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FOOD ENTREPRENEUR SUSTAINABLE ORIENTATION AND FIRM PRACTICES

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Abstract

This exploratory research examines the relationship between food entrepreneur sustainable orientation, mindset and firm sustainable practices in a mixed methods format. In particular we seek to address if entrepreneur behavior and firm practices are congruent with founding entrepreneur espoused support of sustainability. Our survey findings with thirty specialty food entrepreneurs suggest tenuous empirical support for the relationship of entrepreneur sustainable orientation, mindset and firm sustainable practices. However our qualitative results indicate positive relationships between sustainable orientation, mindset and practices. Evidence from this work highlights the critical role of founding entrepreneurs for successful implementation of sustainability along its multiple fronts including profitability.
Key Words: *Entrepreneur sustainability, sustainable orientation, sustainable firm practices, food entrepreneur*
JEL Codes: D22, D81, L26, Q01 & Q20

1. Introduction

Festinger (1957) and many of his supporters, the authors included, advocate that individuals strive to maintain consistency with their espoused beliefs and behavior. Supporting sustainability is likely to be no different, or is it? Today's normative belief that pursuing sustainability is good for all is pervasive and has captivated mainstream culture. In fact, many of entrepreneurs have joined the sustainability bandwagon. However, are they following through? Many of us remain challenged on how to operationalize sustainability in our daily behaviors, and especially within the organizations we create and serve. This challenge is quite substantial for the for-profit entrepreneur. This paper seeks to provide additional information to the debate by examining sustainability beliefs with behavioral linkages of for-profit entrepreneurs in the specialty food industry through utilization of quantitative and qualitative interview data.

The body of research on sustainable entrepreneurship is growing, which is understandable given the challenges we now face. Shepard and Patzelt (2011) define sustainable entrepreneurship as being focused on the preservation of nature, life support, and community in the pursuit of perceived opportunities to bring into existence future products, processes, and services for gain, where gain is broadly construed to include economic and non-economic gains to individuals, the economy, and society. Moreover, several scholars see entrepreneurship as a means to advance sustainable initiatives (Cohen, Smith, Mitchell, 2008;

Schlange, 2006). A few have examined individual beliefs in the sustainable arena (Choi and Gray, 2008; Gagnon 2012; Kuckertz &Wagner, 2010; Shepherd, Kuskova & Patzelt, 2009) and others have highlighted sustainability's role in entrepreneur opportunity recognition and enactment (Cohen & Winn, 2007; Dean & McMullen, 2007).

Three research questions guide this inquiry. First, we were curious to know if the entrepreneurs we interviewed demonstrated cognitive consistency with regards to beliefs and behaviors about sustainability. In particular do entrepreneurial beliefs about sustainability relate to new firm sustainable practices? In many instances, the values and beliefs of entrepreneurs set the culture and practices of the firms they found (Cardon, et al, 2009; Choi & Gray, 2008; Dess & Starr, 1992; Morris, Schindehutte, Walton & Allen, 2002; Schein, 2010; Sirsly, 2009). The second area we sought to examine were the linkages between decision-making factors that are thought to relate to sustainability. Specifically, we evaluated the relationship of decision influencing factors of morality, long-term orientation and holistic cognition (engaging in systems thinking versus linear) with sustainable orientation and mindset. Our third question was to determine if relationships exist between sustainable orientation, sustainable mindset and firm performance.

This work begins with an overview of sustainable orientation and mindset and then progresses to the theorized companion decision-influencing concepts of morality, holistic cognition and long term orientation. We then progress to examine current literature on sustainability and firm performance. A series of hypotheses are advanced, which were tested using a mixed methodology. Analyses were correlational and rich textual examples were provided to reinforce findings. The paper concludes with additional means for entrepreneurs to operationalize sustainability in their for-profit ventures and provide ideas for future inquiry.

1.1 Sustainable entrepreneurship and firm practices

The current century is one that will be defined by how we respond to the "wicked challenges" that humanity is expected to encounter. Naturally these challenges fall under the banner of sustainability and many scholars ask the question of how humans are going to sustain as we approach unprecedented population and resource consumption levels (United Nations, 2008; World Resources Institute, 2005). A recent report by the Kauffman Foundation highlighted the pressing challenges of feeding and providing bio-renewables for the world in the agricultural technologies space as a monumental challenge and as a field of entrepreneurial opportunities (Dutia, 2014).

Environmental and ecosystem pressures perhaps represent the canary in the coalmine as evidence of population growth and increased human affluence stimulates robust negative externalities such as pollution and excessive resource consumption. Many environmentalists cite pollution in the developing world and mass-scale pollution such as that found in the pacific gyre as haunting examples of our impact on the planet. Moreover, there is considerable focus on climate change adaption as scientists and policy-makers observe that change has begun (Smit & Wandel, 2006). On the resource side, scientists are engineering bio-renewable products and energy to move us away from our dependence on fossil fuels and non-renewable resources. Many would assert that we have a long way to go, even with the looming prospect of peak oil.

Several scholars indicate that for-profit entrepreneurs will be central to addressing the challenges that we will face under the banner of sustainability (Cohen, Smith & Mitchell, 2008; Dean & McMullen, 2007; Gagnon, 2012; Schlange, 2006; Shepard & Patzelt, 2011). The body of research on sustainable entrepreneurship is in its early stages and requires development (Bell &Stellingwerf, 2012; Shepard & Patzelt, 2011). Fortunately there is a growing stream of research that examines the role of sustainably focused entrepreneurs. Sustainable entrepreneurship is defined as being focused on the preservation of nature, life support, and

community in the pursuit of perceived opportunities to bring into existence future products, processes, and services for gain, where gain is broadly construed to include economic and non-economic gains to individuals, the economy, and society (Shepard & Patzelt, 2011).

Cognitive dissonance theory (CDT) is a useful framework to support the relationship of entrepreneurs espousing sustainability and the operationalization of sustainable practices in their new firms. CDT states that individuals are likely to engage in behaviors that are consistent with their values and beliefs. Moreover, when an individual's behavior is not consistent with his or her beliefs and values then the individual will experience dissonance, which tends to trigger rectifying cognitions or behaviors to reduce the inconsistency (Festinger, 1957; Cooper & Carlsmith, 2001). In the case of entrepreneurs with new firms, linkages exist between the firm founder and firm practices (Coase, 1937; Ucbasaran, Westhead & Wright, 2001) so that espoused founder values and beliefs should match the firm's practices.

Entrepreneurs that support sustainability demonstrate this support through decisions, firm practices and kindred beliefs. This has been shown with entrepreneurs in agriculture (Gagnon, 2012), manufacturing (Agarwal, 2011; Kesken, Diehl & Molenaar, 2013; Parrish, 2010) and renewable energy production (Bell and Stellingwerf, 2012). Moreover entrepreneurs who are oriented to sustainability have demonstrated relationships with other sustainably-oriented beliefs and mindsets. Therefore we proposed the following hypothesis that is also illustrated in Figure 1.

H1a: Entrepreneur sustainable orientation will be positively related to firm sustainable practices.

H1b: Entrepreneur sustainable orientation will be positively related to sustainable mindset.

H1c: Entrepreneur sustainable mindset will be positively related to firm sustainable practices.

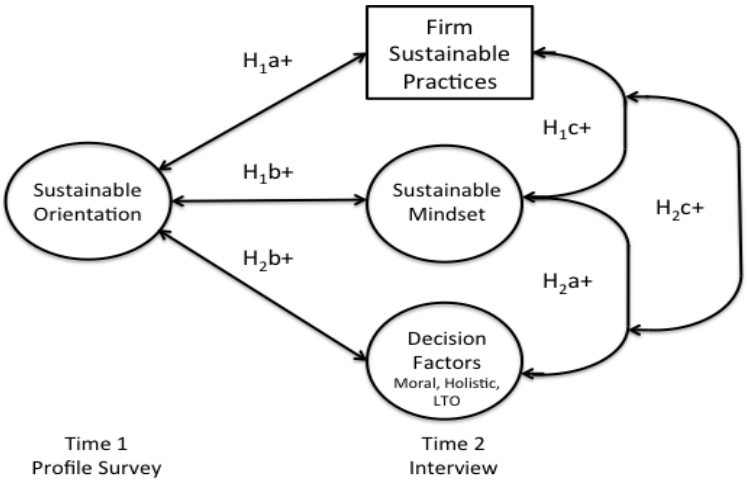

Figure 1. Correlational Model with Hypotheses One and Two

2. Theorized Decision Making Influencing Factors

Research in decision-making has highlighted the multitude of factors that influence managerial and entrepreneurial decision-making. A significant amount of research has been conducted on entrepreneur decision characteristics such as risk-tolerance (McGrath, Scheinberg & MacMillan, 1992), entrepreneurial orientation (Lumpkin & Dess, 1996; Miller, 2011) and need for achievement (Collins, Hanges & Locke, 2004; McClelland, 1961).

However, a limited body of work exists on the influence of managerial and or entrepreneurial beliefs and values on decision making. Béchervaise and Benjamin (2013) cite the necessity for entrepreneurs to make business decisions based on sound moral principles that acknowledge the role of business in generating net social capital. Rohan (2000) highlights the indirect role of individual values in framing attitudes and behavior. Personal values are responsible for directing an individual's course of action towards goal realization, whether business or personal. When focusing on small- and medium-sized businesses, Bos-Brouwers (2010) noted that in smaller enterprises the role of the entrepreneur in shaping business values and climate is the dominant force. This study found having sustainability-minded managers had a significant impact on the number and level of sustainably activities used by the firm.

Moreover, sustainable orientation appears to influence entrepreneur and small business owner decision-making (Gagnon, Michael, Elser & Gyory, 2013). Of particular interests to this work are the theorized sustainability companion beliefs of morality, holistic cognition and long-term orientation. In earlier research, relationships were discovered with morality (Gagnon, 2012), as well as other scholars theorize that individual holistic cognitive tendencies (Stevenson and Stigler, 1992; Monga and John, 2008) and long-term orientation (Béchervaise & Benjamin, 2013) are core components in being oriented to sustainability. Each of these three companion topics is examined below.

2.1 Morality

Morality in entrepreneurial activity is based on sound value principles and social responsibility (Béchervaise & Benjamin, 2013) while seeking to increase both individual and social well being rather than focusing solely on profit (Becker, 1963; Parra, 2013). Sustainability-oriented entrepreneurs espouse a moral and value system that pays attention to many stakeholders and acts to minimize negative externalities that occur as a result of doing business (Brundtland 1987; Elkington, 1998; Hawken, Lovins & Lovins, 1999; Parris and Kates, 2003; Werbach, 2009). More specifically, morals are an individual's code of values that frame right choice of actions versus wrong with respect to dealing with others. Industry has been one of the major contributors to resource use and environmental degradation (Parra, 2013; Cohen & Winn, 2007), and it plays an important role in shaping and expressing the value systems of the current and of future generations (Parra, 2013).

Recently, there has been a growing interest in sustainable entrepreneurship both as an academic subject and as a set of morals that highlights changing values in industry that have shifted more towards autonomy, responsibility, and collaboration (Parra, 2013). Industries have observed a growing willingness to pay for more sustainability-focused and morality-centered products and brands, which encourages sustainable entrepreneurship (Dean & McMullen, 2007). It has also been argued that a growing number of sustainability-oriented firms succeed as a result of the demand for more social-purpose organizations that value societal and environmental responsibility (Béchervaise & Benjamin, 2013). Moral business practices in the form of reciprocal altruism have also been found to be commercially beneficial for companies who use cause-related marketing to motivate consumer purchasing behaviors (Griskevicius, Cantu, & van Vugt, 2012; Varadarajan & Menon, 1988).

Morality in entrepreneurship for the business owner is important in the larger scale because in many enterprises, especially those small and medium-sized, the entrepreneur plays a dominant role in creating the culture for the rest of the company (Kuckertz & Wager, 2010; Bos-Brouwers, 2010). A study found that companies with sustainability as a core value integrated those priorities in their products and processes (Bos-Brouwers, 2010). In the field of entrepreneurship, morality is typically manifest in decision-based contexts. Studies have shown that one's values direct and coordinate actions and effects, and this holds true for entrepreneurs making business decisions (Rohan, 2000). Entrepreneurs must rely on their

morals and values to make decisions every day, whether it be about management, personnel, or actions and attitudes about the environment (Béchervaise & Benjamin, 2013; Parra, 2013).

2.2 Holistic Cognition

The tenet of holistic orientation allows for a broad mindset that every element in a system or process is interconnected and non-static (Choi, Koo and Choi, 2005). This view dictates that a person look at the whole picture, rather than focusing on a single object in a field and allows that person to see the complex linkages, overlaps, causalities, and relationships that are present in a system (Choi, Koo & Choi, 2005; Nisbett, et al., 2001; Monga & John, 2008). Entrepreneurs benefit from holistic cognitive processes because it allows them to look at systems as a whole and assign causality to observed phenomenon. Research by Witkin and others have found that holistic orientation tends to result from environments with strong social networks and interdependence (Witkin & Berry, 1975; Nisbett, et al., 2001; Uskul et al., 2008; Monga & John, 2008), and ecocultural studies have found that societies and economic groups that rely greatly on cooperation, conscientiousness, and conservatism foster holistic cognitive orientations (Uskul et al., 2008).

For the entrepreneur, a holistic approach allows for system-level thinking and the ability to perceive relationships and interactions in processes. Paying greater attention to the field as a whole allows the entrepreneur to perceive more information that he/she can use in decision-making and problem solving. Holistic thinkers are more likely to look at external factors that may play a role in their products and businesses (Monga & John, 2008). Monga and John (2008) use the example that when examining a poor quality product, holistic thinkers will tend to consider the entire value chain and the many external factors that may play a part in the product's manufacturing, whereas an analytical thinker will focus on internal, object-based reasons such as the producer's attempts to cut costs. Studies have also found that holistic thinkers tend to believe that effort, rather than natural ability, holds greater importance and apply this belief to business (Stevenson and Stigler, 1992; Monga and John, 2008). The process perspective may also help holistically-minded entrepreneurs by allowing them to discover market failures and thus capitalize opportunities that promote sustainability (Kuckertz & Wagner, 2010).

Sustainability and holistic cognition go hand in hand when one considers that holistic thinkers tend to look at social roles, obligations, and situational context (Stevenson and Stigler, 1992; Monga & John, 2008), as well as perceiving systems in the world as a whole: interconnected and relational. Therefore, entrepreneurs who think holistically will consider things that are not directly involved in their enterprise, such as society and the community, in decision making (Béchervaise & Benjamin, 2013). Sustainability-minded entrepreneurs consider the implications of decisions beyond the effects on their business and immediate tasks at hand. Moreover, sustainability-minded entrepreneurs value key aspects of holistic cognition such as seeing relatedness versus categories, placing greater weight on context, having comfort with contradiction, relying on change and not being quick to assign cause to objects alone (Choi, Koo & Choi, 2007; Monga & John, 2008; Nisbett, Peng, Choi & Norenzayan, 2001).

2.3 Long Term Orientation

The third tenet of sustainability examined is having a long-term, multi-generational view especially in regards to resource consumption and externalities. Entrepreneurs are commonly criticized for discounting their responsibility to society and merely exploiting opportunities without concern for the future. Sustainable entrepreneurs maintain the "triple bottom line" of balancing economic health, social equity, and environmental resilience in their enterprises (Kuckertz & Wager, 2010; Elkington, 1998). Long-term orientation extends to maintaining an

economically viable business for the next generation. The Brundtland Commission (1987) defined sustainability as meeting "the needs of the present without compromising the ability of future generations to meet their own needs". Entrepreneurs with long-term scopes recognize that both their future and future generations depend on the availability and health of resources. Thus, a long-term orientation is at the heart of sustainability.

Socially irresponsible behaviors, like exploitation of resources and the environment, may be beneficial on the short term but are unsustainable in the long term because of the toll they put on the common good (Béchervaise & Benjamin, 2013). Sustainability-oriented entrepreneurs seek to profit from innovations that benefit the individual and society as a whole (Kuckertz & Wager, 2010; Béchervaise & Benjamin, 2013). These entrepreneurs' value systems steer them towards the objective of future sustainable action (Parra, 2013).

Recently there has been a spark in academic interest in sustainable entrepreneurship and the social impact of their economic activity (Béchervaise & Benjamin, 2013; Parra, 2013). Research has found that a more sustainability-minded approach was present in societies where the economic activity was dependent on the long-term health of the environment. For example, farming and fishing communities tend to have long-term perspectives in their concerns about maintaining the environment, whereas herding societies, which could move to different areas, did not hold that view (Uskul et al., 2008). Thus, economies that are directly reliant on the long-term health of resources and society will adopt a long-term perspective on successful business practices. Similarly, as social issues have become more evident in our society, we have seen an increase in sustainable entrepreneurship, socially-minded cause-based campaigns in existing firms, and academic interest that reflects a long-term orientation (Griskevicius, Cantu, & van Vugt, 2012).

These prior works highlight that sustainable minded entrepreneurs examine their enterprises, decisions and actions as part of a deeply connected social and environmental context. Therefore we propose the following hypothesis:

H2a: Entrepreneur sustainable mindset will be positively related to the decision-influencing factors of morality, holistic cognition and long term orientation.

H2b: Entrepreneur sustainable orientation will be positively related to the decision-influencing factors of morality, holistic cognition and long term orientation.

H2c: Firm sustainable practices will be positively related to the decision-influencing factors of morality, holistic cognition and long term orientation.

2.4 Sustainability and Performance

Evidence is mixed for firm engagement in sustainable practices and performance. Earlier approaches in the sustainability literature have described supporting sustainability and firm profitability as a direct tradeoff (Porter & van der Linde, 1995). In particular, small businesses that pursued sustainability as a key business objective generally suffered with lower performance. In some instances this was the case as earlier firm conceptualizations of sustainability in practice were underdeveloped. In addition there has been a call to expand the concept of firm performance beyond financial performance into other avenues of value creation, including sustainability (Cohen, Smith & Mitchell, 2006). We would argue that many entrepreneurs' conceptualizations of sustainability are additive versus integrative to their business models and thus represent added cost. Moreover, many entrepreneurs and business owners equate sustainability with environmental initiatives alone such as reducing waste, the firm's carbon footprint or total consumption energy consumed (Sharma & Henriques, 2005).

Firms are actively embracing sustainable practices due to consumer demand and to increasing supply chain constraints that call for reliable sourcing (Kiron, Kruschwitz, Ruber, Reeves & Fuisz-Kehrback, 2013). In addition, notable stories of company success are being

brought forward as entrepreneurs build their businesses with sustainability as a part of the business model (Ludeke-Freund, 2013; Werbach, 2009).

However, in the context of specialty food entrepreneurs we would argue that the majority of these entrepreneurs do not possess the knowledge to integrate sustainability into their business models and therefore being sustainable oriented and engaging in sustainability will negatively impact their firm performance. Therefore, we proposed the following hypothesis, also shown in Figure 2.

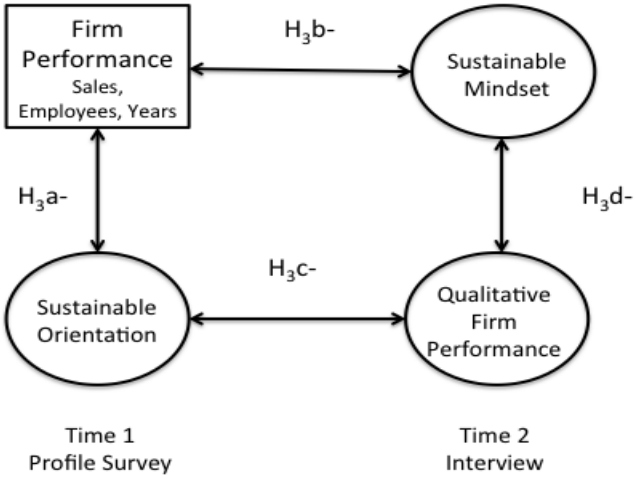

Figure 2. Correlational Model with Hypothesis Three

H3a: Entrepreneur sustainable orientation will be negatively related to quantitative firm performance (operationalized by sales, employees and years in business).

H3b: Entrepreneur sustainable mindset will be negatively related to quantitative firm performance (operationalized by sales, employees and years in business).

H3c: Entrepreneur sustainable orientation will be negatively related to qualitative performance (interview data performance rating).

H3d: Entrepreneur sustainable mindset will be negatively related to qualitative performance (interview data performance rating).

3. Methods

3.1 Sample and Data Collection

We attended two specialty foods shows to meet prospective entrepreneur study participants. Our show goal was to build rapport and recruit entrepreneurs to participate in our study. Participants were selected if they had founded a firm that was less than 10 years old. After the show, we followed up with entrepreneurs by sending them a link to an on-line profile survey that asked them for firm background information. After each participant completed the profile survey, we contacted him or her to conduct a 45-minute interview to better understand entrepreneur views on sustainability and learn more about firm sustainable practices. These data were compiled for descriptive statistics and analysis. We analyzed survey and interview data from a convenience sample of 30 specialty food entrepreneurs.

Table 1. Respondent profile information

Years in Business (n=28)	
Mean	5.9
Median	4.0
Full Time Employees (n=28)	
Mean	4.4
Median	2.0
Entrepreneur Type Percent (n=28)	
Founder	92.3
Early Team/Owner	6.7
Location Percent (n=28)	
Northeast	32.1
Southeast	25.0
Midwest/South	14.3
West	28.6

Revenues Percent (n=23)	
Greater than $1,000,001	6.7
$500,001-$1M	30.0
$100,001-$500,000	3.3
$50,001-$$100,000	10.0
Less than $50,000	26.7
Product Category Percent (n=30)	
Sauces & Condiments	26.7
Cookies & Confectionary	33.3
Snack Foods & Beverages	23.3
Spices & Seasonings	16.7
Gender (n=30)	
Male	66.7
Female	33.3

Table 1 shows that respondents were primarily male (66.7%), in business for an average of just less than 6 years and were primarily a firm founder. Respondent sales ranged from 26.7% under $50K, 10% from $50K to $100K, 3.3% between $101K-$500k, 30% between $500K and $1M, and 6.7% with sales exceeding $1M. Entrepreneurs from the northeast lead the sample geographic distribution at 32.1%, the southeast at 25%, west at 28.6% and Midwest at 14.3%. Of these businesses, the majority of the sample represented businesses specializing in cookies and confectionary at 33.3%, sauces and condiments at 26.7%, snack foods and beverage at 23.3% and spices and seasonings at 16.7%.

3.2 Measures and data analysis

Sustainable Orientation-We utilized a modified version of Kuckertz and Wagner's (2011) sustainable orientation scale that was tested and developed by the author in prior research (Gagnon 2012; 2013). The 5-point Likert type scale measures individual orientation to supporting the tenets of sustainability. The scale has 8 items and demonstrated a sufficient reliability (α =0.86). An example item is "Companies should take a leading role in the field of environmental protection."

Sustainable mindset- we developed a qualitative 5-point measure of sustainable mindset to evaluate the interview transcripts of entrepreneurs. We utilized the following rubric to code the transcripts:

1= no reported sustainable practices and no expressed desire to support sustainability

2= slight attention to sustainability with one or fewer practices reported

3= modest attention to sustainability with less than three practices reported some desire to do more about sustainability

4= entrepreneurs who are engaged in 3 but no more than 5 sustainable practices and are actively incorporating sustainability in their business beyond just environmental

5= entrepreneurs are engaged in 5 or more practices including and beyond environmental practices and their business core is grounded in sustainability

Sustainable practices -We coded the number of discrete practices that entrepreneurs reported during their interviews including their responses to the question, "Are you incorporating sustainability into your business model? If yes, how so?" In addition, during interviews, interviewers asked for specific examples that came to mind as a follow-up question. Events reported were recycling, reusing, reducing waste, supporting community initiatives and supportive fair employee practices.

Performance-We also evaluated interview transcripts qualitatively for firm performance using the following 5-point coding themes:

1- poor performance, in risk of closing business

2- marginal performance, more needs to be accomplished to make the business viable

3- acceptable performance, appear to be accomplishing goals

4- good performance, notable goal accomplishment and financial vitality

5- exceptional financial performance, growth is occurring and goals are being exceeded

Decision-making support concepts: morality, holistic cognition and long term view. We utilized the following 3-point coding scheme for the four decision support concepts to evaluate entrepreneur interview transcripts:

1 = did not use 2= somewhat used 3= extensively used

Table 2. Intraclass Correlations for Interrater Reliability

Variable	**IntraClass Corellation**
Sus Mind	0.85
Sus Count	0.83
Qual Perf	0.82
Moral	0.59
Holistic	0.49
Long Term Cog	0.62

Three researchers independently coded entrepreneur transcripts for each of the measures listed above. The interclass correlation coefficient (ICC) was used to determine coder inter-rater reliability (Hallgren, 2012; McGraw & Wong, 1996). The average ICC is reported in Table 2 for each qualitative code used. All measure fell into acceptable ranges with the lowest being .49 and the highest being .85 (Cicchetti, 1994), indicating that coders had a high degree of agreement.

4. Results and Discussion

Overall partial support was found for hypotheses one and two (see Figure 3 and correlations are reported in Table 3). The proposed positive relationship between sustainable orientation (SO) and firm sustainable practices (SP) was non significant (H1a = n.s.). However the sample size was low (n =28) and the correlation was 0.23, which indicates that, given a larger sample size, a relationship may exist. Moreover, interview data was split into high and low quartiles for sustainable orientation and noticeable differences existed with entrepreneurs reporting firm sustainable practices and discussing sustainability during their interviews. H1b was supported by a positive relationship ($r = .48$; $P<0.05$) between SO and entrepreneur sustainable mindset (SM). Further, clear differences existed between entrepreneurs with high versus low SO quartile splits. The following entrepreneur vignettes when asked about how they are

incorporating sustainability into their business provide a notable contrast between high and low SO.

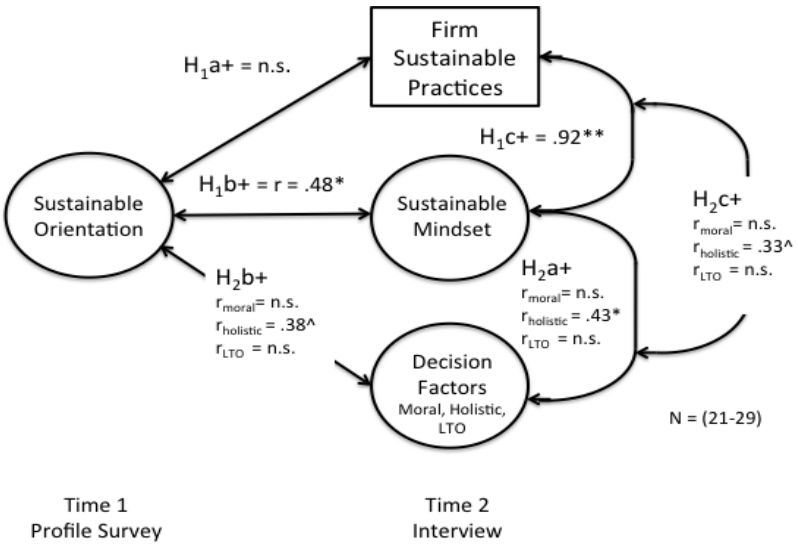

Figure 3. Results for Hypotheses One and Two

High SO quartile (SO value > 4.72; 5-point scale)

Entrepreneur #5 expressed that sustainability is at their firm's core. "Absolutely, core to what we are doing…we are running off propane right now to evaporate water which has a significant cost with it and a pretty tremendous carbon footprint, but that's not who I am, [*named business partner*] and I strongly believe we want to create this business and make a carbon neutral product."

Low SO quartile (SO value < 3.66; 5 point-scale)

Entrepreneur #2 expressed her thoughts about sustainability with the following quote: "And I put that in the category too of the sustainability thing too you know it all sounds good but a lot of times it's just a lot of bullshit."

The third part of hypothesis one, positing a relationship between sustainable mindedness and practices (H1c), was supported ($r = .92$; $P<0.01$). Significant overlap has occurred since the measure of sustainable mindset included examples of practices. In essence, both variables measured practices which thus contributed to the high correlation. However, notable associations were present when examining entrepreneur interviews for highly rated sustainable-minded entrepreneurs. The following two examples once again demonstrate high versus low sustainable-mindedness. The first entrepreneur views sustainability as an opportunity and is immersed in discovering how his company can be more sustainable. The second entrepreneur questions sustainability's value when people are not willing to pay.

Table 3. Correlation table with means and standard deviations

	mean	SD	SO	Sus Mind	Sus Count	Moral	Holistic	Long Term Cog	Revenue	Employee F.T.	Years	Qual Perf
SO	4.07	.66		.48*	.23	.19	.38^	.03	.18	-.06	-.23	.14
Sus Mind	2.20	.92	.48*		.92**	.31	.43*	.18	-.10	-.36^	-.33^	.42*
Sus Count	1.64	1.25	.23	.92**		.25	.33^	.17	-.09	-.37^	-.23	.38^
Moral	2.15	.55	.19	.31	.25		.74**	.63**	.11	-.06	-.32	.46*
Holistic	2.20	.47	.38^	.43*	.33^	.74**		.68**	.36	-.07	-.05	.60**
Long Term Cog	1.86	.48	.03	.18	.17	.63**	.68**		.45*	.23	-.16	.70**
Revenue	2.57	1.34	.18	.10	.09	0.11	.36	.45*		.58**	.38^	.45*
Employee F.T.	4.41	6.95	.06	.36^	.37^	-0.06	.07	.30	.58**		.25	.16
Years	5.86	5.61	.23	.33^	.23	-0.32	.05	-.16	.38^	.25		-.07
Qual Perf	3.42	0.62	.14	.42*	.38^	.46*	.60**	.70**	.45*	.16	-.07	

^ Correlation is significant at the 0.10 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

High SM quartile (SM value > 2.67; 3-point scale)

Entrepreneur #28's response when asked about incorporating sustainability into his business: "Yeah. As far as every little aspect now that we are really trying to really break it apart now we feel we are really a company that made it right now … so we are taking a big deep breath and how can we really benefit this whole sustainability issue down to you know our packaging, we have a product that the plastic is fifty percent recyclable you know, we are even looking at other methods, we are also taking any products out there that have a byproduct and how we can use it, like we have all that [ingredient] you see in those plastic containers that comes into our place and we finally have made a bigger decision to haul it straight from the farms to our place in these reusable plastic containers instead of these cardboard that have to go to the plant, and even though those have been reused, less waste on that end. And once we bring them into the plant one of the biggest things that we did all that [ingredient] gets de-stemmed and in that stem there is so much nutrients that we really were using and letting that go out to hog farmers. So we ended up taking the [ingredient] stems and grinding it all up, adding some other stuff to it and ended up coming out with a [new product]. And we just launched that about a month ago and that is going fantastic. So there is a whole byproduct that we turned into something that we can use, which will ultimately bring the price down eventually. We are just always trying to come up with new ideas now for power…"

Low SM quartile (SM value < 1.67; 3-point scale)

An entrepreneur describing her view on sustainability: "You can be as green as you want to be and if that's how you make your money-great. Bottom line, it's always money. So in my business, it's not important. To my consumers it's not important. But if it was, you can bet I'd be all over it. But it's not so I don't worry about it."

4.1 Sustainability and decision factors of morality, holistic cognition and long-term orientation

The second hypothesis examined the relationship between SO, SM and the decision factors of morality (MOR), holistic cognition (HC) and long-term orientation (LTO). H2a was partially supported with a positive correlation between HC and SM ($r = .43$; $P<0.05$). MOR and LTO were non-significant, however, the correlations were positive and demonstrated some robustness given the low sample size. H2b was only partially supported with a relationship between HC and SO ($r = .38$; $P<0.10$). The third part of hypothesis 2, H2c demonstrated slight support with slight relationship between HC and firm sustainable practices ($r = .33$; $P<0.10$). Overall the results for the decision factor concepts of MOR, HC and LTO demonstrated mixed correlations with the sustainability variables. Table 3 demonstrated that the correlations were all in the positive direction, however, the majority of these correlations were not large enough to be significant.

Examining holistic cognition on high low quartile splits demonstrated qualitative evidence for the relationships of this factor with entrepreneur sustainable mindedness and firm practices.

High holistic cognition quartile (HOL value >2.66 on 3 point scale)

The following vignette about ingredients sourcing from Entrepreneur #19 highlights the relationship between holistic cognition and sustainability. In her story she is relating sourcing high quality ingredients with supporting local business and the economy.

"In a way, we sort of support each other. For example, I buy very high quality fruits and nuts. So I'm not buying my fruits from big, I can't even find them from places like [business name A] or [business name B], I have to buy them from companies who are doing high quality things with their fruits and nuts, so I'm supporting another business by using better ingredients."

Low holistic cognition quartile (Hol value < 1.67; 3-point scale)

Entrepreneur #11 discusses one of his company's fundraisers that was directed at helping local schools. In this vignette there is some tie to the community aspect of sustainability, however altruism is a secondary motive to him selling his product. Moreover his explanation of the program did not appear to be well thought out, which provides evidence non-holistic thinking.

"We are coming up with a fundraiser sheet that we already got signatures from six different groups of people from churches and stuff like that, kind of like [well known fundraising organization name]. Each person is responsible to sell, so much our goal is to say go to a school system, if we can sell one pallet of [product]. You can mix and match it however you want; this is what you will get off of it. Each kid is responsible in selling two cases. And once the kid sells two cases, we know what our cut is and here is what your cut will be…"

4. 2 Sustainability and performance

The third set of hypotheses examined the relationships between sustainability and firm performance and are illustrated in Figure 4. H3a was non-significant for SO and quantitative indices of sales, employees and years in business that serve as common proxies for firm performance. Employees and year correlations with SO were negative and revenue was positive so these results further indicate inconsistency. H3b demonstrated mixed results between sustainable mindset and the firm performance proxies as well. An employee positively correlated with SM and was significant ($r = .43$; $P<0.05$), however this was the

opposite of the proposed negative relationship. The relationship between years and SM supported hypothesis H3b (r = -.33; P<0.10).

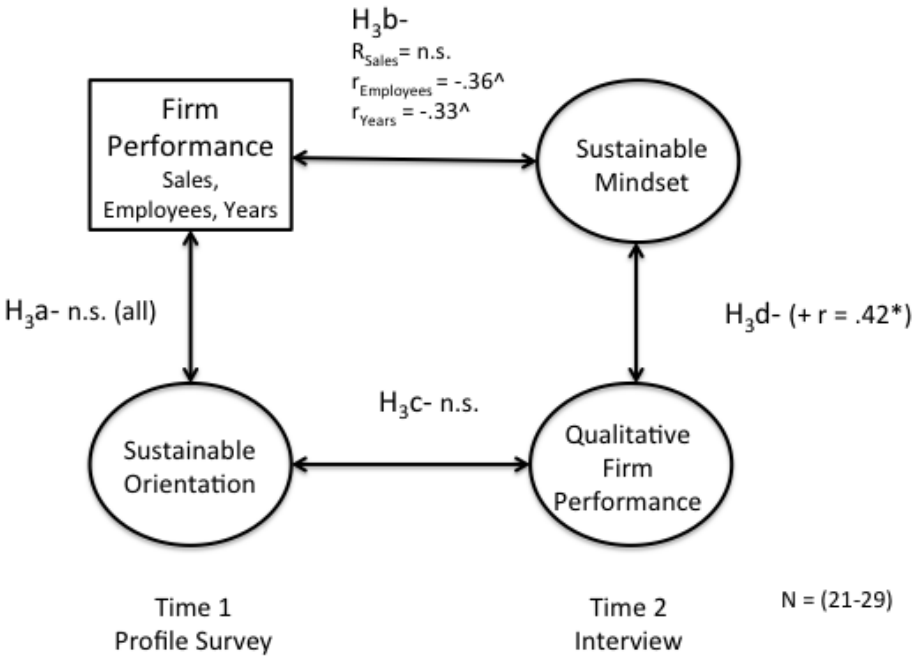

Figure 4. Results for Hypothesis Three

H3c proposed that the relationship between SO and qualitative firm performance would be negative. The correlation was non significant and the correlation coefficient was positive. The last performance relationship tested was between sustainable mindset and qualitative firm performance. We proposed that these relationships would be negatively related for H3d and the findings were significant in the opposite direction (r = .42; P<0.05). SM and qualitative performance were coded from the interview texts so it is likely that some of the co-variance was shared by common method. However understanding the linkages between sustainability and performance remain elusive and are likely to be contingent in nature.

The qualitative interview data had cases that demonstrated the contingent nature of entrepreneurs supporting sustainability and expressions of both high and low firm performance. Entrepreneur #28 discusses his business and demonstrates many ties to sustainability; not only in the environmental sense, but also community since his product lines are focused on health and wellness. The following quote highlights how well his firm has performed over three years. “We are a ten million dollar per year company, selling [product] all over the United States right now, and we are growing, still, leaps and bounds because there really are no other healthy snacks out there and people are just looking for that, to feel better.”

In contrast, entrepreneur #5 was really struggling with competition and financial pressure and performance was questionable. The following quote illustrates his struggle. “Stress. Big thing is stress. It comes down to being marginally capitalized and making [it] through these initial years and staying afloat and having to make the big leap. And it was all an academic idea: an academic exercise, writing the business plan and coming up with the idea and designing machinery. And it’s a whole different deal when you have a check in your hand and you’re at the bank to cash it. It becomes reality at that moment. At that point you’ve borrowed

money and you've second-mortgaged the house and the academic exercise has become very, very real. There's a quote by Winston Churchill, I've always thought I understood it, but now it makes sense that is 'When you play with more than you can afford to lose you understand the game.' And that's it, we are all in. We've quit our regular jobs that we've held for a decade and we're now in the [business]."

5. Conclusions

Evidence in this work partially supports that relationships exist between entrepreneur sustainable orientation, mindset and firm sustainable practices. One limitation was the limited sample size. We believe this work may be one of the few that demonstrates linkages between entrepreneur sustainable beliefs and practices that will hopefully open new ground for contribution. The measure of sustainable orientation originally constructed by Kuckertz & Wagner (2010) has shown to be reliable across samples and represents a good start for exploring entrepreneur beliefs about sustainability. The qualitative measures and subsequent coding of sustainable mindset can be improved upon. However, even in its emergent stages evidence of this mindset exists within the data. We see potential for developing additional measures for the concepts of individual sustainability mindset (Ellison & Nidumolu, 2013), firm sustainable practices and sustainability performance (Epstein and Roy, 2001).

Exploring relationships between entrepreneurs, context and firm sustainable practices provide promising pathways of how sustainability can be operationalized in a for-profit context. The interview data presented multiple examples of sustainable practices, many of which fall in the area of environmental practices. These practices represent good first steps, however more can be done. For example, sustainable entrepreneur exemplars in the study demonstrated more diverse sustainable practices and integrated sustainability into their core business model. Not only did they have robust environmental improvement initiatives, but they were also addressing the social and economic aspects of sustainability. For example, Entrepreneur #28 in this study is bringing wellness to people and his community and has demonstrated sustainability being at the core of his business model. In his case, sustainability is centered with his customers and resonates to all aspects of his business including his supply chain. Moreover, profitability is strong and his business is experiencing significant growth.

A goal of this work was to begin to unpack the set of entrepreneur beliefs that compose sustainability. Morality, holistic cognition and long-term orientation are three that we posited would relate based on sustainability literature and prior research. Each of these beliefs captures a core tenet of sustainability. Morality in its simplest form is respecting others rights and equality, which has been a core tenet of sustainability. The element or relatedness and systems-thinking emerge from how one defines sustainability and can be grounded in the belief of holistic cognition. Finally, sustainability calls each of us to think and act for the long term thus connecting to individual time orientation beliefs. Moreover, in this study each of these beliefs were distinct yet related to each other in the correlation matrix, demonstrating evidence of a set of entrepreneur sustainable beliefs. Further, it would be helpful for us to better understand how these beliefs exist and are operationalized by entrepreneurs. Are there times when these beliefs conflict, reinforce and take precedence in entrepreneurial decision making? How do these beliefs influence entrepreneur behavior and firm practices? Understanding these relationships will be helpful for training future entrepreneurs and for firm development.

Determining entrepreneur linkages with firm performance is elusive and represents a critical question for the field. This becomes further complicated when sustainable beliefs are examined with performance. Just like the findings in this work, sustainability and performance findings are mixed in the literature. However there is some evidence that sustainability is becoming a key element of firm performance. This case can be made for larger firms (Kiron, et al., 2013). In addition, we posit that sustainability has to be a foundational element of the

firm business model for a robust sustainability-to-performance relationship. Moreover, the market context can also bolster or hinder this relationship. For example, raw foods and gluten-free products meet a core need for certain groups of people and relate well to the social pillar of sustainability. Rey (2011) found the social pillar of sustainability to link with performance in his sample of Dutch SME's. We argue that contingent relationships exist between sustainable-oriented entrepreneurs, firm practices, stakeholders, resources and context. Research that jointly investigates these themes would greatly improve our understanding of sustainable entrepreneurship.

On the applied front, entrepreneurs should be encouraged to think about sustainability and their firms. Ideally, sustainability should be considered before firm founding, and serve as an element in opportunity evaluation and during firm planning. For example, are aspects of sustainability valuable to potential customers? What current sustainable practices exist in the industry space? Examining the industry value chain for sustainability opportunities during firm formation will likely yield benefits.

Entrepreneurs with existing business can also benefit by examining avenues to employ sustainability with their firms. Environmental and waste reduction efforts tend to be acted upon first and can yield quick returns. Entrepreneurs should also take a critical look at their firm's routines, resource utilization and returns. In addition, incorporating sustainability in an existing firm is best done stepwise and tends to be successful when it is approached as a continuous improvement effort. Successful sustainable oriented entrepreneurs interviewed in this research not only addressed the environmental and social tenets of sustainability, they also achieved positive economic impact that reinforced their competitiveness.

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