect of the extended self. It is important to note that this process may be protracted if the entrepreneur has developed strong psychological ownership, as entrepreneurs will need time to emotionally prepare for the grief that will result from losing their venture (Shepherd et al., 2009). Thus, it is important to note that entrepreneurs may keep reinvesting in their venture even when they have come to the realisation that their business is going to fail.

Second, entrepreneurs have a variety of alternatives at their disposal to reduce their psychological ownership and this flexibility should make the disengagement process more manageable and palatable. Entrepreneurs can reduce ownership feelings directly and expeditiously by decreasing their familiarity with, investment of self in, and/or control of their entrepreneurial vehicle. This can be achieved proactively by entrepreneurs when they explore future entrepreneurial possibilities by stockpiling ideas and developing side businesses in order to reduce their familiarity and investment of self in their current venture (Rouse, 2016). Alternatively, entrepreneurs can reduce their familiarity, investment and control by narrowing the roles that they perform within the ventures (Mathias & Williams, 2018). Inevitably, this will require entrepreneurs to empower others or recruit replacements in order to reduce the control that they have in their venture (Rouse, 2016).

In addition, entrepreneurs can reduce their psychological ownership gradually and indirectly by engaging in identity work to change their identity standard of what it means to be an entrepreneur (Grimes, 2018; Mathias & Williams, 2018). For example entrepreneurs can increase their identification with the “scientific founder” role which emphasizes pivoting in response to rejection and reduce their identification with the “visionary founder” role (Grimes, 2018). Consequently, enacting entrepreneurial processes, rather than the venture or product the entrepreneur has created, becomes the crucial element that defines the identity standard for the entrepreneur.

Entrepreneurs can also reduce their ownership feelings indirectly and gradually by reducing the importance of the entrepreneurial identity to their self-definition. Identity and social identity theory acknowledges that a more central identity motivates entrepreneur to engage in certain activities and disengage from others in order to confirm to role expectations and validate

the behavioral implications of salient social categories (Burke & Reitzes, 1981b; J. C. Turner et al., 1987). Thus, if the entrepreneurial identity is not central then the motivation to possess an entrepreneurial venture diminishes and as a result, commitment to the venture will be reduced.

Third, reducing commitment through psychological ownership and identity work reduces counterproductive measures to curb persistence. As there are multitudes of factors that contribute to entrepreneurial persistence, there is a real possibility that a policy that aims to decrease persistence inadvertently increases the occurrence of persistence. For example, studies have shown that the policy of increased monitoring and replacing decision makers to combat unwarranted persistence had the unintended consequence of enhancing persistence (McNamara, Moon & Bromliey, 2002).

As psychological ownership can account or explain persistence that stems from many of the factors, it can be useful to identify which policies are unlikely to be successful. For example, rapidly reducing the equity or control rights of the entrepreneur to reduce persistence should be used as a last resort. Forcing entrepreneurs to give up their control will likely result in conflict between entrepreneurs and investors and increase territorial behaviours that motivate the entrepreneur to restore proprietary attachments to the entrepreneurial venture (Brown et al., 2005). In addition, losing control of the entrepreneurial vehicle rapidly might exasperate the grief and negative emotions that result from the detachment of the entrepreneurial vehicle (Furby, 1980), which has serious important implications for future entrepreneurial activities (Cardon & McGrath, 1999; Shepherd, 2003; Wilkinson & Mellahi, 2005).

Fourth, entrepreneurs and their allies can prevent the occurrence of undesired persistence by taking steps to ensure that increases in psychological ownership coincides with the ventures performance. Entrepreneurs can accomplish this by pursuing a lean start-up strategy when they

establish their venture, as the lean start-up strategy advocates entrepreneurs to begin their start-ups by translating their vision into falsifiable hypotheses and then test the hypotheses using a series of minimum viable products as quickly as possible (Blank, 2013). This process will ensure that entrepreneurs will limit their investments into their venture and thus limit their psychological ownership to moderate levels until they determine that their entrepreneurial idea is viable. The benefit of the lean start-up strategy compared to other approaches is that the decision to persevere with their business model, pivot or abandon it will be less difficult for the entrepreneur because they are not overly attached to their ventures (Blank, 2003; Osterwalder & Pigneur, 2010; Ries, 2011). As a result, entrepreneurs that employ lean start-ups are less likely to remain committed to entrepreneurial ideas that are not viable.

However, entrepreneurs should be wary that feedback early in the innovation process is likely to be random (Van de Ven & Polley, 1992). Thus, entrepreneurs should be leery of either positive or negative feedback early on. Over reliance on positive feedback is likely to lead to persistence later on and negative feedback might prematurely halt a promising new product or service. Thus, entrepreneurs should allow for a trial period in order to be able to discern the pattern of feedback. However, while there is likely to be some issue with random noise when implementing a lean strategy, it should be noted that it is still a better option than ‘build it and they will come’, ‘water fall planning’ or the ‘just do it’ approach to minimize persistence (Blank, 2013; Osterwalder & Pigneur, 2010; Ries, 2011).

Limiting the psychological ownership that an entrepreneur develops for their venture to moderate levels when they launch their venture may not always be feasible. It is likely that some entrepreneurs are likely to develop high psychological ownership for their ventures immediately because they have spent a considerable time developing the opportunity. These entrepreneurs are

at risk of persisting even if their ideas are seriously flawed (Baker & Shepherd, 2017; Colon & Garland, 1993; McMullen & Kier, 2016) and as a result, it may be beneficial to include external or outside board members to counter balance the high commitment to a course of action that an entrepreneur with high psychological ownership will have. The rationale is that outside board members should have reduced psychological ownership for the venture as they are not intimately familiar with the day to day activities of the venture nor have they invested too much of themselves into the entrepreneurial vehicle. Thus, outside board members are less likely to maintain an unproductive course of action or arrive at a unanimous decision that overrides any motive to appraise other alternatives (Woods et al., 2012).

However, the use of outside board members comes with caveats. First, it will be prudent to rotate outside board members so that they do not develop psychological ownership for the entrepreneurial venture over time. Second, a delicate balance must be struck between populating the board homogeneously or heterogeneously (Keil & Mähring, 2011; Westphal & Bednar, 2005). Homogeneous board members are likely to display pluralistic ignorance that is likely to lead to persistence with a non-performing course of action (Westphal & Bednar, 2005). On the other hand, heterogeneous board members are likely to contribute to mission drift that also contributes to persistence to an ineffective course of action (Keil & Mähring, 2011).

Limitation

I caution against generalizing the results of this study. This study suffered from a number of limitations that threaten the validity of the results that must be addressed. Below, I will describe in detail the limitations and how they affected the validity of the results.

Limited number of participants

A critical limitation of this study is that only a few entrepreneurs participated in this study. While I attempted to address this issue by casting a wider net (which led to other

complications discussed below), I was largely unsuccessful in recruiting a large number of entrepreneurs to participate in the study. Consequently, detecting interaction effects was much harder as the sample is low. As a result, the insignificant findings of this study may be attributed to the low statistical power of the study. Thus, in order to improve the statistical conclusion of this study it is important to repeat this study with a larger sample of entrepreneurs to arrive at more definitive conclusion on the direct and indirect relationship between psychological ownership and commitment.

The problem of a small sample was compounded by high attrition rates. As a result, I was not able to conduct growth analysis to determine how commitment actually changed over time because I did not have enough data points. As a result, this study depends on cross sectional data to speculate how an entrepreneur's commitment varies in the presence of negative outcomes. Thus, this study had to rely on the intention or attitude of the entrepreneur to remain committed to the venture and did not measure their actual commitment. Therefore, the internal validity of the study is questioned because research has shown that while intentions and attitudes are decent predictors of behaviour there are discrepancies between intentions and behaviour (Sheeran, 2002). Consequently, the cause and effect relationship established in this research is in question, as the actual commitment of the entrepreneurs was not established.

In order to establish the cause and effect relationships hypothesised in this study a longitudinal research design would have been beneficial, as it would have clearly demonstrated how negative performance moderates the direct and indirect effects of psychological ownership on commitment. Thus, future research should include a longitudinal research design to determine the actual behavior that entrepreneurs exhibit when they encounter adversity.

Common method variance

All the measures reported and collected are from a single source at a single point in time, which increases the possibility of common method variance (Podsakoff et al., 2003). Thus, participants may have biased their responses due to social desirability and may have responded to this survey in a manner that would present themselves in a favorable light (Podsakoff et al., 2003). I am particularly concerned of the common method variance because most of the data for this study was skewed to the right and most participants scored high in most of the measures.

Consequently, I am concerned that the common method bias may have inflated the correlations between the constructs and in particular between psychological ownership and commitment (Podsakoff et al., 2003). As a result, the internal validity of this study is questioned because it is not clear if the underlying relationship between psychological ownership and commitment was due to common method variance or due to an underlying relationship between the constructs (Podsakoff et al., 2003). Thus, future research should attempt to address this issue by insuring different measurement times for independent and dependent variables or use multiple sources to collect data on commitment.

Construct validity

The high correlation between psychological ownership and commitment could also be attributed to participants viewing the two constructs in the same light. Previous studies have shown that commitment and psychological ownership are distinct constructs even though they are highly correlated (e.g. Van Dyne & Pierce, 2004). However, it is important to note that previous studies used a different measure of organizational commitment and more importantly they were investigating the relationship between organizational commitment and psychological ownership for employees. Thus, while the two constructs have been shown to be conceptually distinct the difference may not be actue for entrepreneurs.

I expect that the relationship between psychological ownership and organizational commitment is stonger for entrepreneurs because of the strong bond that entrepreneurs have for their ventures. As a result, entrepreneurs may find it difficult to distinguish between themselves and their ventures. The ability to view their venture as separate from themselves is critical as one of the key assumptions of organizational commitment is that the individual and the organization are separate entities (van Knippenberg & Sleebos, 2006).

As a result, it may be prudent to measure commitment differently in order to enable the participants to better distinguish between psychological ownership and commitment. A different measure of commitment is likely to enhance the internal validity of this study because it will provide greater certainty that the cause and effect relationship identified is due to an underlying relationship between psychological ownership and commitment. Alternatively, commitment can be measured from other sources.

Representativeness of the sample

A major concern is that the sample used in this study may not be representative because of self-selection bias. I am concerned that the participants of this survey were entrepreneurs that were generally doing well and that entrepreneurs that were failing did not volunteer to participate in this study. Studies have shown that entrepreneurs that are failing are said to be hesitant to come forward (Cope, 2011; Sarasvathy et al., 2013; Zacharakis et al., 1999) and thus self-selection may not have been the best strategy to attract a representative sample of entrepreneurs to participate in this study. As a result, the external validity of this study is under question because it is not clear if the results of this study apply to entrepreneurs who are actually failing.

Another concern of the representativeness of my sample is that the participants were not ideal to test the effects of territoriality on commitment. Upon reflection, I noted that I did not ask

participants from Mturk how they financed their ventures or if they received mentorship and as a result, I am not certain if they were effected by structural factors. In addition, I noted that while accelerators and entrepreneur centers provide services and loans for their entrepreneurs, they do not generally have an ownership stake in the entrepreneurial ventures. Thus, accelerators and entrepreneur centers do not have the mechanisms to change management or seize the venture from the entrepreneurs when they are underperforming. As a result, I am uncertain to what degree the proprietary claim of participants was threatened and thus territorial behaviours may have been absent. Hence, the internal validity of the cause and effect relationship identified in this study is questioned, as it is not certain that my participants experienced the necessary conditions for territoriality to be a factor.

Another concern is whether the responses for collective psychological ownership are accurate. Although collective psychological ownership is a group level construct, I was limited to only one individual's perception of team ownership when measuring this construct. Thus, it is not clear how the entrepreneur's perception of collective ownership matches the reality found within the entrepreneurial team. The primary concern here is that the lead entrepreneur may have been influenced by social desirability (Podsakoff et al., 2003) and thus may have inflated the degree of collective psychological ownership that exists within the entrepreneurial team. As a result, the internal validity of the cause and effect relationship identified in this study is questioned.

Thus, future research should take a number of steps to improve the representativeness of participants. First, in order to limit the self-selection bias it would be beneficial to incorporate cohort sampling into the research design. Second, the sample should be composed of entrepreneurs that are backed by venture capitalists in order to arrive at a more definitive

conclusion on the effect that territoriality has on persistence. Finally, future research should strive to collect data from the entire entrepreneurial in order to measure collective psychological ownership more accurately.

Measurement scale and screening of participants

This study was also limited because territorial attitude measures were used to investigate the effect of territoriality on commitment. I used territorial attitude measures as a proxy for territorial behaviour because there are limited measures for territorial behaviour and the ones that do exist proved difficult to adapt to an entrepreneurial setting. Thus, future research should include tailor made territorial behaviour scales for entrepreneurs to improve the internal validity of the relationship between psychological ownership, territoriality and commitment.

Another concern of this study is that participants were recruited from different environments. While including a diverse sample generally benefits the generalizability of a study, I am concerned that the attention given to the survey by participants from Mturk was limited. On average participants from Mturk spent half as much time to fill out the survey compared to other participants and as discussed earlier, their responses were substantially different from other participants (table 4). As participants from Mturk are the main constituents of this study, the limited attention given to the study may have biased the study. As a result, I am not certain how generalizable the findings are of this study.

Summary

Due to the limitations of this study, it would be prudent to view this study as an exploratory study that identifies the potential of psychological ownership to link the various determinants of entrepreneurial persistence. I am cautiously optimistic that the tentative results of this study will be strengthened if future studies are able to address the limitations of this study.

Future research

In this section, I will present my suggestions for future research to enhance our understanding of the effects that psychological ownership has on persistence. I begin by suggesting that further research should identify the relationship that psychological ownership has with the other psychological factors identified in the literature. Subsequently, I suggest further research should aim to identify the relationship between psychological ownership and project factors.

Psychological ownership and psychological factors of escalation of commitment

Control, Sunk Cost and Time Investment

As discussed earlier, two of the antecedents of psychological ownership are the investments that an individual makes into the object and the degree of control they have over the object. Thus, an increase in sunk costs and responsibility for decision making within the venture results entrepreneurs having more ownership feelings for their venture. As discussed earlier, the more psychological ownership an entrepreneur has for their venture the greater the tendency to persist. This would suggest relationship between entrepreneurial persistence and control/sunk costs is mediated by psychological ownership.

Self-Efficacy

Scholars have noted that one of the drivers for possessing objects is that possessions have an instrumental function- they make possible certain activities and pleasures (Furby, 1978). More importantly, it is through objects that people can alter the environment through their control actions (Beggan, 1991; Furby, 1978, 1980; White, 1959). As a result, objects have the ability to enhance the efficacy of individuals. It follows that ownership of an entrepreneurial vehicle will elevate the efficacy judgments of the entrepreneur. An elevated sense of self-efficacy will increase the conviction that the entrepreneur can successfully navigate their entrepreneurial journey and thus lead to entrepreneurial persistence.

Responsibility

While there is some disagreement in the literature about the exact nature of the relationship between responsibility and psychological ownership the two constructs are clearly connected (Avey et al., 2009; Avital & Vandenbosch, 2000; C. E. O'Reilly, 2002; Pierce et al., 2001,2003). Psychological ownership scholars agree that persistence stems from the belief that owners have a responsibility to maintain, protect and enhance objects following negative feedback (Pierce & Jussilla, 2011). Thus, entrepreneurs are likely to persist in order to maintain, protect and enhance their entrepreneurial vehicle following negative feedback.

Experience

Experience leads to persistence via two routes under a psychological ownership perspective. First, the more extensive an entrepreneur's background is in a specific domain the more likely it is that the entrepreneur will develop strong psychological ownership for their entrepreneurial ideas. Entrepreneurs with extensive experience in a domain will have likely invested a considerable amount of time, energy and resources developing the idea. As a result, these entrepreneurs are likely to believe that they will know about a particular customer problem, market characteristics, or the ways to create a particular product or service better than any one else (Venkataraman, 1997). This belief is likely to result in these entrepreneurs being overly confident in their ability to succeed (Fischhoff et al., 1977; Hayward et al., 2006) and are unlikely to pivot, experiment or adapt their ideas, products or services (Grimes, 2018; Zuzul & Tripsas, 2019)

Second, the more experience an entrepreneur has the more significant and salient their entrepreneurial identity will become. First, the longer an individual is engaged in entrepreneurial activities the more likely it is that the entrepreneurial identity is more accessible, salient and significant to the individual (J. C. Turner et al., 1987; Stryker, 1980). Second, experience

increases the likelihood that entrepreneurs will be embedded in an entrepreneurial network (Baker & Nelson, 2005; Baron & Markman, 2000; Steier & Greenwood, 2000) that strengthens the entrepreneurial identity (Stryker & Burke, 2000). The more salient and significant the entrepreneurial identity is the more likely the entrepreneur will view the venture as a guardian of the self-concept (Dittmar, 1992). Consequently, the entrepreneur will be motivated to maintain control of the venture in order to limit the erosion of their self-concept and thus persist.

Anticipated Regret

It is to be recalled from earlier that regret theory predicts that entrepreneurs are likely to compare the anticipated regret about persistence with the anticipated regret about withdrawal and that persistence is likely when the anticipated regret about persistence decreases and/or when the anticipated regret about withdrawal increases (Wong & Kwong, 2007). Psychological ownership is likely to decrease the anticipated regret of persistence and increase the anticipated regret of withdrawal. I argue following negative feedback the choice to abandon or persist will be framed as one between the partial destruction of their self-concept due to withdrawal versus additional financial losses due to persistence. As individuals have an innate motive to live in accordance of a consistent self-concept (Lecky, 1945; Swann, Jr., 1983), they are likely to opt for the latter option.

Information framing

It is to be recalled from earlier that when a course of action accumulates losses, decision makers are confronted with a choice point and how the choice point is framed will determine if decision makers are likely to escalate their commitment. I argue that due to psychological ownership the choice point will be framed as one where the entrepreneur destroys part of their self-concept or recommits to the course of action in order to restore the ventures performance. As

individuals have a need to maintain and enhance their self-concepts, they are likely to opt for the former option and thus opt for the riskier option of escalation of commitment.

Proximity to completion

I argue that the motivation to maintain, nurture and enhance the entrepreneurial vehicle that emanates from psychological ownership will be stronger when aspiring entrepreneur near the launching of his or her venture. Since, achieving an entrepreneurial identity invariably requires the launching of an entrepreneurial venture, the closer an entrepreneur is to launching a new venture the more powerful the motivation will be to complete the venture and transform themselves into entrepreneurs and thus attain a desired identity (Ashforth et al., 2016; Bandura & Schunk, 1981; Drnovsek et al., 2016). Consequently, aspiring entrepreneurs that have high psychological ownership will be motivated to complete their creations and attain the entrepreneurial identity.

Psychological ownership and individual project factors

Decision risk and Opportunity Cost

Scholars have noted that individuals that develop psychological ownership over an object are resistant to adopt changes that are revolutionary, subtractive and imposed, as these changes are threatening to the owner's identity (Baer & Brown, 2012; Dirks et al., 1996; Grimes, 2018). Thus, in order to maintain a sense of their self, entrepreneurs are unlikely to revise their work following negative feedback because it will threaten the identity of the entrepreneur (Grimes, 2018). Resistance to make revisions will reduce the likelihood that entrepreneurs will consider alternative courses of action or divert resources to other projects and increase the likelihood that entrepreneurs persist with their entrepreneurial vehicle (Northcraft & Neale, 1986; Schaubroeck & Davis, 1994).

Information Set

As discussed earlier ownership distorts the decision making process of entrepreneurs because it slows down the incorporation of negative performance (Elfenbein et al., 2017). The evidence indicates that due to ownership, entrepreneurs are more optimistic about the prospect of their entrepreneurial vehicle and thus commit to their entrepreneurial vehicle even when the uncertainty of the prospect is eliminated (Bowen, 1987; Bragger et al., 1998; Elfenbein et al., 2017; Elfenbein & Knott, 2015; Ingersoll, Jr. & Ross, 1992b).

Positive trend

The attractiveness of the object is an important criterion that determines if it is a candidate for individuals to become psychologically attached to it (Pierce & Jussila, 2011). If the object is not attractive it is unlikely that the object will capture the individual's attention and as a result, the individual is unlikely to want to possess the object. Thus, if the entrepreneurial vehicle is not attractive then the entrepreneur is unlikely to develop psychological ownership for it and thus persistence. This would indicate that in order for an entrepreneur to develop psychological ownership towards their entrepreneurial vehicle it must have been an attractive prospect at some point. Thus, either the entrepreneurial vehicle had prior success (Moon & Conlon, 2002), received positive feedback from network partners (Patzelt et al., 2011), or the entrepreneurs prior experience led them to believe that the entrepreneurial vehicle is an attractive prospect (Venkataraman, 1997). Thus, an important boundary condition is that the entrepreneur must have had the belief that the entrepreneurial vehicle was attractive in order to develop psychological ownership for and persist with their entrepreneurial vehicle.

Preference

As discussed earlier, entrepreneurs are likely to develop strong psychological ownership for their entrepreneurial ideas because they believe that they have intimate knowledge

concerning a specific problem and invested a considerable amount of time, energy and resources into developing their ideas. This will lead entrepreneurs into believing that their solution is more valuable and more likely to succeed than those developed by others are. Thus, when they encounter negative feedback, these entrepreneurs will persist because they believe their solution will eventually succeed.

Summary

In order to create a holistic understanding of entrepreneurial persistence I recommend that future research needs to investigate the relationship between psychological ownership and the psychological and project factors. Investigating these relationships will provide a more nuanced and integrated understanding of entrepreneurial persistence.

Summary

In this chapter, I have noted how the results of this study relates to the extant entrepreneurial literature. I have discussed how psychological ownership can explain why some entrepreneurs are better able to exploit the opportunities that they discover. In addition, I have noted how psychological ownership may contribute to the abundance of ventures that fail to make adequate returns. Furthermore, I have remarked on how psychological ownership can refine our understanding of entrepreneurial persistence and the connection that develops between entrepreneurs and their creations by identifying whom is likely to persist and develop a profound bond.

I have also presented my critique of this study and have suggested that this study should be regarded as an exploratory study and that improvements are required to reach a more definitive conclusion on the effects of psychological ownership on persistence. I have recommended that future research should address the meager participation and high attrition rate of participants that plagued this study. Furthermore, I have suggested on how to improve the

representativeness of the sample to increase the generalizability of this study. Furthermore, I have presented a research agenda that I believe will increase our understanding of entrepreneurial persistence.

Finally, I have noted that mitigating persistence by reducing psychological ownership is the most important implication of this study. I have presented my arguments to explain why it is important and beneficial that policies adopt a psychological ownership perspective when limiting and preventing entrepreneurial persistence. Finally, I noted that psychological ownership may be an ideal candidate for investors to use as a screening criteria to determine which entrepreneurs are ideal candidates to invest in.

Chapter 8: Conclusion

One of the most important and difficult choices that entrepreneurs have to make involves decisions regarding the fate of their entrepreneurial vehicle. The decision to preserve, pivot, or perish is highly critical and can lead entrepreneurs to prosperity or ruin. This decision is influenced by a multitude of factors that range from the entrepreneur's characteristics to the structural arrangement that the decision is being made under. Thus, it is important to understand how entrepreneurs arrive at this decision holistically.

A holistic approach to understand how entrepreneurs arrive at this decision has been offered and I argue that the special bond that develops between entrepreneurs and their creations permeates the different factors that influence this decision. Furthermore, I have argued that entrepreneurs are naturally inclined to reinvest in their entrepreneurial vehicle because of the natural tendency for entrepreneurs to develop psychological ownership for their ideas and ventures. As a result, the decision to pivot, curtail investments in or abandon their entrepreneurial vehicles is antithetical to many entrepreneurs. Consequently, entrepreneurs are likely to go to great lengths to protect, nurture and advance their creations and entrepreneurs may even go as far as sacrificing themselves in order for their entrepreneurial vehicle to succeed.

Is this sacrifice irrational? From a caregiving perspective, this behaviour can be rational if the entrepreneur views their entrepreneurial vehicle as their 'baby'. As the entrepreneurial venture is dependent on the entrepreneur, the sacrifice the entrepreneur (the caregiver) makes is justified because it is intended to promote the health and wellbeing of the entrepreneur's 'baby'. This behaviour can also be rational from an expected utility and economic perspective if an entrepreneur receives non-monetary rewards for their sacrifice and is operating in an uncertain environment. Entrepreneurs who make sacrifices in order to follow their passion are rewarded

with intense positive emotions and a life that is meaningful. Thus, while these entrepreneurs may not ultimately reap financial rewards, they are likely to live a rich life, as they are engaging in tasks that are meaningful to them. In an uncertain environment, the sacrifices that an entrepreneur makes may turn out to be fruitful and help the entrepreneur overcome society's reluctance to change. Thus, I argue that entrepreneurs who are able to confront the brutal facts about themselves and their entrepreneurial journey and persist are rational.

However, this behaviour can be irrational when entrepreneurs are delusional about the prospects of their entrepreneurial vehicle or what is meaningful to them. If an entrepreneur is incapable of critically assessing the prospect of their entrepreneurial vehicle, then they are likely to retain unrealistic expectations that are unlikely to materialize. Thus, some entrepreneurs may continue to persist with a failing entrepreneurial vehicle even though the uncertainty surrounding their endeavour has been eliminated. In a similar vein, if an entrepreneur is unable to evaluate him or herself critically, then they are unlikely to determine what is meaningful to them. Thus, if entrepreneurial tasks are not meaningful for the entrepreneur, then they are unlikely to earn non-monetary rewards when they persist. Rather, these entrepreneurs are likely to live a conflicted life that is full of frustration.

Thus, even though persistence might come naturally to most entrepreneurs, there are times when it is irrational for an entrepreneur to persist. As a result, it is important to identify an effective strategy for entrepreneurs to reduce their commitment and prevent unwarranted persistence. I argue that reducing commitment via psychological ownership is an effective method to prevent unwarranted persistence. First, reducing commitment through psychological ownership is effective because it reflects that disengagement from a course of action is a process. Second, reducing commitment through psychological ownership affords entrepreneurs tactical

flexibility and enables entrepreneurs to select a tactic that is tailored to their circumstance, which makes the disengagement process more palatable and manageable. Third, reducing commitment through psychological ownership reduces the likelihood that a given tactic will have the unintended consequence of inducing persistence rather than mitigating it.

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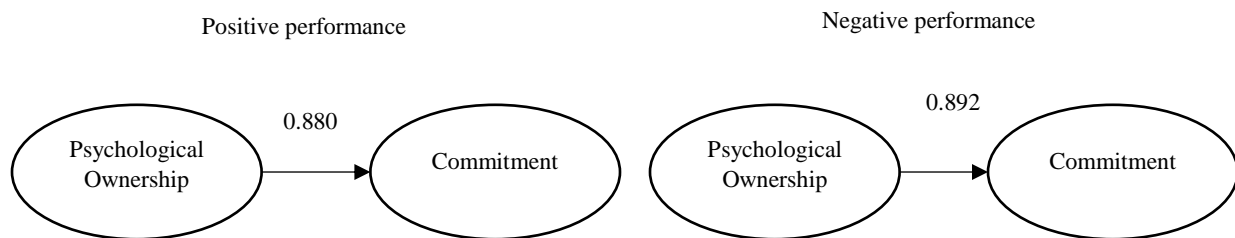
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Appendix 1

Hypothesis 1

The results of the interaction indicate that the effect of the performance condition on the relationship between psychological ownership and commitment is provided by $(0.855 + (0.002 * \bar{x} * NP))$ and including a \pm S.D. (3.09) of negative performance into the analysis can provide the simple effects of this relationship and illustrate the effect of the interaction (Edwards & Lambert, 2007). As figure 14 shows the effect of psychological ownership on commitment does differ between positive and negative performance conditions.

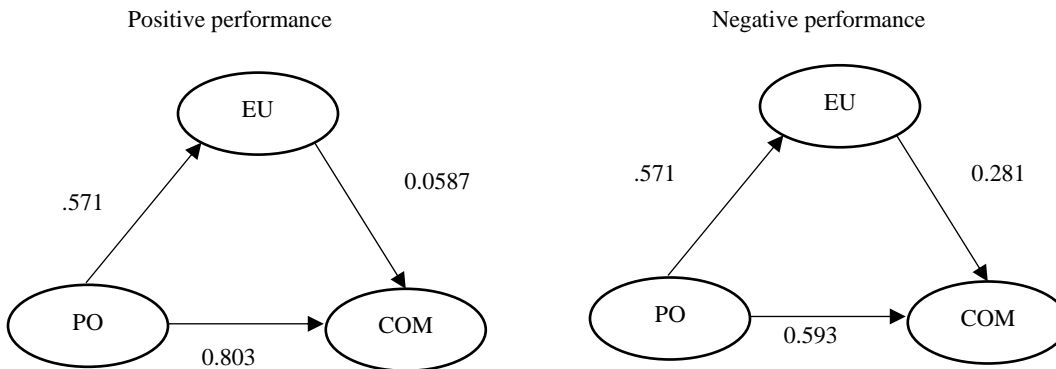
Figure 14 Simple Effects of Interaction Between Negative Performance and Psychological Ownership on Commitment



Hypothesis 2a

The effect of the performance on the relationship between psychological ownership and commitment is provided by $(1.221 + (-0.034 * \bar{x} * NP)) \times PO$. The slope for the direct effect of psychological ownership on commitment when performance is positive is (0.803) and (0.593) when performance is negative.

Figure 15 Simple effects of Expected Utility Mediating the Relationship between Psychological Ownership and Commitment under different Performance conditions



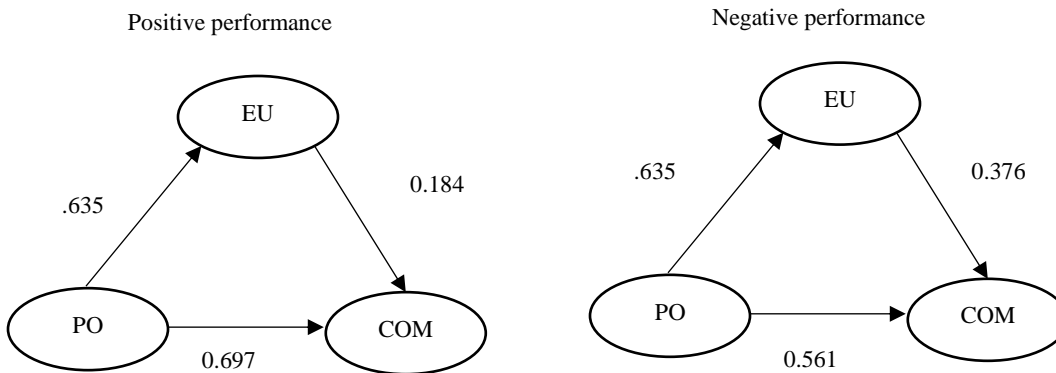
The effect of performance on the relationship between expected utility and commitment is provided by $(-0.383 + (-0.084 \cdot \bar{x} \cdot NP)) \times EU$. The slope for the direct effect of Expected utility on commitment when performance is positive is (0.0587) and (0.281) when performance is negative.

The total effect of psychological ownership on commitment in the different performance conditions is provided by adding the slopes of the direct effect and the indirect effects. Therefore, the slope of the total effect of psychological ownership on commitment is (0.852) when performance is positive and (0.824) when performance is negative.

Hypothesis 2b

The results of the interaction indicate that the effect of the performance on the relationship between psychological ownership and commitment is provided by $(0.967 + (-0.022 \cdot \bar{x} \cdot NP)) \times PO$. The slope for the direct effect of psychological ownership on commitment when performance is positive is (0.697) and (0.561) when performance is negative.

Figure 16 Simple effects of Expected Utility Mediating the Relationship between Psychological Ownership and Commitment under different Performance conditions



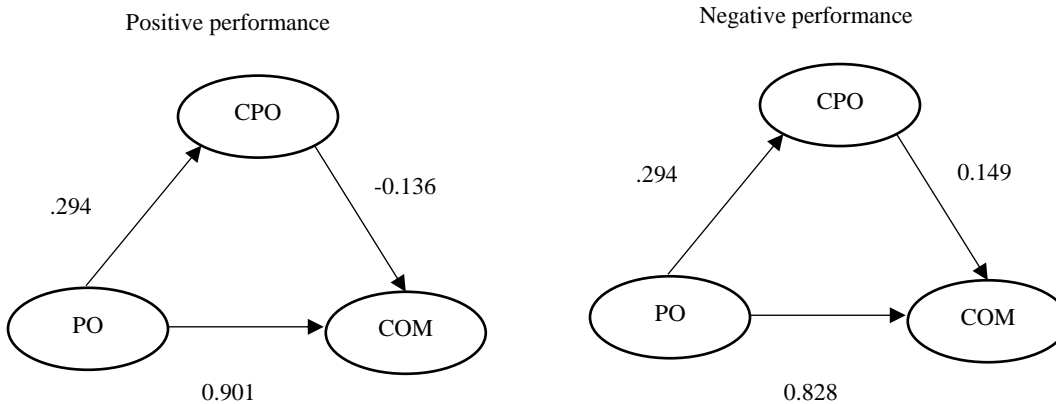
The effect of performance on the relationship between expected utility and commitment is provided by $(-0.196 + (0.031 * \bar{x} * NP)) \times EU$. Thus including a \pm S.D. (3.1) of negative performance into the analysis can provide the simple effects of these relationships (figure 16). The slope for the direct effect of expected utility on commitment when performance is positive is (0.184) and (0.376) when performance is negative.

The total effect of psychological ownership on commitment in the different performance conditions is provided by adding the slopes of the direct effect and the indirect effects. Therefore the slope of the total effect of psychological ownership on commitment is (0.822) when performance is positive and (0.816) when performance is negative.

Hypothesis 3

The results of the interaction indicate that the effect of the performance on the relationship between psychological ownership and commitment is $(1.049 + (-0.012 * \bar{x} * NP)) \times PO$. The slope for the direct effect of psychological ownership on commitment when performance is positive is (0.901) and (0.828) when performance is negative.

Figure 17 Simple Effects of Collective Psychological Ownership Mediating the Relationship between Psychological Ownership and Commitment under different Performance conditions



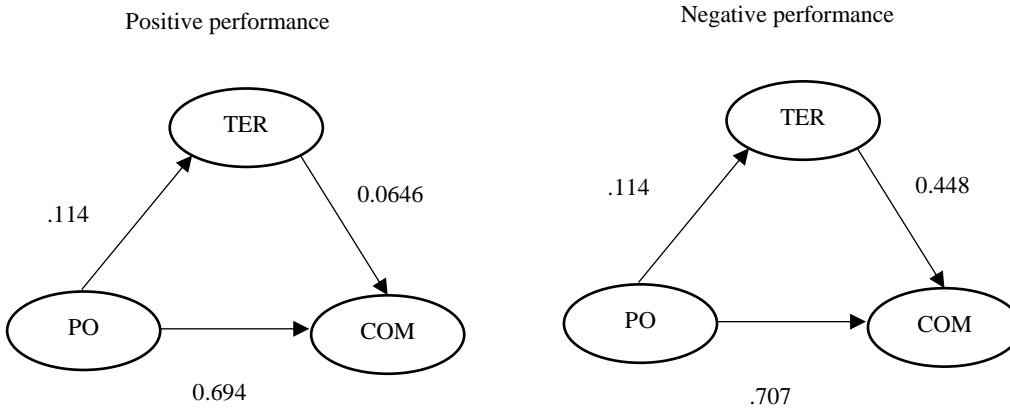
The effect of performance on the relationship between collective psychological ownership and commitment is $(-0.700 + (0.046 \cdot \bar{x} \cdot NP)) \times CPO$. Thus, the slope is (-0.136) for positive performance and (0.149) for negative performance (figure 17).

The total effect of psychological ownership on commitment in the different performance conditions is provided by adding the slopes of the direct effect and the indirect effects. Therefore the slope of the total effect of psychological ownership on commitment is (0.862) when performance is positive and (0.871) when performance is negative.

Hypothesis 4

The effect of the performance on the relationship between psychological ownership and commitment is $(0.670 + (0.002 \cdot \bar{x} \cdot NP)) \times PO$. The slope for the direct effect of psychological ownership on commitment when performance is positive is (0.694) and (0.707) when performance is negative.

Figure 18 Simple Effects of Territoriality Mediating the relationship between Psychological Ownership and Commitment under different Performance conditions



The relationship between territoriality and commitment is provided by $(-0.696 + (0.062 \cdot \bar{x} * NP)) \times TER$. In other words, the slope is (0.0646) for positive performance and (0.448) for negative performance (figure 18).

The total effect of psychological ownership on commitment in the different performance conditions is provided by adding the slopes of the direct effect and the indirect effects. Therefore the slope of the total effect of psychological ownership on commitment is (0.698) when performance is positive and (0.732) when performance is negative.