

WHEN SOCIAL IDENTITIES INTEGRATE: SCHUMPETERIAN ENTREPRENEURS LEADING GREEN ENTREPRENEURSHIP

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ABSTRACT

Integrating Schumpeter's (1934) Theory of Economic Development with Social Identity Theory, we propose a typology distinguishing superordinate 'green entrepreneur' identities with impact at the firm and industry-levels of analysis: green discoverers and green revolutionaries. Based on an interdisciplinary review of green entrepreneurship literature, we trace one intellectual root of green entrepreneurship back to the early economic scholars' examination of entrepreneurship and Schumpeter's focus on creative destruction and innovation. We contribute to literature by proposing a new framework that combines Schumpeterian innovation with Social Identity Theory to distinguish the green entrepreneur at the intersection of entrepreneur and green activist identities.

Keywords: Entrepreneurship, Economic Development, Green Entrepreneur.

INTRODUCTION

"while ...[an individual] swims with the stream in the circular flow which is familiar to him, he swims against the stream if he wishes to change the channel" (Schumpeter, 1934).

Innovation that enhances a sustainable future is imperative to long-term survival (Kolk & Pinske, 2005). In the last decade, more scholars have examined how entrepreneurship relates to environmental innovation (Berrone et al., 2013) and sustainable development (Hall et al., 2010). As the world population grows, the goal to improve living standards impacts the consumption of resources and the natural environment. Schumpeterian creative destruction processes that transform society with dynamic innovations have been recognized as key to sustainable development (Hart & Milstein, 1999). Entrepreneurship may be seen as "*emancipation*" and allow the enactor to transform the current equilibrium to her/his desired end-state (Jennings et al., 2014).

Green entrepreneurship plays a vital role in balancing the tension between economic growths and maintaining the natural environment. Temperatures in the western United States are anticipated to increase 1 to 3 degrees during the next 20-30 years (Gwynne, 2008), which will exacerbate drought conditions and create new opportunities to pursue eco-efficient innovation. After years of low rainfall, over half of the state of California has experienced severe drought conditions (Oskin, 2014; Seager & Hoerling, 2015) with 2014 as the worst drought year in the past 1,200 years (Griffin & Anchukaitis, 2014), resulting in estimated lost revenue from farming and related businesses of \$5 billion (Campbell & Durisin, 2014). Efforts to address drought conditions create green entrepreneurship opportunities.

Although people may disagree on the severity of global climate change, most agree in the need to sustain our future without harming our present natural resources while maintaining economic progress (Pacheco et al., 2010). Considering the current scholarly focus on

ecologically-focused entrepreneurship, we argue that Schumpeter's (1934) Theory of Economic Development provides a conceptual foundation in which we can examine green entrepreneurs. We contribute to entrepreneurship literature by proposing a framework to study different identities of green entrepreneurs that integrates Schumpeterian innovation with Social Identity Theory to examine the motivation for why entrepreneurs "go green", and how their innovations sustain the natural environment and create value. In our model, we pay tribute to entrepreneurs preserving the natural environment as Schumpeterian-inspired creative destroyers who paradoxically protect and enhance our world. Green entrepreneurs motivate people to "proactively go green" (Schaper, 2002) in accordance with their green activist identity, while simultaneously motivated to pursue innovation and profit in accordance with their entrepreneur identity. Therefore, we present a typology acknowledging multiple identities of green entrepreneurs and their different innovative approaches.

Scholars have conceptualized entrepreneurial actions impacting the natural environment differently, and used terms such as sustainable entrepreneurship, environmental entrepreneurship, green entrepreneurship, and eco-preneur. Sustainable entrepreneurship combines opportunity identification and exploitation in both the natural environment and economic market with both economic and non-economic value to sustain our future (Shepherd & Patzelt, 2011). Sustainable entrepreneurship is *"the discovery, creation, and exploitation of opportunities to create future goods and services that sustain the natural and/or communal environment and provide development gain for others"* (Patzelt & Shepherd, 2011). Combining literature on market failure with that on entrepreneurial opportunity, Dean and McMullen (2007) argue that environmental entrepreneurship is *"the process of discovering, evaluating, and exploiting economic opportunities that are present in environmentally relevant market failures"* (p. 58) and is a subset of sustainable entrepreneurship, defined as *"the capturing of opportunities present in environmentally relevant market failures wherein the exploitation of the opportunities alleviates the market failure and reduces environmental degradation"* (p. 73). For example, they explain that public goods such as that available in international waters lead to environmental degradation (e.g., fisheries harvest fish quickly without regard to protecting the availability of fish); however, this problem creates the potential for sustainable entrepreneurship opportunities. We examine green entrepreneurship as a subcategory of environmental entrepreneurship, and green entrepreneurs as innovators.

This "greening of management" (Walley & Taylor, 2002) has created scholarly challenges in conceptualizing the green entrepreneur and barriers to environmental entrepreneurship (Schaper, 2002). A shortcoming of this area of research is that a single definition for green entrepreneurship has not been widely adopted by researchers. An established definition allows researchers to approach a concept from the same viewpoint creating momentum in building knowledge. Fortunately, various definitions have two phenomena at their core: stewardship of the natural environment and economic progress; values we reconcile through examining green entrepreneurs as a superordinate identity integrating green activist and entrepreneurial identities. Our paper contributes to entrepreneurship research theoretically and practically by providing a conceptual framework to focus green entrepreneurship research on green entrepreneurs and their innovations using a multi-level analysis. We examine green entrepreneurs as Discoverers and Revolutionaries, each pursuing green innovation differently. We adopt Walley and Taylor's (2002) view that the *"definition of green entrepreneurs research should be wide, encompassing not only the eco-preneurs (individuals who set up businesses founded on the principle of sustainability) but also opportunist entrepreneurs who happen to*

have found a green niche” (p. 38). Thus, we define the green entrepreneur as someone exploiting opportunities within the context of the natural environment, creating innovations that create value through enhancing both sustainability and economic development. In so doing, we contribute to green entrepreneurship research by offering a conceptual alternative to advance our understandings of green entrepreneurs by examining both their economic and environment preservation motivations; and their innovations based in an integrated Schumpeterian innovation and Social Identity Theory framework. We demonstrate how this Schumpeterian-based innovation and identity framework can be used to conceptualize, organize and prioritize work on green entrepreneurship research in distinguishing different types of green entrepreneurs; this includes motivations based on social identity, and entrepreneurial opportunity recognition at the firm and industry levels through innovation.

This paper proceeds in four parts. First, we conduct an interdisciplinary literature review that examines research combining entrepreneurship and the natural environment to examine the intellectual roots of green entrepreneurship. Second, we examine the social identity of the green entrepreneur in terms of their motivation to innovate in ways that impact the natural environment. Third, we create a green entrepreneurship typology based in Schumpeter (1934), and present conceptual research about green entrepreneurship. This encompasses macro and micro levels of analysis and incorporates views from entrepreneurship, sustainability, economics and psychology. Fourth, we discuss green entrepreneurship economic development and value creation using this Schumpeterian-Based Social Identity Typology.

LITERATURE REVIEW

We began by conducting a literature review pertaining to entrepreneurship and the natural environment. Literature about entrepreneurship and the natural environment is broad; therefore, we conducted an interdisciplinary review of the literature using three phases. In the first phase, we searched databases, such as Business Source Complete, EconLit, and GreenFile using terms “*entrepreneurship*” and “*natural environment*”, which resulted in 2,714 peer-reviewed articles; consequently, we conducted searches with different combinations of words and search limiters to narrow our results for this paper’s scope. Since the word “*environment*” has been used to refer to organizational environments or external influences, we use the term “*natural environment*” to refer only to the physical environment. We used several decision-rules to narrow down our search further: articles had to: 1) refer to some aspect of the natural environment; 2) be peer-reviewed; 3) refer to economic and/or social value; and, 4) be entrepreneurship-related. For example, when using the terms “*entrepreneurship*” and “*physical environment*”, and “*(economic OR social) value*”, 445 articles appeared. Restricting results to the subject “*sustainability*” reduced results to 10 articles. Articles that pertained directly to the topic of clarifying a definition of entrepreneurship applied to the natural environment were considered within this paper. Additional ABI Inform database searches of “*entrepreneurship*” and “*green*” initially resulted in 467 articles. By limiting the search to the subjects such as “*sustainability*”, this number decreased to 42 articles, few of which were clearly relevant to clarifying a definition of green entrepreneurship. Additional articles were gathered by conducting searches using different keywords, either used individually or in combination, such as: entrepreneurship; earth; physical environment; new ventures; business; eco-preneur; ecopreneur; environmental entrepreneurship; environment; green business; environmental performance; Schumpeter; innovation; environmental innovation; environmentalism; theory; model; and, bio-engineering.

To further focus our literature review, we considered theoretical impact by using Google Scholar to develop an initial sense as to what articles were most cited by other authors, and thus, deemed key articles. One of the highest numbers of citations (5,301) was found for an article about how environmental regulation instigates competition and innovation by Porter and van der Linde (1995). In the second phase of our research process, we expanded our databases and considered additional environment, sociological, and economic databases. Since these searches resulted in a limited pool of articles to define green entrepreneurship, we sought additional articles by searching other research libraries. In the final phase of our research process, the literature was reviewed, categorized, and discussed in the sections that follow: a) research exploring the intellectual roots of green entrepreneurship in the category “*intellectual roots of Schumpeter and green entrepreneurship*” and b) research exploring innovation and green entrepreneurship definitions in the category “*Schumpeter’s innovations and green entrepreneurship terminology*.”

Schumpeterian Roots in Green Entrepreneurship

Our study into green entrepreneurship is grounded in Schumpeterian ideas for innovation. In this section, we explain why we chose to explore Schumpeter as a basis for green entrepreneurship research, and then review the intellectual roots of green entrepreneurship.

Selection of schumpeter for analysis

Although there are a number of views within which to examine entrepreneurship, we believe Schumpeter provide a compelling basis for exploring green entrepreneurship. Schumpeter’s examination of innovation is placed within a larger socio-context of influential outside forces stimulating new economic opportunities. Schumpeter places economic change within a socio-context in which institutional, political, and social forces influences the economic system. Environmental issues impact society, and involve political, regulatory and societal forces that differ from traditional entrepreneurship. The green entrepreneur is motivated to innovate in ways that disrupts the current system to resolve issues effecting the natural environment while pursuing economic opportunities. Our rationale in using Schumpeter as a basis for our typology is because of the usefulness of his perspective in proposing a typology that considers green entrepreneurs innovating by intentional creation of disequilibrium with impacts on multi-levels of analysis. Here, we explain our choice of Schumpeter by examining his work in comparison to other entrepreneurship perspectives in regards to the green entrepreneurship context.

First, our typology considers how green entrepreneurs are motivated by their identity to create opportunities, a motivation that is relevant to Schumpeter. Entrepreneurship philosophers have considered different entrepreneurship motivations. For example, Ludwig von Mises viewed the entrepreneur as driven by logic and rational choice, while Kirzner considered opportunity discovery. The entrepreneur in Mises’ view was driven by profit and an entrepreneur’s actions were value-free (Gunning, 1997), which discounts the potential for social value creation or motivations such as in green entrepreneurship. However, Kirzner differed from Mises in that justice, values and a fair society were crucial aspects to be considered. Famous for his views on opportunity discovery, Kirzner saw the entrepreneur as someone who discovers an imbalance and profits from exploiting this opportunity (Kirzner, 1994). Although an attractive aspect of Kirzner’s work deals with how an individual’s knowledge asymmetries allows some, but not

everyone, to discover opportunities (McKelvie & Wiklund, 2004), major distinctions between Kirzner and Schumpeter deal with their views on opportunities and equilibrium. Schumpeter's entrepreneur creates opportunities, while Kirzner's entrepreneur capitalizes on opportunities already present in the environment. Kirzner's entrepreneur works toward equilibrium while Schumpeter's creates disequilibrium. At issue is Kirzner's demand that there is not a deliberate search by an entrepreneur and that opportunities are found-not created. For many green entrepreneurship related topics, the environmental issues (e.g. the impact of greenhouse gases) are difficult to observe and measure. Green entrepreneurs search for innovative ways to fix environmental problems and this is difficult to utilize Kirznerian philosophy.

Second, Schumpeter's perspective allows us to integrate multiple levels of analysis within the green entrepreneurship context. The entrepreneurship discipline has a long tradition utilizing concepts from economics such as those from Schumpeter, Kirzner, and Mises. The entrepreneurship literature focuses mainly on lower levels (individual/firm) with few multi-level or high level (industry/economy) studies (Munoz & Dimov, 2015; Davidsson & Wiklund, 2001); we believe it is vital to consider varying levels of analysis to examine green entrepreneurship. Munoz and Dimov (2015) note a specific issue in that green entrepreneurs act on an individual level but the performance of their work is at a greater level such as industry or global. For example, a local, toxic spill may motivate entrepreneurs at the individual and firm-level to address the problem in the local community. Yet, entrepreneurs addressing global environmental issues such as greenhouse gases are changing industries and impacting the global economy. Schumpeter is useful in understanding entrepreneurship at multi-levels. While many have called for increased emphasis on multi-level analysis (Davidsson & Wiklund, 2001), it is still an issue within the discipline (Griffith et al., 2012).

In summary, Schumpeter places the entrepreneur at the center of his work; the entrepreneur leading new paths through a "*revolution*" in which old conditions are replaced with radical new ones (Schumpeter, 1934). Thus, transforming market place and society in bringing innovation to the mass (Schumpeter, 1942). While Schumpeter viewed the process as society gaining from innovation, economic growth and the entrepreneur profiting financially, these same ideas easily translate into non-financial benefits for green entrepreneurship. Yet, we recognize some limitations in using Schumpeter to analyze green entrepreneurship. Schumpeter's (1934) entrepreneur creates something novel and pushes the innovation to the market; however, markets also pull creating opportunities for entrepreneurs (e.g. demands for building material from renewable sources). Further, Schumpeter (1934) does not consider incremental innovation. While an issue, the focus on novel innovation is congruent with recent descriptions of disruptive innovation (Christenson, 1997), which are vital for major shifts in how resources are utilized. Thus, we use Schumpeter because of the green entrepreneur creates innovation with an impact on a greater level.

Intellectual roots of schumpeter and green entrepreneurship: entrepreneurs and green activists

Theoretically, we find similarities between Schumpeter's perspectives and early economic scholars' examination of entrepreneurship involving the natural environment, providing a conceptual bridge between environmental innovation and economic development as an opportunity to examine green entrepreneurship. Economic scholars examined entrepreneurship relative to the natural environment as catalyst for economic and pro-environmental development. Historically, entrepreneurship work examined the evolution of the

farmer as an entrepreneur (Kyrö, 2001). Early economic thought such as Cantillon's portrayal of the farmer in 1755 links farmers and wholesalers, suggesting the environmental entrepreneur is the link to understanding how the economic balance of supply and demand will be maintained by achieving maximum output with efficient resource use. As the economy is mobilized by firms that engage in the creative combinations proposed by Schumpeter (Hart & Milstein, 1999), we find the "*greening*" of economic development is driven by firms utilizing Schumpeter's combinations based in using sustainable natural resources. Kyrö (2001) examines the evolution of entrepreneurship and environmental economics from the Enlightenment Period of the late 1800s to early 1900s when the "*first school of entrepreneurship and ecological economics, the French physiocrats, was born to oppose feudalism, the craft system and the mercantilism*" (p. 16). In this historical context, wealth came from the land, which provided the elements on which industry evolved (Hébert & Link, 1988). Beginning with the ecology movement in the 1970s to the 1990s when environmental entrepreneurship became more widely known, a variety of terms appeared to describe entrepreneurs who worked with the natural environment (Schaper, 2002): the environmental entrepreneur (Anderson, 1998), green entrepreneur (Berle, 1991), the eco-preneur (Adeoti, 2000; Bennett, 1991; Isaak, 1998: 2002; Keogh & Polonsky, 1998; Kirkwood & Walton, 2010); and, the enviro-capitalist (Anderson, 2000; Anderson & Leal, 1997).

Thus, the early examination of the farmer as a green entrepreneur reflects the radical role of Schumpeter's entrepreneur in a dynamic system. For Schumpeter, a view of the economy as a static system with a consistent circular flow was limiting; rather, he emphasized the idea that radical innovation was necessary to impact effective economic change as opposed to the slow, consistent changes of rational economic models. Schumpeter believed the manager maintains systems in the equilibrium model, while the entrepreneur disrupts the equilibrium as the "*person causa of economic development*" (Hébert & Link, 1989). The entrepreneur plays a significant role in resolving natural environmental problems (Hall et al., 2010) through an identity motivated by economic and environmental opportunities. Identity has been recognized to play an important role in social entrepreneur's interactions with the industry in which they focus their efforts (Waldron et al., 2016). Natural environmental issues and the need to preserve natural resources have led to new opportunities for green entrepreneurs to displace the existing (and more harmful) elements of the existing systems. Although we will provide positive examples where green entrepreneurs have innovatively exploited opportunities addressing natural environmental problems and fostering economic development, we acknowledge opposite examples of how entrepreneurship is hurting the natural environment outnumber the positive ones. Yet, the focus of our paper examines green entrepreneurs, who are simultaneously motivated by both economic motivations and pro-environmental motivations associated with a green activist identity; entrepreneurs who negatively impact on the environment are not within the scope of this paper.

Schumpeter's creative destruction and green entrepreneurship

Schumpeterian innovation is highly related to green entrepreneurship due to the importance of radical innovation to solve the pressing natural environmental issues facing society. Schumpeter's entrepreneur is the innovator, not the inventor, nor the capitalist, while motivated by *unternehmergeist*, "*a strong spirit burning within*," to fulfill his primary role: "*the carrying out of new innovative combinations*" (Schumpeter 1934: 1942). Schumpeterian (1934) innovations include creation of a new good or new quality of good; creation of a new method of production; opening of a new market; capture of a new source of supply; and, new organization

of industry (1934). The entrepreneurship discipline has shifted from requiring one of these five sources to a broader view on the process of opportunity exploitation and value creation (Shane & Venkataraman, 2000). However, green entrepreneurs exemplify Schumpeter's entrepreneur because they are motivated by their social identity to enhance or preserve the natural environment through bold action, actions symbolic of Schumpeter's entrepreneur who radically bring innovation to the market. Natural environment champions are skilled at advocating for environmental actions that makes sense rationally and strategically (Anderson & Bateman, 2000).

In reviewing definitions used to describe entrepreneurship related to the natural environment, we find all of Schumpeter's innovations are related to green entrepreneurship. Just as there are many views of entrepreneurship, there are many views associated with green entrepreneurship, with value creation at their core. We examine terms used to describe entrepreneurship of the natural environment within three categories: sustainable entrepreneurship; environmental-economics entrepreneurship; and green business. All categories are similar in describing actions with the natural environment and can be rooted in Schumpeterian innovation (Table 1).

First, the sustainability category includes terms and definitions used to describe sustainability or sustainable entrepreneurship. Transformative ideas and processes are a consistent theme in sustainability literature. Sustainability has been defined as *"the innovative and potentially transformative corporate activities that challenge existing practice"* (Larson, 2000, p. 305), while sustainable entrepreneurship as the *"discovery and exploitation of economic opportunities through the generation of market disequilibria that initiate the transformation of a sector towards an environmentally and socially more sustainable state"* (Hockerts & Wüstenhagen, 2010). Society depends on our *"ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs"* (WCED, 1987). The 1987 Brundtland Report called for sustainable development, which means that present consumption, needs to be reduced by at least 20% if future generations are to have the same opportunities as today (Berchicchi, 2003). Elkington (1997) identified three *"pillars of sustainability: simultaneous pursuit of economic prosperity, environmental quality, and social and ethical equity"* (Walley & Taylor, 2002), creating a significant challenge to use less while at the same time growing substantially. In this category, it is clear that Schumpeterian innovations are at its core. Sustainability has served as a foundation for research on entrepreneurship and the natural environment (Anderson, 1998; Berchicchi, 2003; Dean & McMullen, 2007; Larson, 2000). Sustainable entrepreneurship alleviates environmentally relevant market failures (Dean & McMullen, 2007), providing opportunities to stop environmentally degrading activities Kyrö (2001). Environmentally degrading activities are especially difficult to address is developing economies where economic progress is a focus but innovation is seen in this context to be a benefit (Khaval & Bruton, 2013). Bridging sustainability and entrepreneurship, Schaltegger and Wagner (2011) define sustainable entrepreneurship as *"sustainability innovations aimed at the mass market and providing benefit to the larger part of society"* (p. 225). Thus, green entrepreneurship provides an opportunity for entrepreneurs to shift their focus from strictly economic opportunities based on consuming limited resources to opportunities that can reduce resource consumption, utilize renewable resources and protect our environment.

TABLE 1
GREEN ENTREPRENEURSHIP TERMINOLOGY AND RELATED SCHUMPETERIAN INNOVATION

Category	Term	Description (relevant examples)	Schumpeter Innovations				
			New Supply Source	New Product/ Good	New Product ion Method	New Market	New Indust
Sustainability	<i>Sustainability</i>	<i>"...innovative and potentially transformative corporate activities that generate new products and processes that challenge existing practice"</i> (Larson, 2000: 305)	X	X	X		
	<i>Sustainable Development</i>	<i>"...process of change in which exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs"</i> (WCED, 1987: 19)	X	X	X		
	<i>Sustainable entrepreneurship</i>	<i>"...alleviation of environmentally relevant market failures through the exploitation of potentially profitable opportunities"</i> (Dean & McMullen, 2007: 51) <i>"realization of sustainability innovations aimed at the mass market and providing benefit to the larger part of society"</i> (Schaltegger & Wagner, 2011: 225)	X	X	X	X	X
	<i>Ecologically-sustainable development</i>	<i>"...suggests economic behavior...means to produce as much wealth as possible with as few resources as possible"</i> (Kyrö, 2001: 26)	X		X		
Environmental Economics	<i>Environmental Economics</i>	<i>"... concludes environmental degradation results from the failure of markets"</i> (Dean & McMullen, 2007:50)				X	X
	<i>Environmental management</i>	<i>"compliance efforts and efficiency improvements made to existing products and operations"</i> (Larson, 2000: 304-5)		X	X		
Green Business	<i>Green business</i>	<i>"...one that has been set up on a green basis, or one that has become relatively green. Greenness can also refer either to the product or to the process. The term 'greening' is used as kind of shorthand for moving towards environmental or ecological sustainability"</i> (Walley & Taylor, 2002, p. 36)	X	X	X		

	<i>Ecopreneurs</i>	“...enter these eco-friendly markets not only to make profits but also have strong underlying green values” (Kirkwood & Walton, 2010, p. 201) “...entrepreneurs who combine environmental awareness with their business activities” (Gibbs, 2009, p. 65)	X	X	X	X	X
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Second, the environmental economics category places entrepreneurship and the natural environment within a larger macro-economic context and relates environmental impact to economic behavior and markets. Within this category, Schumpeter’s innovations for creating a new market or industry are evident. Environmental economics “concludes that environmental degradation results from the failure of markets, whereas the entrepreneurship literature argues that opportunities are inherent in market failure” (Dean & McMullen, 2007). Anderson (1998) believes that entrepreneurship, such as in the form of “environmental entrepreneuring, is more likely to sustain environmentalism than any other form of imposed change” (Walley & Taylor, 2000). On a macro-level, environmental classification schemes explain strategies of different environmental enterprises (Hendrickson & Tuttle, 1997) based on the work of Post and Altman (1994) who identified market-wide change drivers, including “compliance-based environmentalism, improving the environment through government regulation and sanctions; market driven environmentalism, inducing more ecologically beneficial behavior through various positive incentives; value-driven environmentalism, bring about change through consumers’ willingness to act on their environmental values” (Hendrickson & Tuttle, 1997). Industry-level entrepreneurship relating to the natural environment can cause strategies to change across multiple firms, and involve social change with economic and social value (Anderson, 1998).

Finally, the green business category examines entrepreneurship and the natural environment on the firm-level, or individual-level with the entrepreneur. Green business describes the “greenness of either a product or process” (Walley & Taylor, 2002). Isaak (1998) defined “green-green” businesses as “businesses that are founded on the principle of sustainability, and his definition of green eco-preneurs as individuals” who create them (Walley & Taylor, 2002). Eco-preneurs “combine business practice with sustainable development.. [to] transform their business sectors (Gibbs, 2009).” Walley and Taylor (2002) proposed a typology of four ideal green entrepreneurs: ad hoc entrepreneur, innovative opportunist, ethical maverick, and visionary champion. Each type varies in what influences them (personal networks or external forces, such as regulation) and their orientation (sustainable or economic). Although they differ in their emphasis on economic gain, each type has a personal motivation identifying with a sustainable, green approach for their new venture. While Walley and Taylor (2002) distinguished each type through outside influences and orientation, our typology adds to their work by distinguishing different identity types of green entrepreneurs through a focus on motivation to innovate associated with their social identity.

The Green Entrepreneur: A Social Identity Perspective

In this section, we connect Schumpeter’s innovations with Social Identity Theory to examine entrepreneurial motivation to innovate as a green entrepreneur at an individual-level of analysis. Entrepreneur motivation is inherent in Schumpeter’s innovator: creating a kingdom, desire to conquer and the joy of creating (Swedburg, 1991). Entrepreneurs who create

transformative innovations are driven by their intrinsic motivation (Marvel et al., 2007). The green entrepreneur integrates both the economic aspects of entrepreneurship and the motivation to be a steward for the natural environment. Research has not adequately addressed the motivation for someone to become a green entrepreneur (Shepherd et al., 2015) and innovate in ways that impact the natural environment. Thus, in developing a typology of the green entrepreneur, we discuss the role of opportunity exploitation and innovation as motivation for individuals to become green entrepreneurs.

According to Social Identity Theory (SIT), a person's social identity is "*that part of an individual's self-concept which derives from his knowledge of his membership of a social group (or groups) together with the value and emotional significance attached to that membership(s)*" (Tajfel, 1978), thus helping an individual conceptualize her/his "*place*" in society and motivate actions congruent with this identity. SIT has been applied to research about employee behavior (Alvesson, 2000), work motivation (Van Knippenberg, 2000), and entrepreneurial actions (Miller & Breton-Miller, 2011). An individual's self-concept is developed by positive identification of salient in-groups in which they consider themselves to belong (Hogg & Terry, 2000), and forms an individual's salient identity. In-groups are based on different characteristics including family, professions, religion, and gender. Since a person has multiple identities, these identities may be compartmentalized (e.g. professor at the university and mother at home) or managed if both become salient (e.g. a parent and child working as partners in a family business). Entrepreneurs manage multiple identities and will integrate identities to create a super-ordinate identity and minimizing conflict among them (Haynie & Shepherd, 2009). The super-ordinate identity is a symbiotic combination of identities.

We argue green entrepreneurship provides a context through which individuals integrate multiple identities; thus, we propose a superordinate green entrepreneur identity that merges two micro identities, the entrepreneur identity and the green activist identity, in developing a unique self-concept motivating their specific decisions and behavior (Figure 1).

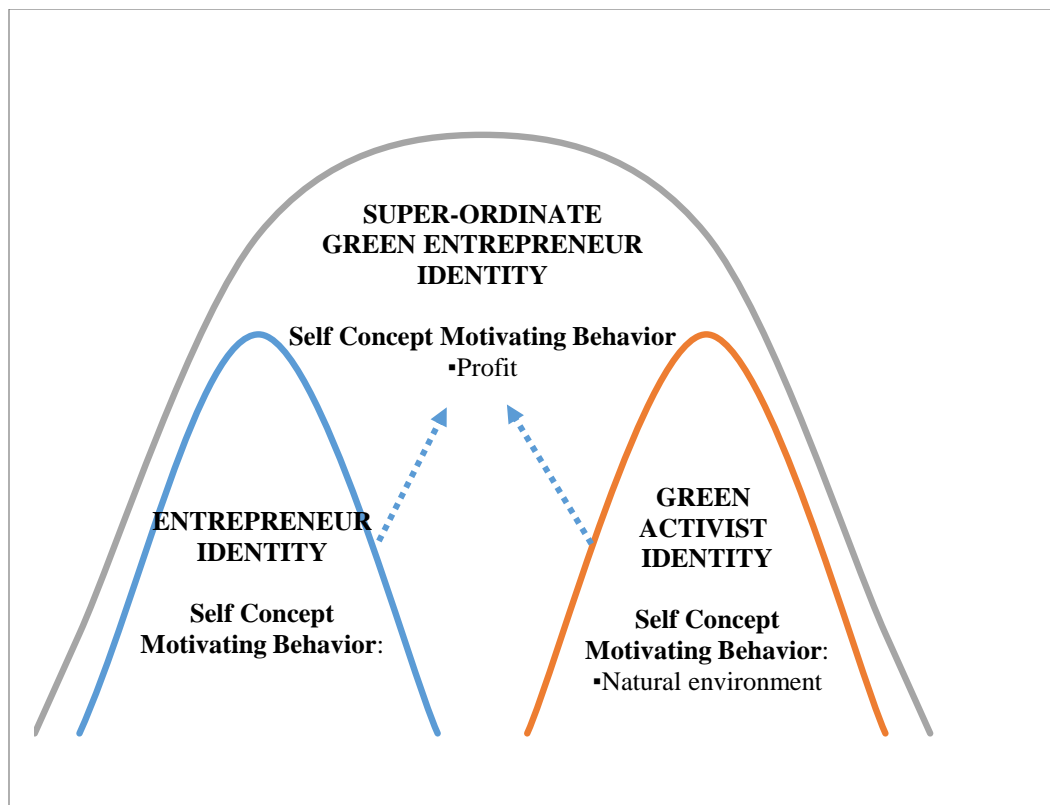


FIGURE 1
SUPER-ORDINATE GREEN ENTREPRENEUR IDENTITY: MICRO IDENTITIES INTEGRATION

Based in Schumpeterian innovation, the traditional entrepreneur identity motivates behavior driven by economic gains or “*Schumpeterian rents*”. Yet, the green activist identity is based in a self-concept motivated to preserve the natural environment. Through the integration of these identities, the individual’s motivation to innovate and profit preserves the natural environment.

The green entrepreneur is a superordinate identity that manages the potential synergies and conflicts that occur when integrating the traditional entrepreneur identity and the green activist identity. A traditional entrepreneur’s identity evolves around the business (e.g. mitigating risks, attracting customers, generating revenues, and growing the business). Thus, the traditional entrepreneur’s in-groups would be other entrepreneurs, business leaders, and interacting with potential customers. A green activist has an identity that is consistent with his/her in-groups, and characterized by motivations related to actively understanding what affects the natural environment, finding ways to mitigate its harm, persuading others to preserve it, and lobbying for legislation to protect it. The activist has in-groups with other activists, legislators who support their cause, events seeking donations and work to convince others to join with them.

These two identities have characteristics in common, such as passion, a desire to learn, leadership, selling ideas and persuading others to work with them. Pursuing green entrepreneurship is thoroughly rationalized; the green entrepreneur interested in the natural environment, innovation and economic development is motivated to seek knowledge to identify green opportunities and act in ways to reinforce a social identity as a green entrepreneur. The

green entrepreneur identity is fluid, transitioning focus between environment and economics related choices to reconcile and/or integrate managing a congruent superordinate identity. Entrepreneurs mitigate conflicts among multiple identities (Ashforth, 2001), such as those in family business entrepreneurs who have to balance expectations associated with their managerial identity and with family identity (Brannon et al., 2013). As the green entrepreneur integrates the traditional entrepreneur identity with a green activist identity, conflict may appear in whether pursuing a green path may reduce profits, be too costly, and/or increase risks. In accordance with the superordinate identity, the green entrepreneur is motivated to act in ways that are congruent with both identities: pursuing the optimal decision that always preserves the natural environment with maximum profit gain and minimal risk or loss.

The green entrepreneur manages multiple micro-identities (Pratt & Foreman, 2000). Prior research has eluded to the distinct identities without linking them theoretically; Beveridge and Guy (2005) described green entrepreneurship as a negotiation of identities with the environment as a core component of identity (Allen & Malin, 2008) in developing a coherent identity between green and entrepreneurship (Cohen & Musson, 2000). The entrepreneur who is environmentally focused balances their identity goals associated with natural environment preservation with diverse sets of people who may have more economic motives (O'Neil & Ucbasaran, 2016). Social identity influences experiences of green entrepreneurs that can be associated with radical innovation. Human capital (e.g., experience depth, experience breadth, education, prior knowledge) is positively associated with recognizing opportunities that lead to radical innovation (Marvel & Lumpkin, 2007). An example of this superordinate green entrepreneur identity is exemplified by Vina Lustado, Founder of Sol Haus Design. She combined her entrepreneur identity with her green activist identity (e.g., work with Habitat for Humanity and local "*Green Coalition*") to create a new venture focused on green entrepreneurship (ideamensch.com, 2015). Her prior knowledge, identity motivations to promote sustainability and to create social, economic, and environmental value came together as she explains in the rationale for why she started her business: "*to provide an affordable and sustainable solution to housing, from design to permitting to construction.*"

Entrepreneurs have a choice with an option to adopt environmentally friendly practices and foster a superordinate green entrepreneur identity. However, in doing so, green practices may introduce additional risk, lengthen development time and/or reduce profits. It may be more profitable to "*scorch the earth*" rather than protect it; in the discussion of green entrepreneurship, it has been recognized that entrepreneurs can harm the environment in the pursuit of profits (Shepherd et al., 2013). Yet entrepreneurs can create win-win scenarios and successful negotiations of this profit vs. green conflict (Van der Byl & Slawinski, 2015). Entrepreneurs may "*challenge the common notion that there is an inherent trade-off between environmental and economics goods*" (York & Venkataramen, 2010). Some significant societal issues are difficult to reconcile. How can innovation to address air pollution or climate change be assessed? If the costs and risks of sustainable actions lead to a competitive disadvantage, then a traditional economics view would say those ideas would be abandoned (Pacheco et al., 2010). This is where the green entrepreneur's superordinate identity can have the biggest impact as the green entrepreneur will find innovative ways to address the opportunity. Complex problems are where Schumpeter's view of innovation is vital. The greater the uncertainty, risk and an unknown return on investment, then the greater the potential of the opportunity that solves the problem. These are the areas that attract entrepreneurs and which existing businesses avoid (York & Venkataraman, 2010).

GREEN ENTREPRENEUR IDENTITIES: DISCOVERERS AND REVOLUTIONARIES

By integrating Schumpeter's five innovations with SIT, we create a Typology of Green Entrepreneur Identities based on two social categories: Green Discoverers innovating at the firm-level that different from Green Revolutionaries at the industry-level (Table 2).

Using Schumpeter, we examine these two categories in terms of behavioral expectations and motivations using a multi-level approach. A multi-level approach helps understand phenomenon (Davidsson & Wiklund, 2001) and is essential to understand environmental sustainability in an organizational context (Norton et al., 2015). Motivations that drive green entrepreneurs are discussed at the individual (micro) level. Schumpeter's sources of innovation form natural links with firm and industry-level discussions.

Discoverers: Green Innovation at the Firm-Level

Green firm-level innovation captures the intent of three Schumpeterian innovation types: capture of new source of supply, new production method, and development of a new good/quality of good. The impact of green entrepreneurs creating a new product, production process or finding a new raw material source is most evident by focusing on firm-level processes. The label "*Discoverers*" acknowledges the development of innovation and work to move discoveries from firm-level processes into the market.

TABLE 2 TYPOLOGY FOR GREEN ENTREPRENEUR IDENTITIES BASED IN SCHUMPETERIAN INNOVATION: DISCOVERERS & REVOLUTIONARIES					
Social categorization	Green Discoverers			Green Revolutionaries	
Level of Analysis	Firm-Level Innovation			Industry-Level Innovation	
Context: Schumpeter Innovation	Creation of a new source of supply	Creation of a new method of production	Creation of a new source of new good or quality of good	Creation of a new market	New organization of industry
Green Entrepreneur Social Identity Motivations & Behavioral Expectations	To capitalize on the use of sustainable physical resources (e.g., wind, solar)	To find opportunities that are more efficient with limited resources or derive new, sustainable resources	To find opportunities to consumer demand for sustainable products (e.g., organic products)	To find opportunities to develop new markets for sustainable businesses; Changing government regulation on toxic emissions creates new markets (Isaak, 2002)	To find opportunities to redefine how businesses operates in industries to move towards sustainability
Value Created	Cost savings from renewable energy	Productivity changes; job creation-discovery of new methods (bio-research)	Health benefits from organic-based products; reduced toxins from	Economic growth; market growth; job creation (market research/education)	Industry growth; new job creation with new industry development (education/training)

		production using new methods	organic-based products used in production		
Examples	Renewable energy entrepreneurs or organic food for organic food wholesalers (Larson, 2000); bio-based sources) for bio-fuel entrepreneurs (J.G., 2004)	Renewable sources for electricity; organic farmers (Larson, 2000); pollution reduction methods (Porter van der Linde, 2001)	Products made entirely from recycled goods; organic food products (Larson, 2000)	Changing government regulation requiring toxic emission decreases on the part of industry creates new markets; green marketing (Isaak, 2002)	Renewable energy industry (J.G., 2004); clean tech industry

Green raw materials: capture of a new source of supply: First, Schumpeter believed that a new source of supply was one type of innovation. Green entrepreneurs have “*a mindset in which the basic source of supply is our natural environment, which must not be taken for granted*” (Porritt & Winner, 1988). This mindset is consistent with the green entrepreneur’s identity as a steward of the natural environment, motivating green entrepreneurs to find a client who wants to “*abandon its destructive ways, recognizes its dependence on planet earth and start living on a more equal footing with ... nature*” (Anderson, 1998). Examples of new sources of supply are organic food products; compost for new ventures focused on deconstructing compost; paper for recycling; water or wind as sources for developing renewable energy businesses; and, bio-based sources of supply for bio-fuel. Although the major source of supply for green entrepreneurs is the natural environment, additional sources include biodegradable products, which can be deconstructed into their original natural resource, and can be used to create more business and improve business efficiency. For example, the aim of Oregon Biofuels, LLC is for processing oil-seeds into biodiesel products (J.G., 2004).

Practical ways in which entrepreneurs have captured a new source of supply to create a green raw material is exemplified by green entrepreneurs who discovered ways to utilize a former waste product, old rubber tires, as a raw material. An estimated two billion stockpiled discarded tires existed in the US in 1998 (Jang et al., 1998), creating potential environmental hazards such as issues with flammability and health concerns as the discarded tires attract mosquitos. Waste tires are becoming the primary component of playground surfaces including permanent surfaces (poured in place or linked rubber tiles) and rake able surfaces from shredded tires (Office of Environmental Health Hazard Assessment, 2007). Green entrepreneurs are exploring old tire rubber/wood composites as an alternative to particleboard construction panels (Zhao et al., 2010). Thus, green entrepreneurs discovered a raw material that was readily available, inexpensive and had benefits over former raw materials.

New green products/services: creation of a new good or new quality of good: Second, Schumpeter described the creation of a new good or new quality of good as a second type of innovation. New combinations of existing resources are the foundation of green entrepreneurship because of the focus on properly using natural sources of supply. Green entrepreneurs make food

products from organic fruits and vegetables; make products (e.g., wind turbines) to produce renewable energy; or make products such as hybrid cars to reduce pollution. A car emits over half-ton of air pollution each year and cars with an emissions problem often exceed this by over 800% (Choudhary, 2008). As government regulation requires a reduction of toxic emissions, new products and technologies will need to address the high emissions for cars.

Practical ways in which entrepreneurs have created new green products based in the Schumpeterian combinations include the development of lithium batteries, which are slowly destroying existing product-alkaline batteries, illustrating “*creative destruction*” of the alkaline battery industry. As the battery industry has matured, the demands for size, weight, cost, longevity, and sustainability continue to evolve. A shift is occurring between disposable alkaline and increasing demand for rechargeable lithium batteries in smartphones. This is evidenced by a decrease in unit sales of alkaline batteries of 9% in 2013 (Ng & McCarthy, 2014).

Green production process: creation of a new method of production: Third, Schumpeter believed the creation of a new method of production was a type of innovation. Green entrepreneurship involves developing new processes that properly use natural resources to create new products, such as creating renewable energy, reducing pollution, or methods converting bio-based material into biodegradable products. One of Willis et al. (2007) “*Disrupters*” can be considered real-life examples of Discoverers reducing our carbon footprint with a new process: the Barnsley Council created a new production method using the wood-burning stove to run municipal buildings from wood waste (p. 4). Preventing pollution can enhance organizational efficiency (Hart & Milstein, 1999); thus, we find green entrepreneurs discover compliance efforts and efficiency improvements (Larson, 2000). Competitive advantage depends on innovative methods to effectively use resources and reduce pollution during production. Ignoring innovation that can resolve environmental destruction can negatively impact industry’s competitiveness globally (Porter & van der Linde, 1995).

Practical ways in which entrepreneurs have created a new green production process include new processes to create solar-powered energy based on growing market demand for energy. Entrepreneurs have been at the forefront of implementing new solar power production process resulting in a 60% drop in the cost to produce a kilowatt from solar power between 2008 and 2011 (Burkart, 2011). The International Energy Agency forecasts this trend to continue creating opportunities for green entrepreneurs in the future. By 2050, very sunny areas, such as the Middle East and India, are predicted to have about half of their power generation from solar, while the US will have about a third (Modern Power Systems, 2014).

Revolutionaries: Green Innovation at the Industry Level

Green innovation at the industry-level can be conceptualized as an interaction between green firm-level innovations as new markets are explored or a new industry is created. These processes are on a macro level and may be examined from an industry, national or global perspective. A revolution is a radical change or an overthrow of past circumstances, as illustrated by green entrepreneur “*Revolutionaries*” who implement Schumpeterian rooted innovations on a broad scale that impact entire industries. Revolutionaries are “*agents of change*” bringing about sustainable practices (Gibbs, 2009) transforming by creating a new market with green products or a new organization of an industry with greener intent.

New green markets: opening of a new market: Schumpeter believed that the opening of a new market is a fourth type of innovation because he believed that innovation and technological change could create new markets (Schumpeter, 1942). With the increasing focus on environmental sustainability and green entrepreneurship, changes to environmental regulation instigate environmental innovation, which can transform markets (Porter & Van Der Linde, 1995). Sustainability focused innovations can exploit market efficiencies and create new products (Larson, 2000). Some consumers prefer to buy environmentally friendly products, which instigates revolutionizing markets. Consumers have indicated they would buy goods based on how the corporation effected the natural environment. Pollution is growing in China, United States, Russia, Mexico, and Japan, indicating the market for pollution prevention and reduction is global (Choudhary, 2008).

Practical examples in which entrepreneurs created new green markets include the development of markets for electrically powered transportation. The electric car has seen major advances into new markets globally as an environmentally friendly alternative to gasoline engine cars. Small, short range, Neighborhood Electric Vehicles (NEVs) are popular alternatives to cars; over half a million NEVs were on the roads worldwide as of 2011 (King, 2011) and over 200,000 NEVs were sold in China during 2013 (Xueqing, 2014). Another target is the traditional car market and The US has led the change with 45% of the 500,000 estimated electric cars- California alone has 1/5 of the world's electric vehicles (Cobb, 2014). Some markets are being incentivized, leading to radical transformations. For example, the import tariff on cars in Hong Kong is 100% but electric cars have no tariffs creating an attractive new market (Hartung, 2015).

Green(ing) industry: a new organization of industry: Finally, Schumpeter believed that a new organization of industry was a fifth type of innovation. Schumpeter's believed economic growth is impacted by how effectively the structure of industry maximizes the use of limited resources (Caree & Thurik, 2003). "*Industrial mutation*" is the process of creating and destroying new markets, which "*incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one*" (Schumpeter, 1942, p. 83).

Economic market structures, government regulation and incentives, and personal networks motivate entrepreneurs to start a green business (Walley & Taylor, 2002). Policy and standards organize and reorganize industries, impacting environmental innovation (Madsen, 2008; Minniti, 2008). Although the Clean Air Act of 1970 (amended in 1990) gave the US Environmental Protection Agency (EPA) the authority to regulate toxic emissions, it did not recognize carbon dioxide emissions as toxic, nor did it give the EPA the authority to regulate these emissions. However, in a landmark 2007 decision, the Supreme Court ruled that the EPA had a responsibility to regulate carbon dioxide emissions (CO₂) as part of the Clean Air Act (Freeman & Vermeule, 2007). Thus, there are opportunities for green entrepreneurs to revolutionize industries as a result of this change. For example, in the case of the Oregon Biofuels, LLC, the state supported the use of infrastructure and incentives to make biodiesel a commercial enterprise that would influence the development of a renewable energy industry (J.G., 2004). Biodiesel enterprise development involves processing a "*variety of agricultural grains, including wheat, barley and oil seeds into consumer health products, bio-based products, ethanol and biodiesel*" (J.G., 2004, p. 43).

There are practical examples of green entrepreneurship related to the creation of new industries. Often these are brought about through regulation changes and one tool used in the US has been the '*Cap and Trade*' system. A Cap and Trade program places a mandatory limit or cap on emissions but provides flexibility on how to comply with the limit (EPA, 2015). The intent is

to create opportunities for entrepreneurs to find innovative ways to meet the limits creating new industries. One example is the EPA (EPA b, 2015) acid rain program to reduce electric power plant emissions of pollutants that result in acid rain. The goal was to reduce pollution by 10 million tons to below 1980 levels and the results were a 40% reduction in emissions that surpassed the goal (EPA b, 2015). The program provides incentives for utility companies to innovate to reduce emissions through new technology, alternative sources or efficiency improvements. This created a new industry due to the ability for utility companies to sell, use or bank surplus emissions reductions achieved through innovation (EPA b, 2015).

NEGOTIATING GREEN ENTREPRENEUR IDENTITY CREATES VALUE

Creative Destruction-Economic and Environment Value

Entrepreneurship is linked with value creation; however, the notion of value, specifically what type, has been largely debated in literature. Social entrepreneurship transforms societies socially, economically, and politically (Alvord et al., 2004), although it is more complex because of the diversity of entrepreneurial processes used in different contexts (Lumpkin et al., 2013) and industries (Waldron et al., 2016). Although social entrepreneurship is often used to describe social change agents (Dees, 2001), some scholars argue entrepreneurship creating economic value also provides social value (Santos, 2012). Dean and McMullen (2007) argue their view of sustainable entrepreneurship differs from traditional views of social entrepreneurship which *“tend to address mission-driven, rather than profit-driven entrepreneurship”* (p. 51). Researchers have noted the political aspects of sustainable entrepreneurship and suggest that the founder’s efforts may be successful through collective action (Pinkse & Groot, 2015). Further, scholars have introduced the value creation and institutional transformation associated at the intersection of different entrepreneurship types. Focusing on greater institutional change, McMullen (2010) proposed Developmental Entrepreneurship (DE) as an economic theory of social entrepreneurship involving entrepreneurship and innovation occurring at the intersection of Social Entrepreneurship (SE), Business Entrepreneurship (BE), and Institutional Entrepreneurship (IE). In the next section, we describe how green entrepreneurs create environmental value with positive societal implications.

Green entrepreneurship is an expression of principles and ethics (Rodgers, 2010) that shares social processes and attitudes associated with environmentalism, (Anderson, 1998). Schumpeter’s creative destruction process addresses entrepreneurship and value creation (Swedberg, 1991) in describing the activity of entrepreneurs who stimulated fundamental change in society (Larson, 2000). Anderson (1998) considered entrepreneurs as *“agents of change”* more likely to be able to *“fix”* environmentalism and that *“both entrepreneurship and environmentalism are founded on a perception of value”*; therefore, as societal attitudes supporting environmentalism increase, this *“social shift”* of environmental concern forms *“the basis for entrepreneurial opportunity”* (p. 135). Thus, we extend our discussion of green entrepreneurship and examine the economic and social value added through green entrepreneurship (Table 3).

The economy is impacted by decisions with environmental and social costs. Economic and social progress motivates green entrepreneurs to act, which then transforms those structures (Walley & Taylor, 2002). Green entrepreneurship creates environmental value (e.g., pollution reduction) (Dowell et al., 2000; Gallarotti, 1995; King & Shaver, 2001; Stone, 1997; Wagner &

Schaltegger, 2003; Wagner et al., 2001); thus, we can examine the economic and social value created by Green Entrepreneur Discoverers and Revolutionaries.

Economic value is created by Green Entrepreneur Discoverers and Revolutionaries because their innovations increase demand, which increases competition with the effect of potentially lowering prices and increasing availability. In Table 3, high economic value is interpreted to mean that demand for a product has increased or that market value has increased. Schumpeter (1934) believed that competition results from innovation. Green entrepreneur's innovations motivate competition that is essential to economic development. In addition to creating economic value, green entrepreneurs create social value in terms of reduced pollution, reduced healthcare costs, and lower unemployment rates. Additional value is created on a larger scale such as new green products, markets and industries to address climate change. This work by green entrepreneurs has positively impacted the natural environment and improved economic conditions including job creation (Isaak, 1998: 2002). Climate change has created a potential health crisis globally; carbon dioxide and toxic emissions trapped within the earth's atmosphere causes health concerns, such as increased asthma and potential cancer risks (EPA, 2015b).

Table 3 GREEN ENTREPRENEURSHIP AND VALUE CREATION–ECONOMIC AND ENVIRONMENTAL VALUE			
Economic Value	High	Profit-Driven Entrepreneur Identity Increased pollution rates Increased health costs (increase in asthma, cancer risks) Increased unemployment rate (increase in green jobs creation) Increased demand for goods Increased market value	Green Entrepreneur Decreased pollution rates Decreased health costs (decrease in asthma, cancer risks) Decreased unemployment rate (increase green jobs creation) Increased demand for goods Increased market value
	Low	Low Profit & Low Environment-Driven Entrepreneur Identity Increased pollution rates Increased health costs (decreased asthma, cancer risks) Increased unemployment rate (increase green jobs creation) Decreased demand for goods Decreased market value	Environment-Driven Green Activist Identity Decreased pollution rates Decreased health costs (decrease in asthma, cancer risks) Decreased unemployment rate (increase in green jobs creation) Decreased demand for goods Decreased market value

In summary, Green Entrepreneur Discoverers and Revolutionaries innovate via Schumpeter's creative destruction process with the potential to create environmental, economic and social value. Green entrepreneurship benefits are evident in Table 3 Green Entrepreneurship quadrant that has high economic and environmental value. Green entrepreneurs are creating value congruent with their micro-identities: a) high economic associated entrepreneur identity

expectations in terms of increased demand, increased competition, increased market share, and increased jobs; and b) high environmental value associated with green activist identity expectations in terms of better health result from green entrepreneurship.

LIMITATIONS AND FURTHER RESEARCH

In developing a revised approach to study green entrepreneurs, the methodology we have used has some limitations. A level of selective bias may have factored into the articles we included in our analysis. When we began our literature review, broad categories were used to gather relevant articles; however, we narrowed down our focus to papers to help us develop a framework within which we could distinguish green entrepreneur types based on social identity. We developed and relied on decision-rules as explained in our Literature Review section. Although these decisions-rules intended to provide some objectivity to our process, we were also limited to accessible databases. We recognize additional databases may increase the scope of our literature review and improve the quality of our analysis.

In future research, we believe that our typology provides a basis to advance the study of green entrepreneurship. Future research may wish to explore green entrepreneurship by theoretically and empirically examining the differences between Green Entrepreneur Discoverers and Revolutionaries in regards to environmental innovation; context; entrepreneurial opportunities; and, environmentally-focused social identities.

First, despite various attempts made to define green entrepreneurship, few empirical studies exist. Although environmental innovation has been studied using patents, new research may want to explore other ways to empirically examine green entrepreneurship. Are there specific policies that Green Entrepreneur Discoverers and Revolutionaries implement differently to develop environmental innovation within their enterprise? How can environmental innovation be measured in terms of impact? Is the performance impact of Discoverers and Revolutionaries different, and if so, why? Research can examine innovation resulting from regulatory policies within a geographic area by examining the market before and after the policy was implemented.

Second, our literature review indicates that it is necessary to consider context when examining green entrepreneurship. Shepherd et al. (2015) argue entrepreneurship research should consider the contextual nature of the entrepreneur's environment and the entrepreneur's perception of opportunities evolving from the geographic, legal, and market characteristics. Our Typology considers how context influences the identities Green Entrepreneur Discoverers and Revolutionaries, and creates different types of innovations. The institutional environment in which the green entrepreneur makes decisions is influenced by their perceptions of the geographic, legal, and market characteristics. The geographic context provides meaningful information about the physical resources available to the entrepreneur in creating new sources of supply. The legal context provides information about restrictions that can motivate innovation in new ways of production. In effect, the institutional climate, including government-related factors, institutional conditions, influence individual motivations to pursue entrepreneurial opportunities (McMullen et al., 2008). How does government regulation in varying country contexts legitimize the work of the Discoverer and Revolutionary differently? How does the type of economic system impact the type of innovation? Does a capitalist or socialist economy view green entrepreneurs differently?

Third, entrepreneurial opportunities can be examined differently through substantive entrepreneurial actions, exploring opportunity as happening, expressed through actions or within market structures (Dimov, 2011). Green Entrepreneur Discoverers and Revolutionaries have a

dual impact in terms of value: economic progress and improving our natural environment. Does this dual impact differ in how opportunities are identified and evaluated? Considering dual impact presents a more complex situation in which research can evaluate green entrepreneurs' identity development. Trade-offs between value creation and value capture impact the identity development of social entrepreneurs (Santos, 2012). Does this trade-off influence the identity development of Discoverers and Revolutionaries differently?

Finally, how do Green Entrepreneur Discoverers and Revolutionaries differ in terms of other aspects of their social identities that influence motivation to innovate? Researchers may want to explore how life experiences influence personality characteristics that characterize green entrepreneurs. This will allow entrepreneurship research to heed the calling to embrace multi-level research (Griffiths et al., 2012). Sustainability orientation and entrepreneurial intentions are related (Kuckertz & Wagner, 2010). Early challenges in one's life may influence the development of negative personality characteristics, such as aggressiveness and self-confidence (Miller, 2015) that may play a pivotal role in the green entrepreneurship identity development process. Do green entrepreneur identities differ in terms of personality and skills? Considering social entrepreneurship creates social capital, via influential networks that connect social and commercial entrepreneurship (Estrin et al., 2013), are Discoverers and Revolutionaries' identities influenced differently by their social networks? As social entrepreneurship influences opportunity recognition internationally (Zahra et al., 2014); are green entrepreneurs' identities influenced differently within a global context?

CONCLUSIONS

Schumpeter captures the innovative spirit of the green entrepreneur, as Schumpeter (1934) believed that successful innovation "*requires an act of will, not of intellect*" (Hébert & Link, 2006, p. 595); thus, we based our green entrepreneur identity typology in Schumpeter's motivation to innovate. Green entrepreneurs' focus on the natural environment is about the will to discover and to create, in preserving our future with decreasing resources. New York Times columnist Thomas Friedman (2008) explained that we are living in an "*energy technology revolution*", a revolution in which green innovative solutions are developed in people's backyards by individuals. The 21st century focus on renewable energy, organic raw materials, and sustainable business enterprises are based on whatever innovations can be produced at the level of the farmer or those closest to the raw materials of land, wind, water, and solar energy.

We began this paper by emphasizing that global climate change has created not only opportunities, but more interestingly, a pressing need for green entrepreneurship. Integrating Schumpeter's Theory of Economic Development with SIT creates a theoretical link to understand how green entrepreneurs motivate to innovate in ways that connect our natural environment and our society's economic and social development. Our literature review revealed that green entrepreneurship is still new, but evolving. We found that intellectual roots of green entrepreneurship can be traced back to the origins of entrepreneurship and to Schumpeter's focus on creative destruction and innovation. In addition, we found most green entrepreneurship research has focused on developing definitions for green entrepreneurship through which we noted the presence of Schumpeterian innovations. More importantly, we found the scholarly examination of green entrepreneur types based on social identity motivating different types of innovation and social identity has been largely unexplored theoretically in the literature.

By integrating Schumpeterian innovation with social identity theory, we examined green entrepreneur motivation to innovate. The main conclusion of this article is that green

entrepreneur social identities can be distinguished their motivations to pursue different innovation types; Schumpeter's theory creates a conceptual framework or typology through which we can understand different innovation combinations involved in green entrepreneurship. Secondly, we have used this typology to examine value impact by green entrepreneurship. Third, we contribute to the literature by introducing social identity theory to explain the motivations for people to become green entrepreneurs. Finally, we concluded with research implications based on our literature review. Overall, this article creates a conceptual framework within which we can theoretically and empirically frame further green entrepreneurship research.

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