Direct-Marketing Strategy Conceptualization for Small Farmers in Iowa:

Decision-Making Activities and Their Parallels to the Design Process

by

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ABSTRACT

This study explores the processes of designing strategies. The context of this research is scoped to the direct-marketing activities of small farm operators in eastern Iowa. The research intent is to explore and articulate trends in decision-making processes that assist small farm operators in eastern Iowa with direct marketing farm-to-table products, to explore and articulate how the design process creates differentiated value, and to explore and articulate the relationship between the design process and the way that small farm operators in eastern Iowa conceptualize their direct-marketing strategies.

The research design takes a post-positivist approach and uses a grounded theory methodology. The study does not have a starting hypothesis but instead starts with the research intent described previously. Convergent mixed methods and a flexible plan are used for data collection including semi-structured interviews and surveys with key concepts operationalized into Likert scales. The participants are selected from eastern Iowa farmers' markets and Community Supported Agriculture (CSA) directories. For the qualitative data analysis, a grounded theory method is used to code interview response data, categorize the codes into related groups, and let the themes and sub-themes emerge from the data. For the quantitative data analysis, descriptive and inferential statistics are calculated on the aggregate data set.

The study finds that small farm operators are making strategic decisions about marketing mix variables such as product quality and relationship building, there are statistically significant correlations between design concepts and direct-marketing strategies, and that farmers designed their strategies by using the design process.

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INTRODUCTION

This research is focused on the process of designing strategies. The context of this research is scoped to the direct-marketing activities of small farm operators in the geographical region of eastern Iowa. The research intent is to explore, articulate, and understand trends in decision-making processes that assist small farm operators in eastern Iowa with direct marketing farm-to-table products. Additional goals of this research are to explore, articulate, and understand how the design process creates differentiated value and to explore, articulate, and understand the relationship between the design process and the way that small farm operators in eastern Iowa conceptualize their direct-marketing strategies.

Problem Statement

This inductive, exploratory research is focused on the gap that exists between small farm businesses, direct-marketing strategy, and design thinking. As mentioned, this is primarily a research study on design thinking that situates design within the context of small-scale local farm businesses in eastern Iowa and their direct-marketing strategy formulation. As these types of small farms keeps increasing in number across the United States, it's important to understand different methods that these farms can use to enhance their strategic marketing outcomes, particularly the design process.

Research Topic and Questions

This study does not start with a hypothesis. It uses a grounded theory approach: the goal of this research strategy is to have the data generate insights, takeaways, and better questions. In order to focus the data collection and insights toward the overall goal of the study, the following research questions are the starting point:

- **RQ1**: What are the trends in decision-making processes that assist small farm operators in eastern Iowa with direct marketing farm-to-table products?
- **RQ2**: Is there a relationship between small Iowa farm operators' direct-marketing strategy formulation and the design process?
- **RQ3**: How does the design process create valuable direct-marketing strategies for small Iowa farm operators?

Rationale

The design process, its distinct phases, and activities that advance a designer through those phases is the core of this research study. Direct-marketing strategy is the artifact being used to illustrate the design process within the context of eastern Iowa small farm operators' business activities. Marketing strategy for farmers has many parallels to design. The seasonal nature of farming, as well as the different product cohorts within a season, are conducive to prototyping and feedback loops for continuous improvement.

Conceptual Framework

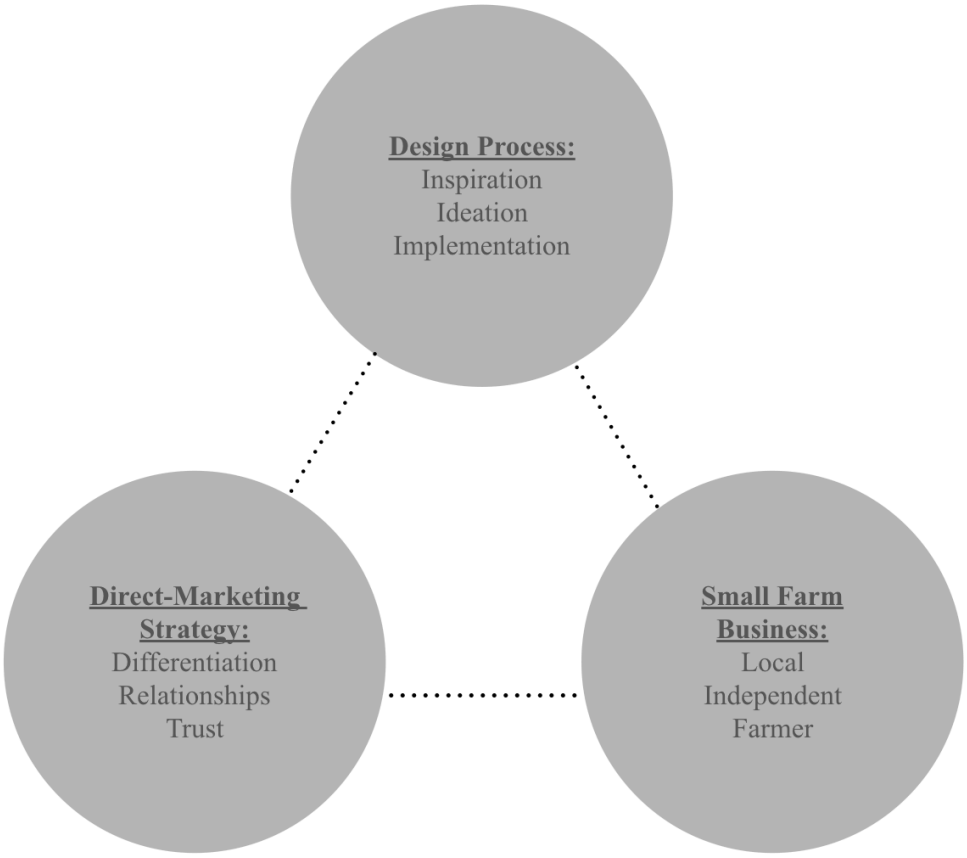

Figure 1. Starting conceptual framework.

This research studies the connections and interactions between the design process and its phases, direct-marketing strategy (limited to differentiation, building relationships, and trust), and small farm businesses with distinct characteristics such as being local, independent, and operated by the actual farmer—as depicted in Figure 1. The researcher believes there are relationships between these elements, but this research study does not start with a hypothesis—instead, it's an inductive, exploratory study to better understand the factors and their relationships.

Scope

The main focus of this study is the design process. As mentioned previously, direct-marketing strategy is the artifact that the design process is being applied to within the context of small farm operators who direct market their goods in eastern Iowa. Professional and experienced designers and their cognitive worldview seldom engage the enterprises of production agriculture, and agriculture producers seldom encounter the frameworks, processes, and jargon of designers. This research will explore the potentials of overlap and cross-application of those two perspectives. This particular intersection has been intentionally focused on because all farmers that direct market are affected by their strategy or lack of strategy. The design process applied to this artifact might be able to enhance the outcomes of the marketing strategy and have substantial impact on the farm business's viability and longevity. This focus allows this research to determine if farmers are aware of this potential opportunity.

Limitations

Each main area of this study has its own extensive body of knowledge that is referenced. It is not feasible for this study to consider the full body of knowledge in its entirety. Because this research seeks to interrogate the intersection, each of these areas necessarily has been limited to specific factors to make the study more manageable. This section's intent is to explicitly acknowledge these limitations.

Additionally, this research study limits farmers' marketing to direct marketing. Direct marketing to customers requires a different approach than selling to wholesalers or supply chain processors. The marketing strategy in this research study is limited to the ways a farm marketer designs their brand, ways of differentiating themselves from the

competition, and the ways they position their products—which includes but is not limited to product choices and target customers. Direct marketing has been limited to concepts of differentiation, trust, and relationship marketing. Finally, small farm operators as research participants have been geographically reduced to the region of eastern Iowa as well as restricted to the sales practice of direct marketing as their primary sales channel.

Goals

The goals of this research are to gain a better understanding of how farmers as non-traditional designers use the design process even if they are unaware that they are doing so. The design process has opportunities to enhance outcomes, so this research seeks to identify if farmers gravitate towards the activities of designers such as gaining inspiration, ideating concepts, and implementing prototypes that are possible to iterate.

An additional goal is to gather data about this implied design process's effectiveness toward achieving successful outcomes with direct marketing.

Significance

Eastern Iowa is a leading region for direct marketing small-scale local food. Competition in the space is strong because of all the entrants. Farmers need innovative approaches to their strategy in order to be competitive.

Farmers are continuously learning what works and what doesn't season over season. This feedback loop allows farmers to capture inspiration from customers and competitors, ideate their own unique strategies, and implement them for the season. They can then iterate for the next season.

This process mirrors the core principles of design thinking. This research study aims to connect knowledge gaps about what design practices farmers use for their marketing strategy development.

Summary

This research is inspired by the researcher's professional pursuits in both design and direct-market farming. The researcher brings the perspective of a professional designer to the activities and context of a direct-market farm business, and this research study will advance the researcher's understanding of opportunities to apply the design process to small-scale farming.

LITERATURE REVIEW

Introduction

For the purposes of this research study, this literature review covers four main areas: direct-marketing farm businesses, strategic marketing, design thinking and the design process, and social science research design pertinent to this study. The scope of each topic is limited to high-level concepts from seminal works that inform the theories of the conceptual framework.

Agriculture, Small Farms, and Local Food

This section of the literature review will discuss agriculture in the United States, particularly challenges of modern small-scale farms and the opportunities of local food.

Formation of conventional United States agriculture. Conventional agriculture, especially in the United States, was largely shaped by what Montgomery (2017) called *revolutions*. Montgomery stated that the first revolution was due to the initial idea of cultivation and the introduction of animal labor and the plow, the second revolution, beginning at different times in different parts of the world, was due to farmers adopting soil husbandry to improve their land, the third revolution was due to industrialization, and the fourth revolution was due to technological advances that "boosted yields and consolidated corporate control of the food system through proprietary seeds, agrochemical products, and commodity crop distribution" (p. 27).

Thicke (2010) also noted technological advances that fundamentally changed agriculture leading up to, through, and after the Industrial Revolution:

> Changes in agriculture came gradually for the first 200 years of the Industrial Revolution. First, wooden farm implements were replaced by iron ones…Eli

> Whitney invented the cotton gin in 1793…John Deere began manufacturing steel plows in 1837…In the early 1900s, the first practical tractors came into use. (p.13)

Additionally, after World War II, Thicke (2010) noted that not only mechanization but also chemicals changed agriculture:

> The close of World War II made new tools widely available to accelerate the industrialization of crop production…factories that had made explosives could be converted to making nitrogen fertilizer, and chemicals developed during the war were found to be effective as pesticides (pp. 14-15)

These technological advances shifted the economics of farming. Montgomery (2017) noted that:

> In the second half of the twentieth century, a bigger-is-better philosophy shaped agricultural policies and subsidies that promoted monocultures and divorced animal husbandry from crop production. As the size of the average American farm tripled between 1930 and 2000, from about 150 to 450 acres, the foundation of farm income shifted from diversity to specialization…
>
> Small farms began disappearing as farmers got squeezed in a system that prioritized commodity production over farm profitability. In 1930, one U.S. farmer fed a dozen people. By 1990, an American farmer fed a hundred of their fellow citizens. Larger farms translated into fewer people on the land and ultimately sapped economic vitality from small towns across America. (pp. 167-168)

Throughout history technology has been a major impetus to paradigm shifts within agriculture, and these shifts have had downstream economic consequences among other issues.

Challenges from conventional agriculture. These changes from small farms to increasingly industrial-sized operations have caused challenges including ecological degradation, rising greenhouse gas emissions, fragile systems dependent on cheap fossil fuels, taxpayer resentment with industrial farm subsidies (Pearson, 2007; Rhodes, 2015; Rhodes, 2017). Montgomery (2017) added:

> We've already degraded at least a third of the world's agricultural land. A *third*. And though we rarely hear about it, degradation of farmland presents as great a threat to civilization as global conflict, our exploding population, climate change, and dwindling supplies of fresh water (p. 17).

Additionally, Thicke (2010) noted the economic challenges that the consolidation of agriculture has had—forming monopolies (the author defines as greater than 40% market share controlled by only four corporations) in vertical markets by commodity such as beef, pork, broilers (chicken), flour milling, seed, and more.

Janssen (2017) noted that with these consolidated industrial-scale farms also comes food safety scares. Agriculture is one of the most essential industries that makes civilization and enhanced quality of life possible for everyone in United States.

Conventional agriculture challenges for Iowa. Because this research study is situated in Iowa and the research participants are Iowa farmers, this section also addresses Iowa's agricultural history. Thicke (2010) noted that the consolidation of farm operations in Iowa decreased the diversity of products for sale—going from 34

commodities on at least 1% of Iowa farms in 1920 down to just 10 commodities in 1997. This forced specialization also had adverse economic impacts, where it's common for farmers to lose money and rely on government subsidies to stay in business. Montgomery (2017) gave one example that stated, "a study projecting that 27% of row-crop land in Iowa would lose more than $100 an acre in 2015, due to high input costs and falling grain prices" (p. 274).

In many cases, the conventional farming system across the United States and also in Iowa came with a number of adverse, externalized costs. Further, being a participant in this system was often not economically viable.

Local food: opportunities for non-conventional agriculture. For many reasons, some farmers are choosing to partially or totally forego conventional agricultural practices and return to the small-scale, diversified farming practices that were common prior to industrialization. Some key characteristics of these efforts revolve around the small size of the farm operations, keeping local production in local markets, farmers selling their goods directly to customers without middlemen, and considerations around the ecological impact of the farming practices. Kirschenmann (2002) noted that:

> another food and farming future is not only possible, it is increasingly likely. The rapid development of farmers markets, direct markets, and markets for organically produced foods, all point to changes in the market place that have the potential to develop a new food and farming future. A growing segment of the consuming public is signaling that they want to know where their food comes from, how it was produced, how the animals were treated, and whether or not the food was produced using good environmental stewardship. (p. 2)

Janssen (2017) added “in recent years, the production and marketing of local food has become the fastest growing segment of the natural food industry and an important part of the sustainable agriculture movement. The heightened attention to local food systems has bolstered attendance at farmers’ markets and participation in CSAs [community supported agriculture]” (p. 3).

The word *local* has been used in different ways, by different stakeholders, for different reasons. DeLind (2011) identified that local food means many things to many different people depending on their worldview—it could be economic, health, social equity, environmental, or more (p. 273). The author asserted that local food is more than a fad, a marketing concept, or a healthy lifestyle, instead it had vital functions related to democracy, community, identity, and meaning (p. 279).

For purposes of this study, “local” means that these farmers grow their food in the same areas and communities where their customers reside.

Local food direct-marketing types. Small-scale, diversified farmers that grow their products in the same communities where they live have a few options to sell their goods. The fundamental characteristic of this dynamic is whether the farmer sells directly to the customer or not (for example if they sold instead to a wholesaler or retailer).

One type of direct-marketing channel for small-scale, local farmers is the farmers’ market. These markets have varying availability and locations, but the concept is one of civilization’s oldest—essentially various vendors converging in a temporary market to exchange value with the community. “Nationally, farmers’ market attendance has been growing at a steady rate. In 1994, when the USDA first began tracking and publishing

farmers' market numbers, there were 1,755 in the United States; in 2014, there were 8,268" (Janssen, 2017, p. 63).

A newer channel for direct marketing for small-scale, local farmers is called Community Supported Agriculture (CSA). CSAs are often considered partnerships between farmers and customers that distributes the risk of farming among the community (Lyons & Topaloff, 2016) by asking customers to pay upfront for a season's-worth of products (Thériault & Brisebois, 2010). CSAs are relatively new as Janssen (2017) describes:

> The community-supported agriculture movement in the United States began in the mid-1980s. The concept was originally developed in 1971 in Japan by a group of women who were concerned about chemicals in their food…in 1985…the first CSA in the United States. Four years later, there were thirty-seven identifiable CSA farms [between the United States and Canada] …The USDA reports that more than twelve thousand farms in the United States reported marketing at least some of their products through a CSA arrangement in 2012. (p. 54)

This study focuses on participants who direct market through farmers' markets and/or CSAs.

Local food benefits. Local food produced and direct marketed by local, small-scale, diversified farmers has the potential to address many of the challenges listed earlier that are caused by conventional agricultural. Some of these benefits include: more money for farmers (Fortier, 2014; Montgomery, 2017; Pirog & Paskiet, 2004; Salatin, 1993; Stone, 2016; Thicke, 2010), simplicity, cost-effectiveness, carbon sequestration, protection of biodiversity (Montgomery, 2017), and more such as:

> Environmentally enhancing agriculture…Bioregional food sufficiency…Seasonal production cycles…Decentralized food systems…Entrepreneurial small sector private business…Humane animal husbandry…Relationships between rural and urban areas…Rural non-industrial development…Biodiversity and soil building…Family friendly agriculture…Home cooking instead of processed food…Clean, nutritious personally-inspected food…Non-embarrassing farm incomes…Emotionally exhilarating lifestyle. (Salatin, 1998, p. 27-42)

When implemented properly, local food production by small-scale farms can have extraordinary benefits that demand further consideration. Local food production by small-scale farmers can also be economically viable (Salatin, 1998).

Local food opportunities. Despite conventional agriculture's entrenched market share, there is a growing trend of consumer demand for locally produced food from small farm operators (Janssen, 2017; Salatin, 1998). In addition to the benefits versus conventional agriculture's challenges, some factors are having an impact on the market desirability and the business viability:

> The next step in this progression is non-supermarket shopping as the information age continues to fragment industrialization in most of its manifestations. People are looking for designer anything, for uniqueness, for relationships. As we farmers concentrate on these needs, rather than emphasizing the same-old, same old production, chemicals, efficiency, we will enjoy unprecedented opportunities. (Salatin, 1998, p. 5)

Salatin (1998) reaffirms that food consumers are increasingly broadening the definition of the product/service that they desire—no longer just the lowest price and most convenient:

> We live in a designer day, a post-industrial info-age when folks are looking for something unique…As the information age sweeps upon us, we are seeing a complete breakdown of trust in the old industrial paradigms. Our most sacred institutions are crumbling, downsizing and trying to maintain some vestige of public trust. (p. 376)

Salatin (1998) also notes that it's not just consumers who are driving and benefitting from the growing trend of small-scale, local farmers. The farmers themselves are benefitting from better quality of life, more control over their business, and enhanced economic outcomes.

Local food in Iowa. Iowa is an interesting setting to compare local food produced by small-scale farms with conventional industrial agriculture, because both practices are prevalent—largely shaped by the ecology of the region and the culture of the people:

> Iowa has a long, proud tradition of being a leader in agriculture. The Iowa prairies have bestowed on us some of the richest, deepest soils in the world. We have a good temperate climate that is conducive to good crop production. And we have a strong tradition of hardworking people in Iowa. All of these things have made Iowa an agricultural powerhouse, a shining jewel among agricultural states. (Thicke, 2010, p. 7)

Janssen (2017) stated that Iowa 88,000 farms across 35,500,000 acres produced over thirty billion dollars in agricultural products (ranked second in the nation). The author noted that number of farms is down from more than 200,000 that existed in 1950.

The conditions are sufficient for both small-scale and industrial farms to thrive. Because of that, the issues, challenges, and benefits related to both farming practices are visible and debated (Krouse & Galluzzo, 2007; Janssen, 2017).

Compared to other states, Janssen (2017) noted that Iowa ranked high in the number of farmers' markets: 4th overall and 2nd per capita with 228 listed by the Iowa Department of Agriculture and Land Stewardship. The author noted:

> Iowa has also seen steady growth [in farmers' markets] …recent economic analysis of Iowa farmers' markets indicates that weekly attendance at markets increased 44 percent between 2004 and 2009. In 2009, nearly 99,400 Iowans shopped at a farmers' market each week, resulting in 2.2 million consumer visits for the entire season. The estimated statewide total sales in 2009 was $38.4 million. (p. 63)

Janssen (2017) defined local food in Iowa as food produced by:

> small-scale, often highly diversified, farms. A vegetable farmer, for example, may grow more than a hundred varieties of produce on less than ten acres. The phrase "local food" also encompasses the various marketing strategies that farmers use to eliminate distributors or middlemen, and sell their agricultural products directly to consumers. (p. 4)

Eastern Iowa. For the purposes of this study, eastern Iowa is considered all of Iowa that is east of Interstate-80 that runs north-to-south through the state (see Figure 2).

Iowa itself is a diverse state when it comes to small-scale farms and support for local foods. Eastern Iowa in particular has been a strong supporter of local food compared to the rest of the state, potentially due to a research university, the proximity to the megalopolis of Chicago, and some of Iowa's largest population centers:

> In eastern Iowa, the two major market locations are in Iowa City and Cedar Rapids. A number of smaller markets are scattered within a sixty-mile radius. The Iowa City Farmers Market…has been in operation since 1972. Consistently ranked among the most popular farmers' markets in the country. (Janssen, 2017, p. 63)

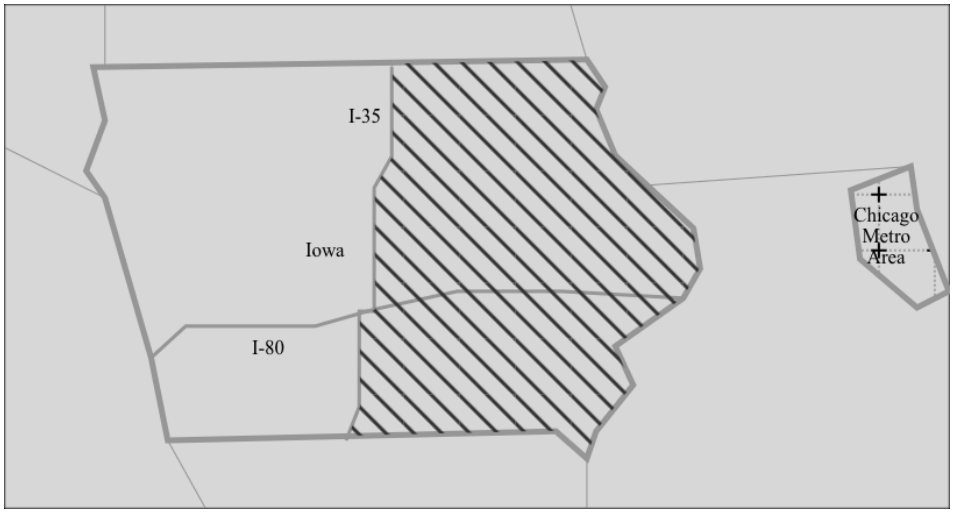

Figure 2. Eastern Iowa.

As the previous literature shows, Iowa has one of the strongest local food systems in the country, and it is growing. These small-scale, diversified farms that direct market to their customers are operating side by side with the industrial behemoths of the second largest agricultural state in the United States.

Opportunities for local food in Iowa. As one of the largest agriculture producers (in scale and productivity) in the United States, Iowa faces the challenges previously

noted (Thicke, 2010). However, the growth in local food support (Janssen, 2017) means that Iowa is a prime sample to see how small-scale farming for local food systems can have impacts across the spectrum of economics, ecology, and health. Thicke (2010) noted that Iowans eat $8 billion of food annually, but 90% of that comes from outside of Iowa. The author noted the opportunity to feed Iowans with Iowa-produced food, and in the process revitalize rural economies, set an example of what's possible for other states, and realize all the benefits that non-industrial farming offers.

Research by Hardy, Holz-Clause, and Chase (2006) demonstrated that Iowa farmers also have the desire to build business skills including utilizing emerging technologies, skillfully promoting their product, pricing their product in a strategic and compelling way, and keeping accurate records.

Finally, the natural resources, the farming culture, the desire for farmers to improve their business savvy, and the rising trends of consumer support are all bolstered by efforts at the political advocacy level. Krouse and Galluzzo (2007) advocated the need for Iowa lawmakers to introduce supportive policy that protects Iowa farmers from global competition.

Local Iowa farmers have opportunities to partner with regional, state, local, and institutional organizations in order to better compete with global pressures. Additionally, being aware of the many unique values and benefits that local food produced by small-scale farms brings with it can help farms form effective marketing strategies, as will be discussed in a later section of this literature review.

Strategic Decision-Making

One of the defining characteristics of small-scale, local farmers is that they sell their products directly to customers. For the purposes of this study, farms are always businesses too. As businesses, farms must perform general business functions that all businesses of any industry perform, whether that's accounting, sales, operations, or marketing. The scope of this section is focused on marketing strategy. Much of the language is business-specific, and for the purposes of this study, the readers should consider that farms are businesses.

In business literature, a seminal work on strategy comes from Porter (1979) who stated that strategy is "coping with competition" (p. 137). Porter indicated that five forces affected competition and that the forces' intensity influenced profitability: Entry threats between (force 1) new entrants or (force 2) substitute products, bargaining power of (force 3) buyers or (force 4) suppliers, and (force 5) jockeying for position with existing competitors (and the root causes of each) should all be considered when forming the company's strategy, which would involve strengthening the company's position against one or more of the forces. This conceptual framework is a tool for businesses to make decisions.

Although influential, Porter's five forces conceptual framework is not the only model of strategy in business literature. Chernev (2019) introduced a "5-C" framework (context, company, customer, competition, collaborators) that was more customer-focused than the industry-focused five forces framework. The key difference is Chernev's framework focuses on the company's ability to create value by fulfilling customer needs instead of focusing on other competitors in the same industry space. Chernev stated that

strategy is deciding on the customer that the company intends to serve and the value the company will deliver to that customer. The initial decision about the target customer determines all other aspects of the market (context, competitors, collaborators). Chernev notes that the product's value proposition can be determined by answering why the customer would choose this product instead of a competitor's product. Thus, to compete in that market with those target customers, the company must create superior value.

Lafley and Martin (2013) illustrated the importance of decision-making to strategy:

> The essence of great strategy is making choices—clear, tough choices, like what businesses to be in and which not to be in, where to play in the businesses you choose, how you will win where you play, what capabilities and competencies you will turn into core strengths, and how your internal systems will turn those choices and capabilities into consistently excellent performance in the marketplace. And it all starts with an aspiration to win and a definition of what winning looks like. (p. 46)

Each choice or decision about what to do also implies what the company is not going to do. Porter (1996) stated that part of competitive strategy is fending off imitation. The author identified a "trade-off" as what the company chose not to do. The author stated that trade-offs drive differentiation and force the customer to make a choice.

Lafley and Martin (2013) noted that "All successful strategies take one of these two approaches, cost leadership or differentiation. Both…[can] produce a sustainable winning advantage. This is ultimately the goal of any strategy" (p. 84). If a business is

not trying to compete on price, then strategy is essentially a value proposition to the customer that is different than other competitors.

> In a successful differentiation strategy, the company offers products or services that are perceived to be distinctively more valuable to customers than are competitive offerings, and is able to do so with approximately the same cost structure that competitors use. (Lafley & Martin, 2013, p. 83)

With strategy defined, other authors noted additional aspects to enhance strategic decision-making. Liedtka (1998) noted that strategic thinking can be enhanced by enriching ideas and frameworks that managers can use, and Ohmae (1982) noted that "a breakthrough to the best possible solution can come only from a combination of rational analysis, based on the real nature of things, and imaginative reintegration of all the different items into a new pattern, using nonlinear brainpower" (p. 15).

For this research study, this literature review section on strategy is relevant when considering a farm business's competitive nature. As the literature demonstrated, there exists theories and frameworks that can be used by farm businesses to make decisions related to the customers they serve, the value they deliver, how they differentiate themselves from competition, and some methods and mindsets to enhance strategy formulation.

Creating unique, differentiated value. The act of creating something new lies behind both concepts. Kumar (2013) defined the new value as an innovation: "Innovation (n): a viable offering that is new to a specific context and time, creating user and provider value" (p. 1).

Here, the centrality of design to strategy starts to become more explicit. Kumar (2009) linked the concept of design thinking, which will be discussed in a later section, with value creation and innovation:

> Design thinking helps companies see new opportunities for innovation that are prompted by a deep understanding of people's needs. These innovations start with the primary goal of creating offerings that are desirable for users and meet their needs, creating what is often called "user value." Creating offerings with more user value in turn raises the economic and business value of the offerings. (p. 91)

Neumeier echoed design's centrality to creation, innovation (2006), and differentiation (2008). Neumeier stated, "To build a brand that fosters voluntary loyalty, it's better to do what Google does—use design to create differentiated products and services that delight customers" (2008, p. 13).

Within the context of the 5-Cs framework, Chernev (2019) stated that successful business strategy comes by creating value for target customers. Chernev stated that this is achieved by designing a meaningful value proposition whereby the company captures value through giving value—a market exchange. Chernev expanded the beneficiaries of this value creation and exchange beyond just customers by also mentioning the need to create value for the company itself, as well as collaborators within the space.

For this research study, this section introduced the centrality of design to innovation, differentiation, and capturing and exchanging value between the company, customers, and collaborators in the space.

Marketing

Small-scale farms producing local food are businesses that are competing with conventional agriculture as well as other small-scale farms at the farmers' market or through CSAs. The focus of this study is on small-scale farms' direct-marketing activities, and to set the knowledge context the following seminal work by Drucker (1954) noted that:

> Marketing is not only much broader than selling, it is not a specialized activity at all. It encompasses the entire business. The aim of marketing is to make selling superfluous. The aim of marketing is to know and understand the customer so well that the product or service fits him and sells itself. Ideally, marketing should result in a customer who is ready to buy. (pp. 38-39)

Marketing mix variables. Another seminal work (McCarthy, 1960) established the "4 Ps" marketing mix (product, price, place, and promotion). Zeithaml, Bitner, and Gremler (2013) noted that the 4 Ps were decision variables that businesses could influence while marketing to customers.

Dominici (2009) identified that there's debate over whether the original 4 Ps paradigm can be applied to today's business context or if there needs to be additional factors introduced to the model. Yudelson (1999) expanded the definition of the original Ps in a way that is noteworthy for future sections about service in this literature review: product is all benefits over time from the exchange, price is everything given by the customer for the product beyond just money--including time and effort, place is everything that lowers obstacles for the exchange, and promotion is all information transmitted between parties.

Many later scholars have modified the original 4 Ps to include additional factors that the business has influence over:

> three new marketing mix elements (people, physical evidence, and process) are included in the marketing mix as separate elements because they are particularly salient for services, they are within the control of the firm and any or all of them may influence the customer's initial decision to purchase a service as well as the customer's level of satisfaction and repurchase decisions. (Zeithaml, Bitner, & Gremler, 2013, p. 27)

Chernev (2019) renamed and redefined variables (product, service, brand, price, incentives, communication, and distribution) as well as linked them to a marketing strategy as the tactics used to implement that strategy—the tactics were a process of designing, communicating, and delivering value.

These are the factors that small-scale farmers can control when selling their products to customers. Creating a novel combination of these variables is the key to differentiated, unique value as competitive strategy. As has been mentioned previously, the design process is central to the innovation process of creating new value.

Direct marketing for small farm operators. For the purposes of this study, direct marketing is defined as farm operators selling their products directly to customers with no intermediary (Janssen, 2017; UC Santa Cruz, 2015). This action implies a few things that will be discussed in this section such as the limitations of farmers as marketers, key characteristics to differentiate, storytelling, and the importance of relationships.

Carson and Cromie (1990) noted the prevalence of limitations and constraints of small businesses. Small farms fall into this category of small businesses. “Because of their limited resources, the marketing activity of small firms is inevitably restricted in its scope and activity. This restriction manifests itself in marketing that is simplistic, haphazard, often responsive and reactive to competitor activity” (p. 16).

Despite the tendencies of simplistic and reactive marketing of small firms just noted, small farm operators can *design* the marketing mix of variables with strategic decision-making as Salatin (1998) advised:

> The key to developing a designer product is superiority. You cannot pull people away from conventional markets unless you offer them something superior. What people want is integrity and character in their food. Establishing this superiority requires several things [handling and taste, education, storytelling]. (pp. 379-384)

Specific to storytelling, Salatin (2017) advised: “As a marketer, [in order to successfully differentiate] you need to figure out the core of your story. It may come from your mission statement or your vision. Your story needs to be consistent, clear, and concise” (p. 154). Janssen (2017) also noted the stories farmers tell as ways to educate customers on benefits and to differentiate from conventional agriculture.

In addition to storytelling (part of the *product* in the expanded 4Ps definition), Salatin (2017) noted the importance of product diversity to direct-marketing small farm operators when competing with conventional agriculture and retail grocery stores. The author noted that people desire convenience, so having more variety of the products they desire can win business as opposed to only selling one thing where the customer would have to go to the grocery store to get the rest.

Relationship marketing. Morgan and Hunt (1994) stated that relationship marketing refers to all marketing activities meant to build and sustain relational exchanges. The authors stated that commitment (a desire to maintain a valued relationship) is central to exchanges between a firm and its partners (including customers). The authors defined trust as one partner's confidence in the other's reliability and integrity. The authors posited that trust is a driver of commitment and that commitment and trust can be built by providing superior value than competitors, following values-driven integrity, communicating valuable information, and not cheating other partners. In turn, commitment and trust results in positive outcomes and sustainable competitive advantages.

Zeithaml, Bitner, and Gremler (2013) explained the importance of relationships as a competitive advantage:

> *Relationship marketing* essentially represents a paradigm shift within marketing—away from an acquisitions/transaction focus toward a retention/relationship focus. Relationship marketing (or relationship management) is a philosophy of doing business, a strategic orientation, that focuses on *keeping and improving* relationships with current customers rather than on acquiring new customers."
>
> ….the primary goal of relationship marketing is *to build and maintain a base of committed customers who are profitable for the organization*…From a customer's problem-solving perspective, the formation of satisfaction, trust, and commitment corresponds to the customer's willingness to more fully engage in an exchange relationship as an acquaintance, friend, and partner, respectively." (pp. 147-152)

Local farmers that sell their goods directly to customers often have deeply personal relationships beyond anything conventional industrial competitors could ever achieve. These relationships rely on trust and commitment as key indicators of the health of the relationship. Small farm operators that direct market have opportunities to leverage the principles of relationship marketing to build bases of loyal and committed supporters that may even become brand ambassadors and sources of referrals for new customers.

Services marketing. The distinction between products and services is negotiable. The expanded 4Ps defined product as all benefits the customer derives. The service relationship between a direct-marketing small farm operator and a customer includes stories, relationships, connections, and experiences.

Zeithaml, Bitner, and Gremler (2013) defined services as deeds, processes, and performances provided by one entity for another. Chernev (2019) articulated that the service aspect to a product is the value that customers can't take permanent ownership of. For direct-marketing small farm operators, these are the ongoing relationships, connections, and experiences that customers have when conducting extended business with the farmers. As with previous variables of the expanded 4Ps marketing mix, these service aspects can be designed with strategic intent to create differentiated value (Kelley & Kelley, 2013).

Design

This study is fundamentally about applications of the design process. How small farm operators in eastern Iowa conceptualize their direct-marketing strategy is the object of design that is being used to illustrate the design process for this study. To start, what is design? For this study, two seminal definitions will be used. First, Simon (1969) stated

that design was transforming existing conditions to preferred conditions. Additionally, Papanek (1984) defined design as "the conscious and intuitive effort to impose meaningful order" (p. 4). As the following section of the literature review will demonstrate, design is pervasive across human experience, perhaps even fundamental to the human experience.

Design history. Papanek (1984) suggested that industrial design began when humans started making tools. Heskett (2002) placed design's nascence even earlier and gave a detailed history of design's evolution, with noteworthiness given to associated mental constructs:

> An initial problem in delving into the origins of the human capacity to design is the difficulty in determining exactly where and when humans first began to change their environment to a significant degree…It is clear…a crucial instrument was the human hand…In their origins, tools were undoubtedly extensions of these functions of the hand, increasing their power, delicacy, and subtlety.
>
> ….From a broad range of early cultures, extending back to about a million years, natural objects began to be used as tools and implements to supplement or enhance the capacities of the hand.
>
> ….the natural world provided a diverse source of available, pre-existing materials and models, full of potential for adaptation to the solution of problems…Another dimension set in…that of transforming natural materials into forms without precedent in nature.

…. [harnessing natural forces] required a process of enquiry and the accumulation of knowledge and understanding that could be applied to processes of improvement, in which writing and visual representation played a crucial role.

….The emergence of agricultural societies [from nomadic hunter-gatherers] … [were sufficient conditions for] highly skilled craftsmen…attracted by the demand for luxuries created by accumulations of wealth. A frequent consequence was the emergence of associations of skilled craftsmen, in guilds and similar organizations… [as early as 600 B.C.] …A widespread function was the maintenance of standards of work and conduct…and represented an early from of licensing designers. (pp. 8-14)

Heskett (2002) went on to summarize design's history progressing through professional guilds in the 1600s, academia in the mid-eighteenth century, specialization of various design sub-disciplines brought on by industrialization, and up to the modern day with relationships and interactions with information technology, even with some designers "working as strategic planners in the design of complex systems" (p. 22).

Design thinking. From the last section of design's history, design thinking is a recent development (Johansson-Sköldberg, Woodilla, & Çetinkaya, 2013). Brown (2008) described design thinking as applying a designer's approach and methods to match people's needs with technological feasibility and market viability (see Figure 3). The author noted that a design thinking approach to innovation can be applied to areas beyond products and services, such as processes, systems, and experiences. The author stated that design projects cycle through three phases (which will be discussed more in the design process section later in this literature review): inspiration, ideation, and implementation.

The author defined inspiration as identifying the opportunity, ideation as generating options, and implementation as bringing the solution to users in the market. The author noted that multiple passes through these phases can be made with new insights emerging from feedback as the solution evolves.

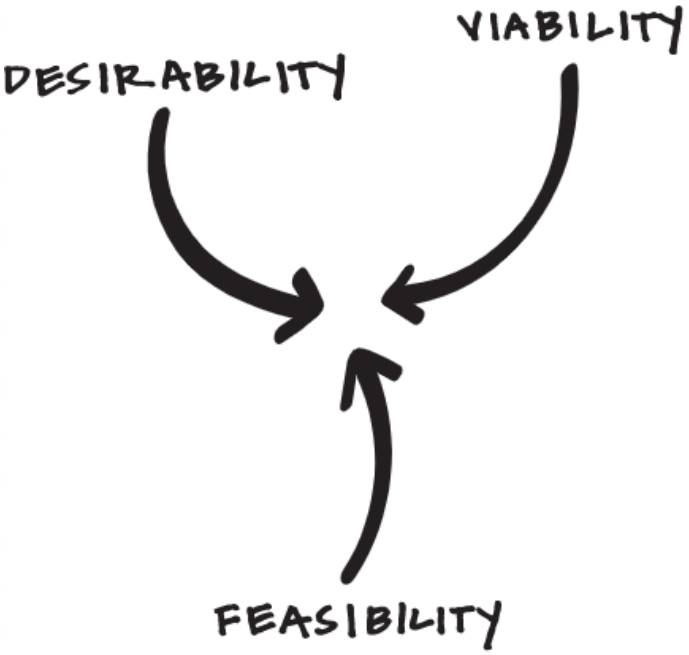

Figure 3. Design thinking spaces [Online image] (IDEO, 2019).

Similar to Brown, Kelley and Kelley (2013) associated design thinking as a way to generalize problem identification and solutioning by using the designer's mindset and skillset: "Design thinking is a way of finding human needs and creating new solutions using the tools and mindsets of design practitioners" (pp. 24-25).

Dunne and Martin (2006) also highlighted the mindset of the designer in an interview with Martin:

> Martin distinguishes *design thinking* from design. *Design thinking* is the way designers think: the mental processes they use to design objects, services or systems, as distinct from the end result of elegant and useful products. Design thinking results from the nature of design work: a project-based workflow around…problems. (p. 517)

Though the importance of the designer's mindset, skills, and process has been established, design thinking does not have a definitive definition according to Johansson-Sköldberg, Woodilla, and Çetinkay (2013). After conducting a demographics analysis on the literature of design thinking since 1969, the authors noted that design thinking has many different meanings depending on its context. The authors noted within the context of business management, there were three discourses: way of working, necessary skill for practicing managers, part of management theory. In the context of the practice of design, there were five discourses: creation of artefacts, reflexive practice, problem-solving activity, way of reasoning-making sense of things, and creation of meaning. Regardless of the discourse or context, the authors noted that design thinking is often equated to (1) creativity and (2) a toolbox.

For the purposes of this study, design thinking is a mindset and process that enhances innovation and the creation of differentiated value as a strategic function. It aims to achieve customer desirability, technological feasibility, and market viability. Brown (2005) mentioned the power of design thinking applied to strategy:

> It all comes back to the fact that in order to really raise innovation productivity within organizations, at the strategic level and everywhere else, you have to increase the amount of design thinking inside organizations. Doing so helps you

> get to clarity faster, helps your organization understand where you're taking it, helps you figure out whether you're on the right track, and enables you to adapt quickly to change. Those are pretty valuable survival skills. (p. 4)

This study's primary topic is the design process. Its qualities are being explored within the embodiment of designing direct-marketing strategies for local Iowa farmers. Brown's description of design thinking's goal, achieved by following its process, is a key construct throughout this study. The three phases of inspiration, ideation, and implementation is one variant of many similar model that sometimes have five phases or seven or more (these will be noted in the design process section later in this literature review). This three-phase model was chosen as the basis for this literature review to force simplicity. Beyond the number of phases, the conceptual framework of iterating around this cycle of phases to learn and re-design for continuous improvement is core to a designer's activities, specifically when creating a direct-marketing strategy for a farm.

Everyone is a designer. Another essential characteristic that most seminal works mentioned is its accessibility to everyone, not just designers. Cross (1995) noted that:

> Although professional designers might naturally be expected to have highly developed design abilities, it is also clear that non-designers also possess at least some aspects, or lower levels of design ability…Even in industrial societies, with a developed class of professional designers, there are often examples of vernacular design persisting, usually following implicit rules of how things should be done, similar to craftwork. (p. 112)

Simon's (1960) definition of design as transforming existing conditions into preferred ones implies creativity, planning, and thinking about the future—all things that

everyone does. Papanek (1984) went so far as to say that it's mostly what humans do: "All men are designers. All that we do, almost all the time, is design, for design is basic to all human activity. The planning and patterning of any act toward a desired, foreseeable end constitutes the design process" (p. 3).

Kelley and Kelley (2013) also noted the natural tendency built into humans: "Design thinking relies on the natural—and coachable—human ability to be intuitive, to recognize patterns, and to construct ideas that are emotionally meaningful as well as functional" (p. 25).

Brown and Wyatt (2010) also noted the importance of the humanness of the skillset—often overlooked by traditional business methods:

> As an approach, design thinking taps into capacities we all have but that are overlooked by more conventional problem-solving practices. Not only does it focus on creating products and services that are human centered, but the process itself is also deeply human. Design thinking relies on our ability to be intuitive, to recognize patterns, to construct ideas that have emotional meaning as well as being functional, and to express ourselves in media other than words or symbols. Nobody wants to run an organization on feeling, intuition, and inspiration, but an over-reliance on the rational and the analytical can be just as risky. Design thinking, the integrated approach at the core of the design process, provides a third way. (p. 33)

Kelley and Kelley (2013) further refined the accessibility of design thinking as they described the centrality of a creative mindset to design thinking:

> creativity isn't some rare gift to be enjoyed by the lucky few—it's a natural part of human thinking and behavior. In too many of us it gets blocked. But it can be unblocked. And unblocking that creative spark can have far-reaching implications for yourself, your organization, and your community.
>
> We believe that our creative energy is one of our most precious resources. It can help us to find innovative solutions to some of our most intractable problems. (p. 6)

Design mindset. This section will cover many of the mindsets that previous authors have noted as important, but it will intentionally start with what this research study considers the most vital. Kelley and Kelley (2013) noted the critical relationship between a growth mindset (Dweck, 2006) and what they termed *creative confidence*:

> One prerequisite for achieving creative confidence is the belief that your innovation skills and capabilities are not set in stone…You have to *believe* that learning and growth are possible…you need to start with what Stanford psychology professor Carol Dweck calls a "growth mindset." (Kelley & Kelley, 2013, p. 30)

As previous sections of the literature review have demonstrated, all humans through all history have creative and design capacities. However, not all of them have the growth mindset, which is essentially the precursor to even attempting to utilize design thinking. Martin (2007) used the concept of "stance" to describe how an individual views and defines themselves and the world. By wielding a design thinker stance (enabled by a growth mindset and creative confidence), a person has the sufficient conditions to tackle

challenges with the design process as well as to advance their mastery as Martin (2009) noted:

> Successful design thinkers—at any level of the organization—will devote time and practice to mastering the specific tools and skills associated with their role. They will strive to understand how things work within their system. But, at the same time, they will consciously and explicitly seek out opportunities to try new things and test their boundaries. (p. 166)

Tolerance for risk and failure. Part of a growth mindset and creative confidence is the willingness to take risks and the acceptance that failure will happen, but the resilience and perspective to not let failure doom the design thinker. Kelley and Kelley (2013) linked that resilience as another vital factor toward the creative confidence necessary for design thinking:

> Fear of failure holds us back from learning all sorts of new skills, from taking on risks, and from tackling new challenges. Creative confidence asks that we overcome that fear. You know that you are going to drop the ball, make mistakes, and go in a wrong direction or two. But you come to accept that's part of learning. And in doing so, you are able to remain confident that you are moving forward despite the setbacks. (pp. 44-45)

Indeed, not just the resilience to failure, but failure itself is vital to design thinking and its process. Brown and Wyatt (2010) noted that failure and experimentation go hand-in-hand, and design thinking firms should encourage quick, cheap, and dirty prototypes that will fail and lead to insights from that failure.

Human centered. Another aspect of the humanness of design is the vitalness of empathy. Liedtka and Ogilvie (2011) stated that this empathy goes beyond standard business mantras of being customer-centered:

> Design starts with *empathy*, establishing a deep understanding of those we are designing for… we all know already that we are supposed to be "customer-centered," but what we are talking about here is deeper and more personal than that. It means "knowing" customers as real people with real problems… It involves developing an understanding of both their emotional and their "rational" needs and wants. (p. 6)

Dunne and Martin (2006) noted the importance of empathy not toward solely understanding customers, but also for collaborating with co-designer partners. Kelley and Kelley (2013) described empathy and human centeredness as core to their innovation process. The authors went on to link empathy and human centeredness to observation. Beckman and Barry (2007) also noted the centrality of observation to the innovation process, particularly as it pertains to understanding meaning—which is similar to empathy:

> Observation is at the core of the innovation process. It requires the innovator, or innovating team, to spend time with the individuals or groups that are targeted to receive and use the innovation as well as to understand their needs at multiple levels, but particularly at the level of meaning. (p. 35)

Norman (2013) also espoused a human-centered approach to observation, or "applied ethnography." Brown and Wyatt (2010) too argued for the importance of observation toward understanding what peoples' needs are.

These seminal works noted the importance of a human-centered approach with a mindset of empathy and a tendency toward observation. Brown and Wyatt (2010) connected those tendencies toward additional skillsets for effective design thinking activities:

> To operate within an interdisciplinary environment, an individual needs to have strengths in two dimensions—the "T-shaped" person. On the vertical axis, every member of the team needs to possess a depth of skill that allows him or her to make tangible contributions to the outcome. The top of the "T" is where the design thinker is made. It's about empathy for people and for disciplines beyond one's own. It tends to be expressed as openness, curiosity, optimism, a tendency toward learning through doing, and experimentation. (p. 34)

Abductive logic. Another mindset that's vital to design thinkers is the ability for abductive logic or reasoning. Dunne and Martin (2006) defined abductive logic (as compared to inductive or deductive logic):

> The designers who can solve the most wicked problems do it through collaborative integrative thinking, using *abductive* logic, which means the logic of what might be. Conversely, *deductive* and *inductive* logic are the logic of what should be or what is. (p. 513)

Martin (2010) asserted that abductive reasoning allows designers to balance the scientific method with intuition in the pursuit of solutions. Kolko (2011) further explained the value of being able to utilize the logic of what might be, especially when facing information constraints:

> The various constraints of the problem begin to act as logical premises, and the designer's work and life experiences, and her ease and flexibility with logical leaps based on inconclusive or incomplete data, begin to shape the abduction. Abduction acts as intuition and is directly aided and assisted by experience of any design or cultural patterns. (p. 25)

Shifting mindsets. In addition to that fundamental mindset, the designer needs the ability to shift mindsets or modes of thinking depending on which cycle of phase of the design process they are currently operating within (Kumar, 2004; Kumar, 2013). Lewrick, Link, and Leifer (2018) also noted this valuable shifting mindset ability:

> An important factor of success in design thinking is to know where you stand in the process…Alongside the current level of development, the tools must be constantly kept in mind in design thinking. Which of them are the most effective in the current situation? There are generally two mental states in the "hunt for the next big opportunity": Either we develop many new ideas (i.e., we "diverge") or we focus on and limit ourselves to individual needs, functionalities, or potential solutions (i.e., we "converge"). This is usually depicted [see Figure 4] in the shape of a double diamond. (p. 36)

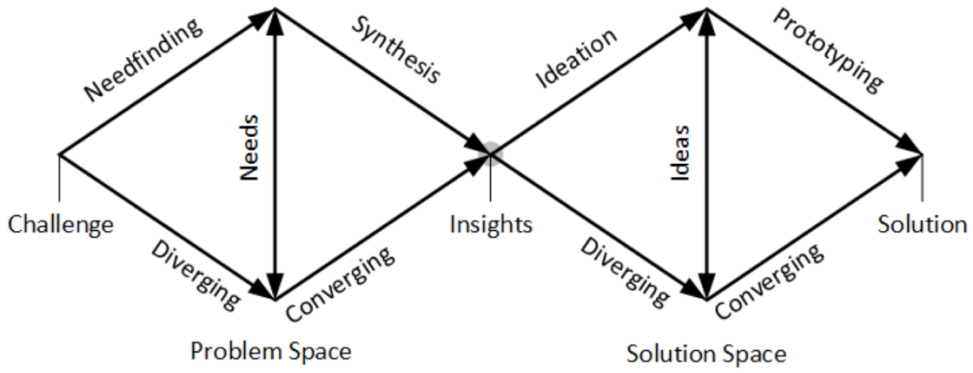

Figure 4. Design thinking project as double diamond (Przybilla et al., 2018, p. 17).

Divergent and convergent thinking. The ability to shift mindsets or modes of thinking depending on the stage or cycle of the design process that a designer recognizes they are within is particularly important with a meta-pattern of divergent and convergent thinking. Curedale (2018) explained each:

> The design process is a series of divergent and convergent phases. During the divergent phase of design, the designer creates a number of choices. The goal of this approach is to analyze alternative approaches to test for the most stable solution… [convergent thinking is where] …a designer assesses, judges, and strengthens those options. (p. 134)

Norman (2013) used the conceptual model of a double diamond to illustrate this where each phase of problem identification and solution identification have two sub-phases of divergent idea generation and then converging on the most appropriate choice for both the underlying problem and the best solution.

Norman (2013) noted there's an aspect of divergent thinking that designers engage in that businesspeople or engineers usually aren't trained to. The process of brainstorming many potential solutions before converging on the most appropriate one

ensures that the nuances of addressing root causes are considered fully. Brown and Wyatt (2010) mention the value that having diverse perspectives can bring to achieve divergent thinking. “Multidisciplinary people—architects who have studied psychology, artists with MBAs, or engineers with marketing experience—often demonstrate this quality. They’re people with the capacity and the disposition for collaboration across disciplines” (p. 34).

Design process. The design process is the heart of this research study. The design process has many different interpretations and models from different authors in the field (Aspelund, 2015; Brown & Wyatt, 2010; Kelley & Kelley, 2013; Kumar, 2013; Lewrick, Link, & Leife, 2018; Neuemeier, 2009; Norman, 2013). For the purposes of this study, one of the simplest models (see Figure 5) has been selected to represent all the rest, as the models that were not chosen can essentially be condensed down to this concise representation. Brown and Wyatt (2010) defined the process:

> The design thinking process is best thought of as a system of overlapping spaces rather than a sequence of orderly steps. There are three spaces to keep in mind: *inspiration*, *ideation*, and *implementation*. Think of *inspiration* as the problem or opportunity that motivates the search for solutions; *ideation* as the process of generating, developing, and testing ideas; and *implementation* as the path that leads from the project stage into people’s lives. (p. 33)

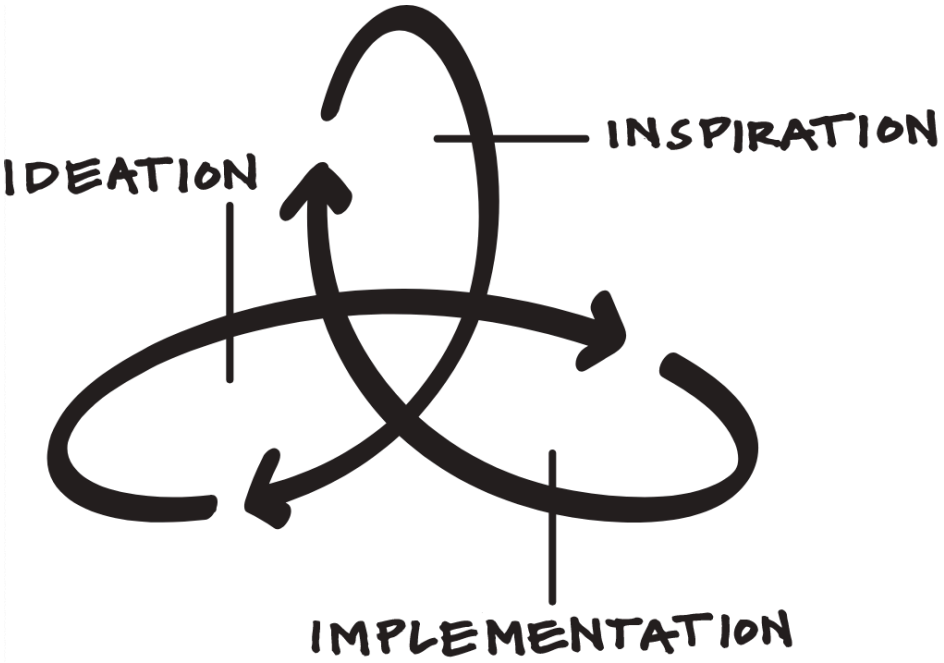

Figure 5. Design thinking process [Online image] (IDEO, 2019).

Each of these three spaces will be discussed in more detail in following sections, but another key characteristic of the design process is its cyclical nature and the concept of iterations, as Kelley and Kelley (2013) noted:

> There's no one-size-fits-all methodology for bringing new ideas to life, but many successful programs include a variation on four steps: inspiration, synthesis, ideation/experimentation, and implementation. In our experience, an innovation or new idea may cycle through many iterations before the process is complete. (pp. 21-22)

Echoing Kelley and Kelley, Kumar (2013) also noted the prevalence of many iterations during the design process.

A key distinction to note is how the design process is fundamentally different than typical business approaches to problem-solving. Neumeier (2009) contrasted the two approaches:

> The easiest way to understand the design process is to see how it differs from traditional business processes. Industrial Age processes emphasize two main activities: knowing and doing. You analyze a problem relative to a standard box of options, then execute the solution. The traditional company is all head and legs. The designful company inserts a third activity: making. You analyze a problem, 'make' a new set of options, then execute the solution. By inserting making between knowing and doing, you bring an entirely different way of working to the problem. (p. 50)

In addition to the "making" aspect to problem solving that Neumeier identified, another difference from traditional business problem solving is 'problem finding' as Beckman and Barry (2007) articulated:

> Another way to look at the innovation process is as one of problem finding, problem selecting, solution finding, and solution selecting…Much of the focus on education today—particularly engineering education, but also business education—is on problem solving. The innovation process emphasizes problem finding as well. Identifying, framing, and reframing the problem to be solved are as important in this process as solving the problem or finding an appropriate solution. (p. 44)

Another noteworthy characteristic of the design process that is similar to the multiple cycles or iterations is the concept of oscillating between different modes, or fluidity of mindset—this is related to previously mentioned topics of shifting mindsets and the divergent-convergent thinking pair. Kumar (2013) noted the designer's tendency to oscillate between real and abstract, and between understanding and making. Papanek

(1984) defined a design event as oscillating either from special case, to general case, back to special case; or from general case, to special case, back to general case. The author further stated that these design events can be chained together in many different two-dimensional directions as a way to visualize the design process: continually oscillating between specific and general in order to affect the design by understanding precedents and context. Dunne and Martin (2006) described oscillating between abductive, deductive, and inductive reasoning:

> Design thinking, therefore, combines the generation of new ideas with their analysis and an evaluation of how they apply generally. A designer uses abduction to generate an idea or a number of ideas, deduction to follow these ideas to their logical consequences and predict their outcomes, testing of the ideas in practice, and induction to generalize from the results. This learning in turn helps generate new ideas and the process can be depicted as a cycle. (p. 518)

Inspiration. The previous sections of this literature review have established mindsets necessary for design thinking an overview of the process and its characteristics. The first phase of this process is the inspiration phase. Kelley and Kelley (2013) advised:

> Go out in the world and proactively seek experiences that will spark creative thinking. Interact with experts, immerse yourself in unfamiliar environments, and role-play customer scenarios. Inspiration is fueled by deliberate, planned course of action.
>
> To inspire human-centered innovation, empathy is our reliable, go-to resource. We find that connecting with the needs, desires, and motivations of real people helps to inspire and provoke fresh ideas. Observing people's behavior in

> their natural context can help us better understand the factors at play and trigger new insights to fuel our innovation efforts (p. 22)

Authors (Brown & Wyatt, 2010; Koen et al., 2001; Papanek, 1984) highlighted the critical step of identifying problems as central to the start of the design process. Norman (2013) stressed that information-gathering at this stage should not be confused with marketing research—the author stated that designers are interested in the deep behaviors and emotions of users, while marketers tend to want aggregate mass data on customers without the need to understand root causes. Zeisel (2006) stated that part of a project is defining the problem(s). Similar to previous sections' discussion of shifting mindsets, the author stated that information can be viewed with different perspectives, and using an "image information" (information used heuristically as an empirical source when making design decisions) perspective allows the designer to consider important issues pertinent to solutions; Image information serves as context for considering opportunities. In contrast, Zeisel stated that shifting the perspective of information from image information to testing information changes the mode of the designer from defining to evaluating.

Synthesis. For the purposes of this study, synthesis should be considered the tail-end of the initial inspiration phase. Through inspiration, once the problem space has been identified, Kelley and Kelley (2013) described the sub-process of the synthesis sub-phase:

> After your time in the field, the next step is to begin the complex challenge of "sense-making." You need to recognize patterns, identify themes, and find meaning in all that you've seen, gathered and observed…

> During synthesis, we strive to see where the fertile ground is. We translate what we've uncovered in our research into actionable frameworks and principles. We reframe the problem and choose where to focus our energy. (p. 23)

Kolko (2011) described the synthesis sub-phase as the most critical part of the creative design process: the link from Simon's "existing conditions" to the creation of something new. Kolko (2011) notes that synthesis changes the problem finding to problem understanding, the step that precedes divergent ideation:

> Design is that act of problem *solving*—of appropriating formal qualities into a new design idea that fulfills the stated criteria and adds value to the human condition. Design synthesis, then, will translate the opportunity into specific design criteria, or a set of elements that must be present to afford a cohesive and concrete design. The synthesis will describe the solution; design synthesis is the process of problem *understanding*. Although data [Zeisel's *image information*] gesture toward an opportunity, data are frequently thick and convoluted, overwhelming and incomplete. The data alone lack contextualized meaning, and so it is difficult to decode data in their "raw" state. Synthesis is a sensemaking process that helps the designer move from data to information, and from information to knowledge. (p. 40)

Ideation. After the first phase of inspiration, where the problem space has been explored and empirical data has been synthesized into a first iteration of a problem statement or challenge, design thinkers move to the second major space of the design process: ideation. A small difference from what this literature review stated in the previous section, Brown and Wyatt (2010) included the sub-space of synthesis in the

ideation space. For the purposes of this research, it is not critical which space to place it in within the model, rather the importance lies in making sure it is considered:

> The second space of the design thinking process is ideation. After spending time in the field observing and doing design research, a team goes through a process of synthesis in which they distill what they saw and heard into insights that can lead to solutions or opportunities for change. This approach helps multiply options to create choices and different insights about human behavior. These might be alternative visions of new product offerings, or choices among various ways of creating interactive experiences. By testing competing ideas against one another, the likelihood that the outcome will be bolder and more compelling increases. (p. 34)

As Brown and Wyatt noted, the ideation phase generates options—it is a divergent phase (Brown, 2009). Kelley and Kelley (2013) gave another account of the ideation phase that is important to note as an illustration of the types of actions typical of this stage:

> Next, we set off on an exploration of new possibilities. We generate countless ideas and consider many divergent options. The most promising ones are advanced in iterative rounds of rapid prototypes—early, rough representations of ideas that are concrete enough for people to react to. The key is to be quick and dirty—exploring a range of ideas without becoming too invested in only one. These experimental loops help to develop existing concepts and spur new ones. Based on feedback from end users and other stakeholders, we adapt, iterate, and pivot our way to human-centered compelling, workable solutions. (pp. 23-24)

Norman (2013) confirmed the divergent nature of the ideation phase as generating potential solutions. After the inspiration phases where problems are made explicit and goals are articulated, Zeisel (2006) stated that designers form images of future products they intend to design. The author stated that "imaging" is an ability to go beyond the current information to novel ideas; These images serve as a beacon for designers as they create the actual artifacts aiming toward those images. The author stated that those images start generalized and vague, but over iteration cycles they are refined and brought to enhanced fidelity; These prototypes are mechanisms to continue to learn more about the problem and more about the potential solution.

Implementation. After inspiration and ideation, the third phase of the design process is implementation. Implementation is where the best ideas from ideation are turned into prototypes and "actual products and services that are then tested, iterated, and refined" (Brown & Wyatt, 2010, p. 35). Brown and Wyatt (2010) mentioned creating a roadmap to the marketplace in this phase, and Kelley and Kelley (2013) reiterated the planning aspect if this phase:

> Before a new idea is rolled out, we refine the design and prepare a road map to the marketplace…The implementation phase can have many rounds. More and more companies in every industry are beginning to launch new products, services, or businesses in order to learn. (p. 24)

Zeisel (2006) stated that the necessary minimum for presenting (a prototype) is being able to represent a problem in a way that makes the solution apparent. Zeisel stated that "testing" is vital for improving a concept (see Figure 6); When a concept is tested, its various qualities are evaluated for acceptability, and by identifying what attributes and

values are considered acceptable, the designer can determine when it's sufficient (though not required) to stop the process of iterating their prototypes. The author stated that being aware of these characteristics of information throughout the design process can allow designers to intentionally converge with an acceptable solution by iteratively shifting closer and closer from unacceptable to acceptable through each iteration cycle, course-corrected by feedback and insights that inform redesigns. Norman (2013) stated "the only way to really know whether an idea is reasonable is to test it" (p. 227).

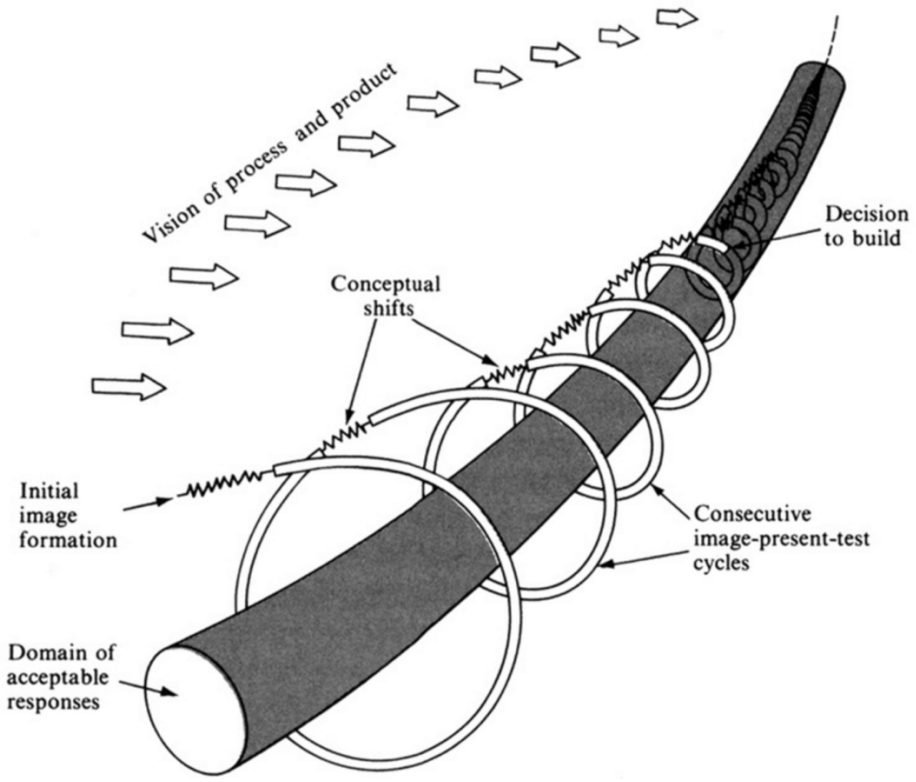

Figure 6. Design development spiral (Zeisel, 2006, p. 26).

Prototyping. As the previous section demonstrated, prototyping is an essential act of the implementation phase of the design process—it allows designers to test aspects of the idea and receive actionable feedback (Aspelund, 2015). Brown and Wyatt (2010)

noted that prototyping can uncover unforeseen issues before wasting resources on actual development. Brown (2009) stressed that prototypes be constructed of the least amount of effort that can extract an insight from which to iterate (p. 106). Although this literature review introduced prototyping in the third stage, implementation, the concepts and goals of prototyping can be used in any of the stages. Brown (2009) stated that the purpose of a prototype can shift depending on which space its focus is at: in the implementation space, the prototype can communicate ideas to gain acceptance in the company.

Iteration. Central to the entire design process is the concept of iteration. Within the context of service design, which will be discussed in a future section of this literature review, Stickdorn, Lawrence, Hormess, and Schneider (2018) mentioned the relationship of a design mindset to iteration:

> Design is a verb, so service design is often described as a process. The process is driven by the design mindset, trying to find elegant and innovative solutions through iterative cycles of research and development. Iteration – working in a series of repeating, deepening, explorative loops – is absolutely central, so practitioners aim for short cycles at the outset, with early user feedback, early prototyping, and quick-and-dirty experiments. As the process continues, the iteration may slow down but it never goes away, as prototypes iterate into pilots and pilots iterate into implementation. (p. 21)

Similar to how prototypes can be used at any stage of the design process, the same goes for iteration. Lewrick, Link, and Leifer (2018) advocated:

> the micro cycle, we go through the…phases…In the divergent phase, the number of ideas we gather through various creativity techniques increases constantly.

> Some of these ideas we want to make tangible in the form of prototypes and test with a potential user…The issue in the macro cycle is to understand the problem and concretize a vision of the solution. To do this, many iterations of the micro cycle are run through. (p. 45)

Criticisms of design thinking. Now that design thinking's mindsets and processes have been illustrated, it's important to note that there are conflicting opinions to design thinking's, and the design process's, helpfulness. Neumeier (2013) stated:

> A better model for designing is the *no-process process*, an approach that recognizes the chaotic nature of creativity. In the no-process model, you start with a general understanding of the problem, the goals, the areas of concern, the milestones, and the criteria for success. But the steps for addressing these areas should grow form the particular nature of the challenge, the circumstances in which the work will be done, the skills and workstyles of the team members, and the insights revealed as the project unfolds. It shouldn't be forced to fit a diagram. (p. 180)

Nussbaum (2011) noted that real-world implementations of design thinking were able to be analyzed after a few years of implementation in the corporate world: design thinking had more failures than successes, likely because companies bastardized the human-centered, iterative process into a linear, incremental change process.

Service design. Previous sections of this literature review have established that service can be considered a part of the product, especially as it relates to designing a differentiated value proposition for strategic purposes. With regard to direct marketing specifically, the service experience impacts the customer's perception of the business's

integrity, affecting the trust, commitment, and loyalty of the relationship, and having implications for customer retention, creating brand ambassadors, and winning new business through referrals.

The last major section introduced design thinking and its mindsets and process characteristics. While design thinking does have critics, for the purposes of this study the design thinking approach can be applied by direct-marketing small farm operators as a strategic pursuit in order to create differentiated value for target customers.

Many of the concepts (value, innovation, decision-making) in the main knowledge areas (strategy, marketing, design thinking) discussed so far overlap. Service design is another knowledge area that has much in common with the aforementioned. Zeithaml, Bitner, and Gremler (2013) defined service design as "focused on bringing service strategy and innovative service ideas to life by aligning various internal and external stakeholders around the creation of holistic service experiences for customers, clients, employees, business partners, and/or citizens" (p. 222).

Stickdorn, Lawrence, Hormess, and Schneider (2018) extended that definition and explicitly linked it to design thinking, human-centeredness, and iteration:

> Service design is a practical approach to the creation and improvement of the offerings made by organizations. It has much in common with several other approaches like design thinking, experience design, and user experience design, has its origins in the design studio, and harmonizes well with service-dominant logic. It is human-centered, collaborative, interdisciplinary, iterative approach which uses research, prototyping, and a set of easily understood activities and

> visualization tools to create and orchestrate experiences that meet the needs of the business, the user, and other stakeholders. (p. 27)

Stickdorn, Lawrence, Hormess, and Schneider (2018) went on to discuss service design's mindset; process' use of observation, empathy, and prototyping; and divergent and convergent thinking. Zeithaml, Bitner, and Gremler (2013) also discussed similarities of service design to design thinking, such as: prototypes, problem identification, divergent thinking, and testing. Zeithaml, Bitner, and Gremler (2013) even linked service design to the marketing mix variables:

> At the market testing stage of the development process… [there are] ways of testing the response to the marketing mix variables.
>
> …. At this point, the information gathered during commercialization of the service can be reviewed and changes made to the delivery process…or marketing mix variables on the basis of actual market response to the offering. (p. 234)

One key distinction in general between previously mentioned design thinking theory and service design relates to values, vision, and mission alignment of the offering to the company. Zeithaml, Bitner, and Gremler (2013) stated: "One of the first steps in new service development is to review the organization's mission and vision. The new service strategy and specific new service ideas must fit within the larger strategic mission and vision of the organization" (p. 227).

Design Thinking and Marketing Strategy

Differentiated value creation and delivery is part marketing, part strategy, and can be enhanced with design thinking. Holston (2011) stated:

> Business is competitive…To stay on top, firms try to capitalize in the areas of innovation…These areas are relevant to designers as well…[Design] Process offers a framework for managing these important considerations.
>
> ….New ideas drive business. The Council of Competitiveness, a group of CEOs, university presidents, and labor leaders, sees innovation as the basis of America's economic success. …[companies] use structured ways of developing, testing, and moving ideas toward production.
>
> Businesses, like designers, need to be in a constant state of ideation. Design gives firms a competitive advantage in overcrowded markets by identifying unique value and connecting audiences, as well as reacting quickly to social trends. By using a defined process that accommodates the development of new ideas, designers give themselves the tools to innovate and ensure that ideas get implemented within the organization. These processes are applicable to product design, communication design, and service design. (pp. 9-10)

Kolko (2011) explicitly mentioned designers emerging role in marketing strategy:

> with the recent popularity of the phrases "design thinking" and "innovation" designers have been asked to participate in these strategic conversations. Designers are increasingly expected to discuss not just how to solve a problem but also which problems to consider solving. (p. 39)

Chernev (2019) noted that creating value by *designing* viable market offerings is central to marketing. The author stated this activity happens within a target market (the 5-C framework) where the business makes strategic decisions about where and how to compete. The author stated that the value proposition of the offering is a collection of

decisions related to the (expanded) 4Ps marketing mix (product, service, brand, price, incentives, communication, and distribution).

Chernev went on to create a framework that synthesized these various aspects into an action plan of five key activities: identify a goal, develop the strategy, design the tactics [marketing mix variables], plan implementation, and controls to measure (*test)*. Design thinking's mindsets and process can enhance each of Chernev's key activities toward better outcomes.

Much of the previous literature has been theoretical in nature. For the purposes of this study, two empirical studies that investigated the link between design thinking and marketing effectiveness will be discussed.

Chen and Venkatesh (2013) noted that design thinking is not the same as marketing. The authors stated that non-marketing organizations used design thinking to solve non-marketing problems. However, design thinking does compliment two axioms of marketing: identifying the needs of the customer and differentiation from competition. The authors stated that their empirical study demonstrated design thinking's benefit towards those marketing axioms. In later research, Chen, Benedicktus, Kim, and Shih (2018) demonstrated empirically that applying design thinking to a product development process can lead to desired marketing results.

Research Design

This section of the literature review briefly introduces major concepts in social science research methodology that affect this study. The scope of this section is meant to be introductory and relevant to the research design of this study.

Ontology and epistemology. Many theorists (Creswell, 2014; Maxwell, 2013; O'Leary, 2010; Robson, 2011; Saldaña & Omasta, 2018) summarized the importance of ontology (what is real) and epistemology (how we understand knowledge) to research designs. Saldaña and Omasta (2018) noted that there are many different ontological and epistemological perspectives researchers can adopt for their research. Maxwell (2010) and Robson (2011) noted the history of ontology and epistemology shifting from positivism, where reality is independent of the observer, to a post-positivist interpretation where meaning is subjectively constructed by people. These shifts in foundational philosophical perspectives of reality and understanding had downstream effects on research.

Creswell (2014) noted four *worldviews* (set of beliefs that guide action) for research: post-positivism, constructivism, transformative, and pragmatism. Creswell stated that the foundational worldview of the researcher for a particular study drives the research approaches, designs, and research methods. The author stated that post-positivism continually refined theories based on empirical reductionism, constructivism was more interested in theory generation, transformative was focused on the researcher's study had a political agenda for change, and that pragmatism was not beholden to a fixed philosophy, instead allowing truth to be what works for the research study.

Conceptual framework. After ontological and epistemological worldviews had been determined, Maxwell (2013) noted that conceptual frameworks can be used as tools for specifying how the concepts pertinent to the research questions relate to each other. Maxwell (2013) illustrated the importance of a conceptual framework to a research study:

> it is primarily a conception or model of what is out there that you plan to study…what is going on with these things and why—a tentative *theory* of the phenomena that you are investigating. The function of this theory is to inform the rest of your design—to help you assess and refine your goals, develop realistic and relevant research questions, select appropriate methods, and identify potential validity threats to your conclusions. (pp. 39-40)

Ravitch and Riggan (2017) stated that the theories illustrated in a conceptual framework may be causal or they may be interpretive, but in both cases what matters is the meaning of it all.

Research questions. After the conceptual framework, O'Leary (2010) stated that research questions should be formed around the research intent. O'Leary stated that research questions drive the theory and literature the research study needs, the data that needs to be gathered, and the methods that should be used to gather and analyze the data. O'Leary stressed that research questions must be clearly articulated and precise in order to successfully achieve those aims.

Literature review. Creswell (2014) and O'Leary (2010) stated that literature reviews served many purposes. Creswell (2014) highlighted that literature reviews inform readers of other related studies, situates the study into an ongoing dialog of literature, fills in gaps or extends prior literature, and provides a framework for establishing the importance of the study. O'Leary (2010) stated that literature reviews add credibility to the researcher, argue the need for the researcher's study, and informs readers of developments in the field.

Methodology. Methodology is concerned with how research studies are designed: "Research approaches are plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation" (Creswell, 2014, p. 3). Many authors (Creswell, 2014; Maxwell, 2013; O'Leary, 2010; Robson, 2011; Saldaña & Omasta, 2018) defined common research methodologies for use by researchers. Historically, positivist, empirical studies demanded quantitative methodologies as scientific rigor, however Robson (2011) noted the shift to post-positivism epistemology:

> Positivism had been, for many years, the standard philosophical view of natural science…However, it has been amply demonstrated that what observers 'see' is not simply determined by the characteristics of the thing observed. The characteristics and perspective of the observer also have an effect. (p. 20)

The post-positivist shift had effects on methodology, broadening acceptable methodology beyond empiricism to social constructionism with qualitative methodology. Robson (2011) noted that meaning existed in interactions between people. Ravitch and Riggan (2017) added that

> research as an interpretive process: the way we collect and analyze data is a process of *making* rather than *discovering* meaning. This view of knowledge production forms the foundation for interpretivism and hermeneutics, two of the major paradigms informing social inquiry. (p. 24)

Robson (2011) noted that the type of research design a researcher chooses should fit the study's purpose, conceptual structure, and research questions. Robson stated that

the chosen design will influence methods of data collection, sampling strategies, and methods of data analysis.

Fixed, flexible, and multi-strategy (mixed methods). Robson (2011) noted that fixed research designs are usually concerned with aggregates and general tendencies. Robson highlighted the close relationship between fixed designs, the positivist research philosophy, and quantitative data collection and analysis methods. Conversely, Robson mentioned flexible designs as having close relationships to post-positivist research theories and qualitative data collection and analysis. Robson noted that multi-strategy (mixed methods) designs were a third major research design. In regard to mixed methods, Creswell (2014) stated:

> *Mixed methods research* is an approach to inquiry involving collecting both quantitative and qualitative data, integrating the two forms of data, and using district designs that may involve philosophical assumptions and theoretical frameworks. The core assumption of this form of inquiry is that the combination of quantitative and qualitative approaches provides a more complete understanding of a research problem than either approach alone. (p. 4)

Each of the three methodologies mentioned has various types with their own methods and strengths and weaknesses. Qualitative methodology research designs could be ethnography, case studies, or grounded theory. Grounded theory methodologies do not start with an *a priori* hypothesis, rather theories are allowed to emerge from the data. Robson (2011) stated:

> A grounded theory study seeks to generate a theory which relates to the particular situation forming the focus of the study. The theory is ‘grounded’ in data obtained

during the study, particularly in the actions, interactions and processes of the people involved. (pp. 146-147)

Mixed methods research has many different variations—for the scope of this research study, Creswell (2014) defined convergent parallel mixed methods as

> a form of mixed methods design in which the researchers converges or merges quantitative and qualitative data in order to provide a comprehensive analysis of the research problem. In the design, the investigator typically collects both forms of data at roughly the same time and then integrates the information in the interpretation of overall results. Contradictions of incongruent findings are explained or further probed in this design. (p. 15)

Sampling strategy. In the social sciences, data collection happens with people, and sampling strategies are important to add credibility to the research study. For quantitative methodologies, O'Leary (2010) and Robson (2011) noted sample sizes of about 30 participants in order to generate statistical significance for data analysis. For qualitative methodologies, sampling has a different essence. Robson (2011) noted "Sampling in grounded theory studies is *purposive*…we do not seek a representative sample for its own sake; there is certainly no notion of random sampling from a known population to achieve statistical generalizability" (p. 148). O'Leary (2010) added that "Many researchers who collect qualitative data in order to understand populations are not looking for representativeness. Their goal is often rich understanding that may come from the few rather than the many" (p. 165).

In addition to sample sizes, actual selection strategies are critical for rigorous data collection and analysis. For the scope of this literature review, purposeful sampling was focused on:

> The principle of selection in purposive sampling is the researcher's judgment as to typicality or interest. A sample is built up which enables the researcher to satisfy their specific needs in a project… [purposive sampling] is very different from statistical generalization from sample to population. It is an approach commonly used within other flexible designs. (Robson, 2011, p. 275)

As Robson (2011) noted purposive sampling is a non-probability sampling variant and that makes statistical inferences problematic, because the samples are not truly representative of the general population.

Data collection methods. O'Leary (2010) described methods as the "micro-level *techniques*" used to collect and analyze data. O'Leary (2010) noted that quantitative methods are often surveys and qualitative methods, particularly for a grounded theory methodology, are often interviews.

Robson (2011) stated that surveys and interviews could work in tandem for mixed methods methodologies. Robson noted three types of interviews for qualitative data collection: fully structured, semi-structured, and unstructured interviews. For semi-structured interviews, Robson stated:

> The interviewer has an interview *guide* that serves as a checklist of topics to be covered and a default wording and order for the questions, but the wording and order are often substantially modified based on the flow of the interview, and

additional unplanned questions are asked to follow up on what the interviewee says. (p. 280)

Robson (2011) noted that the questions on surveys and interviews should be shaped by the research questions of the study.

Data collection instruments. Maxwell (2013) highlighted the shift of the role of the researcher in the research study: "Traditionally, what you bring to the research from your own background and identity has been treated as *bias*, something whose influence needs to be *eliminated* from the design, rather than a valuable component of it" (p. 44). Maxwell later noted that the researcher could be considered an instrument of the research, with the researcher's identity and experience influencing the research.

Beyond the researcher as instrument, surveys generally operationalized key concepts as variables that can be questioned. O'Leary (2010) noted "One of the most common ways to operationalize a concept is to create a scale that allows you to place respondents along a continuum for some variable of interest" (p. 187).

Fowler (2012) further described operationalizing concepts into measures as maximizing "the relationship between the answers recorded and what the researcher is trying to measure" (p. 86). DeVellis (2017) illustrated the Likert scale as a specific scale of measurement for measuring beliefs, attitudes, and opinions. DeVellis noted that theory influences how concepts are operationalized for measurement.

For qualitative methods, O'Leary (2010) defined interviews as "A method of data collection that involves researchers seeking open-ended answers related to a number of questions, topic areas, or themes" (p. 194).

Data analysis methods. O'Leary (2010) stated that the main goal of data analysis, whether quantitative or qualitative, was to move from raw data to meaningful understanding. O'Leary noted that quantitative data could be measured with statistical analyses to determine descriptive statistics, measures of central tendency, and inferential statistics such as relationships between concepts. O'Leary noted that additional data analysis was necessary to add context and meaning, for example supplementing measures of central tendency with response variability. For correlational measures, Salkind (2011) highlighted Pearson's product-moment correlation as "the degree to which the points in the scatterplot tend to cluster about a straight line. In other words, the product-moment correlation coefficient *measures the degree of linear relationship between two variables*" (p. 751).

For qualitative data analysis, Robson (2011) noted that grounded theory was not only one type of qualitative methodology, but it was also a specific data analysis method. O'Leary (2010) stated that grounded theory was highly inductive, used a constant comparative process, and let the data tell the story. Bryan and Charmaz (2011) illustrated the grounded theory method of coding, categorizing, and thematic analysis:

> Coding is the core process in classic grounded theory methodology. It is through coding that the conceptual abstraction of data and its reintegration as theory takes place. There are two types of coding in a classic grounded theory study: substantive coding, which includes both open and selective coding procedures, and theoretical coding. In substantive coding, the researcher works with the data directly, fracturing and analysing it, initially through open coding for the emergence of a core category and related concepts and then subsequently through

theoretical sampling and selective coding of data to theoretically saturate the core and related concepts. (p. 265)

Threats to validity. All previous concepts related to research design should be aware of threats to the validity of the data collection and analysis. Specific to qualitative methodology and methods, Robson (2011) noted "The terms reliability and validity are avoided by many proponents of flexible design… [some researchers] prefer the terms *credibility, transferability, dependability* and *confirmability*" (p. 155).

Robson (2011) stated that the main threats to credibility in flexible designs were descriptions being incomplete or inaccurate because of the data, interpretations that were not able to be reproduced, and bias and lack of rigour [sic] due to the closeness of the researcher to the research setting and research participants. O'Leary (2010) noted that "Responsibility and integrity should be paramount research considerations. This includes integrity in the production of knowledge, and integrity in dealing with research participants" (p. 44).

Mixed methods study precedent. To validate the mixed methods approach of this study, a previous study was used as a precedent to the efficacy of the approach: Cheng, Ryan, Warren, and Nicolson (2017) conducted a mixed methods study using a landscape preference survey designed to measure stakeholders' preferences of perceived urban density in four future growth scenarios. In addition to the survey instrument that collected quantitative data, small group discussions were conducted to collect qualitative data. The authors used a sequential explanatory design by first analyzing the quantitative results to test hypotheses, then subsequently used the qualitative findings to compare, contrast, and relate the quantitative findings (p. 6). The authors' study was an example of

using mixed methods to enrich quantitative data with qualitative data. The study's research design was judged effective by the authors in answering their research questions.

Conclusion

This literature review had two objectives: First, to acknowledge the seminal works in each of the main topic areas that frame this research. As mentioned in this literature review's introduction, the scope was intentionally limited to not be holistic histories of the many topics introduced. Second, to illustrate the gap in the existing literature that this research study will explore. As literature listed in this review demonstrated, design thinking concepts and strategic marketing concepts have some overlap and have even been empirically linked. However, applying design thinking to direct-marketing strategies for small farm operators that direct market their goods to customers has not been explicitly researched.

RESEARCH DESIGN

Research Strategy Overview

This research situates itself in a post-positivist paradigm: A relativistic ontology with a constructivist epistemology (Robson, 2011) framed all research design decisions—for this researcher, what exists is affected by the observer, and knowing what exists is a subjective, constructivist performance (O'Leary, 2010; Saldaña & Omasta, 2018). Qualitative research with its appreciation of subjectivity was a major lens through which this research design was constructed, as the focus of the research used farmers' descriptions of their own decision-making and activities as the unit of analysis.

The nature of this research was inductive and exploratory; therefore, it used a flexible approach (Robson, 2011). This research used a convergent (Creswell, 2015), mixed methods multi-strategy design (Robson, 2011) starting only with research intent in lieu of an *a priori* hypothesis and variables. The research used a literature review and its theory and concepts as secondary research to frame the study, mixed methods for data collection, and qualitative coding with grounded theory (Saldaña & Omasta, 2018) to let the data suggest themes and relationships. relationships. As a convergent, mixed methods strategy, data collection and analyses of semi-structured interviews and surveys were independently conducted simultaneously, then the analyses were combined and interpreted. This approach was chosen to have the qualitative and quantitative aspects check against each other to identify where the approaches converged and where they differed (Creswell, 2015).

Literature Review

The literature review framed this research by establishing design thinking's mindsets and process, strategic decision-making, marketing as the exchange of value between business and customer, and small farms in Iowa as direct-marketing businesses. The gap in literature was identified: applying design thinking to small farm operators' direct-marketing strategy. As this study takes a grounded theory approach, the literature review shifted over the course of constructing it. Concepts from the literature were operationalized into questions and Likert scales for the interview and survey instruments respectively.

Data Collection Methods and Instruments

Table 1 summarizes the methods chosen, the purpose of the methods, and the sample used for data collection.

Table 1

Method Justification Table

Method	Purpose	Sample
Secondary Research	Identify seminal works, establish key theories and concepts	Peer-reviewed research and trade books
Semi-structured Interviews	Find mindsets and activities that correspond to secondary research	15 small farm operators
Surveys	Find descriptive and inferential statistical insights	30 small farm operators

For the quantitative aspect of data collection, semi-structured interviews with open-ended questions were selected as the instrument because of the reasons O'Leary (2010) stated such as flexibility to explore tangents and ability to develop rapport and trust between researcher and participants.

This data collection method was chosen because the researcher has a number of pre-conceived notions of what components of the design process would have been included by the farmers/designers. The questions in the interview were operationalized concepts taken from the literature review and placed in an interview guide (see appendix E). By asking participants to talk about their decisions and activities without mentioning design elements explicitly and being open to free associations, the researcher's bias was mitigated.

For the quantitative aspect of data collection, closed-ended surveys (see appendix F) with Likert scales (O'Leary, 2010) were selected as the instrument. This data collection method was chosen because the researcher wanted to obtain aggregate-level sentiments about the survey questions. The questions in the survey were operationalized concepts taken from the literature review and starting conceptual framework (see Table 2).

The researcher designed survey questions to garner participants' perceptions of their beliefs or actions related key elements from the literature review and the conceptual framework. Some of the survey questions were designed to collect data about a key element broadly, while other questions were much more specific sub-components of the key elements—for example, the starting conceptual framework has a key element of strategic decision-making with a sub-component of differentiation; That sub-component of differentiation is further specified to a marketing mix variable that the survey question was designed to gauge, such as product choice or price. Similar survey questions were designed to gather data about participants' beliefs and actions related to the design process and small farm production for local markets.

Table 2

Conceptual Framework Elements Operationalized to Survey Questions

Conceptual Framework Element	#	Survey Question
Strategy	1	I intentionally have a direct-marketing strategy to sell my goods to customers
Inspiration	2	My direct-marketing activities are influenced by the context of the marketplace being located in the region of eastern Iowa
Inspiration	3	My direct-marketing activities are influenced by the context of being a local producer to my regional marketplace
Strategy	4	I intentionally make decisions on what farm goods to sell and what farm goods not to sell as part of my direct-marketing activities
Relationships	5	Building ongoing relationships with customers is part of my direct-marketing activities
Differentiation	6	I intentionally choose products and marketing materials that differentiate me from other farms/competitors
Differentiation: Product	7	I am aware of the product availability windows of various goods and make marketing decisions based on the availability of the goods and what I think my competitors will have available
Inspiration	8	I learn direct-marketing tactics from observing my competition
Ideation	9	My direct-marketing strategies evolve based on lessons learned from previous seasons
Differentiation: Quality	10	My goods' quality is a key selling point when compared with other vendors/competitors
Differentiation: Price	11	My goods' price is a key selling point when compared with other vendors/competitors
Relationships	12	I utilize technologies such as customer databases to enhance my marketing efforts
Differentiation: Promotion	13	I utilize electronic media such as email newsletters, blog posts, and social media to enhance my marketing efforts
Differentiation	14	My farm business's brand is important to my ability to sell my goods to customers
Iteration	15	I take time to evaluate my marketing strategies at the end of each season to learn what I can improve on for the next season
Strategy	16	I am aware of the decisions I make that drive my direct-marketing activities
Implementation	17	I am aware of the activities I undertake that drive my direct-marketing strategy

Research Site and Participants

A purposeful sampling strategy (Robson, 2011) was used to recruit participants for the quantitative part of the study; they were chosen based on their involvement in

direct marketing their farm products to customers in eastern Iowa. The target audience for this study consisted of vegetable farmers, livestock farmers, and value-added producers (n=30). This target audience was asked to complete a survey developed by the researcher.

A purposeful sampling strategy was used to recruit participants for the qualitative part of the study; they were chosen based on their involvement in direct marketing their farm products to customers in eastern Iowa. The target audience for this study consisted of vegetable farmers, livestock farmers, and value-added producers (n=15). This target audience was asked to participate in a semi-structured interview developed by the researcher.

Data Collection Procedures

For the semi-structured interviews, the following steps were taken to collect data:

1. Approach farmer at farmers' market or contact via phone call and introduce researcher and study (see appendix C)
2. Ask them to participate; Qualify their appropriateness for the study (direct-market farm operators in eastern Iowa)
3. If yes, set up time for interview
4. At interview time (either in person or on the phone), read informed consent (see appendix B) and gain consent; Inform participants they will be audio recorded for their responses to be transcribed later
5. Start recording, conduct interview (reading from interview guide—see appendix E) with minimal interviewer interruptions
6. Thank them for participating
7. Replay audio and transcribe data to word processor document

For the surveys, the following steps were taken to collect data:

1. Approach farmer at farmers' market or contact via phone call and introduce researcher and study (see appendix D)
2. Ask them to participate; Qualify their appropriateness for the study (direct-market farm operators in eastern Iowa)
3. If yes, (either in person or on the phone) read informed consent (see appendix B) and gain consent
4. In person, hand one-page survey on clipboard to participants to complete; If on phone, read each question and record participant's response (see appendix F)

Data Management

For the interview transcriptions, the data was anonymized and entered into Dedoose qualitative data analysis software (https://www.dedoose.com).

For the survey responses, the data was anonymized and entered into IBM SPSS Statistics software.

Data Analysis Strategy and Procedures

The convergent, mixed methods strategy to independently and simultaneously collect and analyze data was the first step in this research strategy. Comparing the qualitative findings with the quantitative findings was the second step in this research strategy.

In the first step for the qualitative data analysis, a grounded theory analysis approach was used by this study. The interview transcripts were open coded (*in vivo*, process, value, descriptive) (Saldaña & Omasta, 2018) in Dedoose and the codes were placed into categories that emerged from the participant responses. These categories

closely aligned with key concepts from the literature review, even though the questions in the interview guide instrument were intentionally stripped of all design jargon. The codes and categories were further analyzed for relationships and themes.

In the first step of the quantitative data analysis, descriptive (mean, median, mode, frequencies, and standard deviation—see appendix G) and inferential (bi-variate Pearson correlations) calculations were run on the data through the SPSS software. Statistically significant correlations between questions from the survey instrument were noted (see appendix H).

In the second step of analysis of the convergent, mixed methods strategy study, the findings with statistically significant correlations from the quantitative data were compared to the related findings from the qualitative data.

Ethical Considerations

These methods, and the nature of the study being a flexible strategy, were submitted to Arizona State University's Institutional Review Board. ASU's IRB granted exemption status to this research (see appendix A).

The research believed that risks to the participants for participating in the study were minimally invasive—primarily the risk of interfering with direct-marketing activities of the farmer while they were working.

The largest ethical consideration for the study involves explicitly acknowledging the limitations of the study so readers do not interpret this thesis study as definitive or holistic. This ethical consideration can be mitigated by explicitly and continually noting the limitations, scope, researcher's bias, and justifications for research design decisions.

Limitations

This thesis study originally aspired to collect 100 survey responses, but was only able to collect 30 survey responses. The interview participants were not truly random, as the researcher's own characteristics and abilities to interact and relate to these participants influenced which farmers chose to participate versus which ones chose not to participate.

Additionally, no demographic data was collected about the participants because it was not relevant to the study. The lack of demographic data makes generalizability limited.

FINDINGS AND OBSERVATION

Introduction

The purpose of this study was to articulate and understand trends in decision-making processes related to how small-scale eastern Iowa farmers conceptualize their direct-marketing strategy through these specific research questions:

- **RQ1**: What are the trends in decision-making processes that assist small farm operators in eastern Iowa with direct marketing farm-to-table products?
- **RQ2**: Is there a relationship between small Iowa farm operators' direct-marketing strategy formulation and the design process?
- **RQ3**: How does the design process create valuable direct-marketing strategies for small Iowa farm operators?

The convergent mixed methods research study used two data collection methods independently and simultaneously: qualitative semi-structured interviews with open-ended questions and quantitative survey with closed-ended questions operationalized to a Likert scale. In the first phase of analysis, the qualitative responses used a grounded theory analysis approach of coding excerpts, categorizing codes, and extracting themes and sub-themes. The quantitative responses were analyzed with descriptive and inferential statistics. In the second, convergent, phase of analysis, the themes with statistically significant quantitative correlations were explored more in depth for qualitative data suggesting relationships between operationalized concepts.

Key findings from the quantitative and the qualitative data collection and analysis are listed in sections specific to the three research questions. The full raw data sets are listed in the appendices.

Research Question 1 Key Findings

The first research question asks what are the trends in decision-making processes that assist small farm operators in eastern Iowa with direct marketing farm-to-table products? 100% of the 30 survey participants (n=30) completed the 17 closed-ended-questions survey in its entirety. Figure 7 summarizes key findings with a diamond plot of the mean and standard deviation for key survey questions.

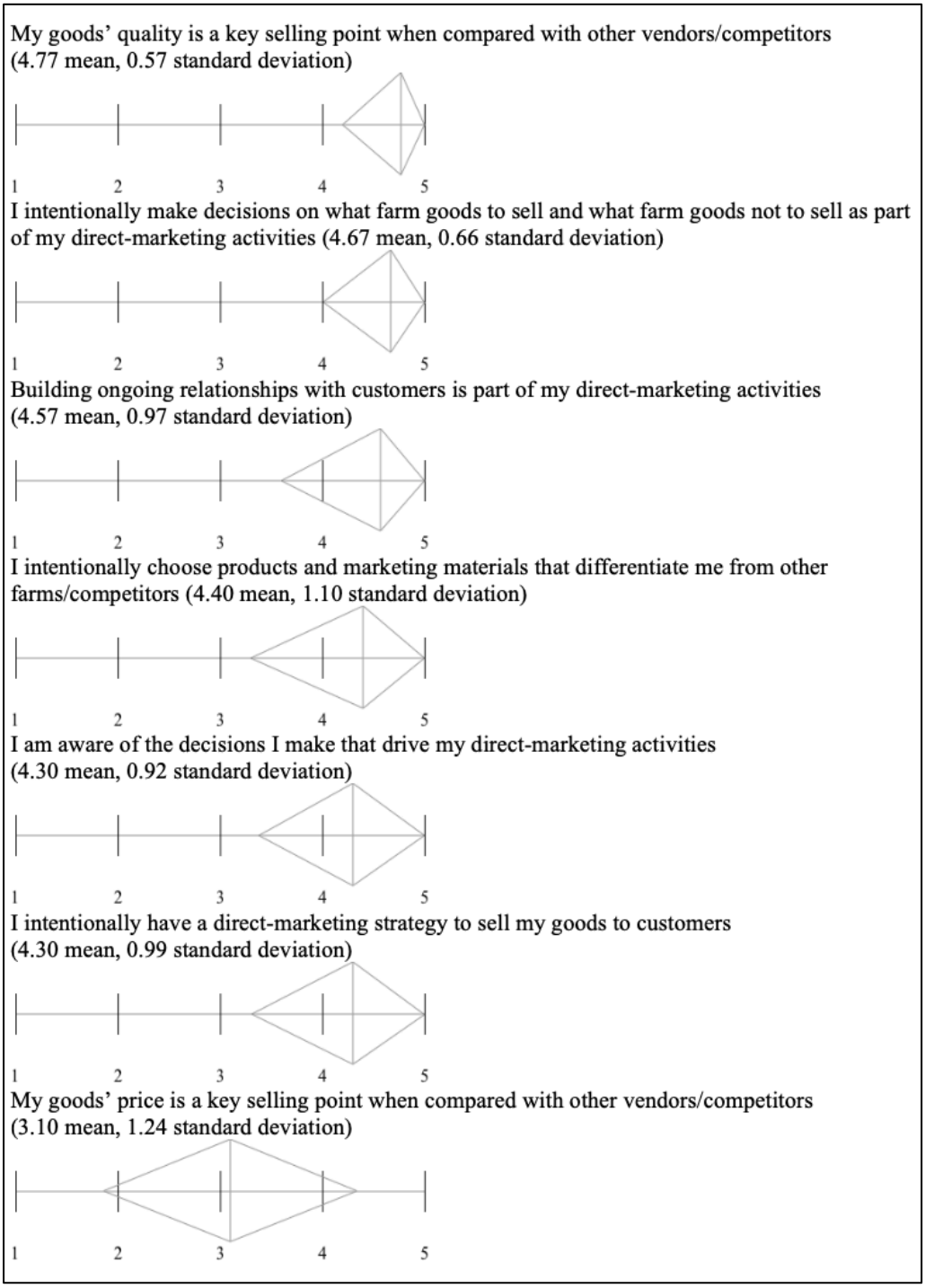

Figure 7. Diamond plot of mean and standard deviation of key findings from surveys.

Research Question 2 Key Findings

The second research question asks if there is a relationship between small Iowa farm operators' direct-marketing strategy formulation and the design process? Table 3 summarizes key findings from the survey instrument of correlations between operationalized conceptual framework elements.

Table 3

Key Findings of Correlations Between Concepts

Conceptual Framework Element	Survey Question	Pearson Correlation	Survey Question	Conceptual Framework Element
Differentiation: Quality	My goods' quality is a key selling point when compared with other vendors/competitors	.667**	My direct-marketing strategies evolve based on lessons learned from previous seasons	Ideation
Strategy	I am aware of the decisions I make that drive my direct-marketing activities	.640**	I take time to evaluate my marketing strategies at the end of each season to learn what I can improve on for the next season	Iteration
Ideation	My direct-marketing strategies evolve based on lessons learned from previous seasons	.488**	I intentionally make decisions on what farm goods to sell and what farm goods not to sell as part of my direct-marketing activities	Strategy

**. Correlation is significant at the 0.01 level (2-tailed).

Research Question 3 Key Findings

The third research question asks how does the design process create valuable direct-marketing strategies for small Iowa farm operators? The qualitative key findings from the semi-structured interviews is described in the following section.

Open Coding

Each of the 15 interview transcripts was read individually and excerpts were tagged with 237 codes in Dedoose software (https://www.dedoose.com). Those codes were grouped into categories (Saldaña & Omasta, 2018). All the transcripts were read through once more, and excerpts were then tagged with the categories of codes. Some of the excerpts demanded an additional level of granularity, so sub-codes were introduced to provide enhanced fidelity to specific excerpts.

Themes

In light of this study's research topic and research questions, the categories of codes were grouped into sub-themes. Next, those sub-themes were grouped into larger themes. Table 4 displays assignment of code categories into the themes and sub-themes.

Table 4

Thematic Analysis and Code Categorization

Theme	Sub-Theme	Category of Codes	Sub-Codes
Farmers Designing Strategy	Mindset	Willingness to try/Trial and error	
		Divergent	
		Convergent	
		Growth Mindset	Figure it out
		Abductive Logic	
	Concepts	Inspiration	
		Ideation	
	Prototypes	Implementation	
		Iteration	
Data-Driven Decisions	Learning	Learning	Observation
			Customer feedback
			Failure
			Mentor
			Learning materials
		Knowing Customer	Empathy
			Target customer/Target market
		Evaluating	Analysis
		Knowing Context	Iowa
	Decision-Making	Strategy	
		Competition	
		Value	
		Differentiation	
		Goals	
Differentiated Value	Connection	Promotion	Stories
			Pictures
		Relationship	Values aligned
			Positive traits: honesty, integrity, etc.
			Friendships
		Service	Experience
			Retention
		Brand	Put a face to the food
		Experience	Farm visits
		Community	Building community
			Community support
	Supporting Patrons	Product	Product sells itself
			Quality of product
		Price	Premium price
			Don't compete on price
		Channel	Direct marketing
			Order online
			Payment methods
		Referrals	Word of mouth
Opportunities for Growth	Awareness of Gaps	No strategy	
		No plan	
		No evaluation	
		No certain practices	
	Informal Approach	Just do it	

Theme 1: Farmers Designing Strategy

The data that emerged from the research suggests that, whether aware or not, farmers held design thinking mindsets and used the design process.

Mindset. The theme of mindset emerged along with sub-themes of confidence, empathy, trial-and-error, and resilience to failure.

Confidence. As one particular mindset, participants mentioned confidence in relation to different interview questions. R2 stated "The best advice we've had has been to be confident enough to charge what we feel is a fair price for our products. Being confident enough for our products to market them." R9 and R10 also mentioned confidence explicitly related to selling and decision-making respectively. R3 noted the growth in confidence over the years of operation:

> That was one of the hardest things for me when I first started. I didn't have the confidence to price things on my own. I would be calling the co-op asking if they sell organic beets and for how much? Then I would price my stuff. It was ridiculous. I didn't have the confidence or experience to do it. But the way I look at it now, only in my 7th year, I am not growing a commodity crop, I'm growing a specialty crop, I'm growing high quality organically grown specialty crops.

Empathy. The most common trait the participant farmers shared was their empathy for their customers. Of all the participants (n=15), the research study coded 11 participants answer various interview questions with some relation to considering the customer's wants, needs, or circumstances. Some participants gained understanding directly from customer's feedback (R1, R3, R4, R10, R11, and R12) while other

participants gained understanding of customers through inference (R1, R3, R4, R8, R9, R11, and R15). R15 stated:

> You have to know who you're selling to and what they care about. I could not sell Ferraris in Mt. Pleasant, Iowa. I could sell mini vans. I could sell pickup trucks. So, when I come up with that strategy, you have to intimately understand who you're selling to…if they're not interested in paying you for what you have, you don't understand your customer.

With regard to pricing, R15 also mentioned "you have to know your customer, you also have to know how much they make." R11 stated "To a certain degree a lot of people tell us they don't pay attention to the price because they're just looking for a high-quality product."

With regard to other customer motivations, R4 stated "People in Johnson County, Iowa City in particular, really like knowing where their food comes from. They're very eager to support local farmers." Similarly, R1 stated "What I'm raising—there's a greater awareness more than ever with customers that want to know where their food comes from and what went into it." R9 mentioned "It's about what people want to eat and what they're willing to pay for, and also being in Iowa City there's a little bit more consciousness about sustainability and that's huge and helpful." R14 mentioned "We read a lot—what does the public want? We got to give them what they want."

Other participants mentioned the desire to know what the public wants. R11 stated "I could use more information about what people are buying locally…If I knew what our customers really wanted us to make…that would be very helpful because we don't want to develop a product that people don't want." R8 stated "I have 90 hams that

I'm never going to sell. People don't want to buy smoked hams. If I had known to turn that into breakfast seasoned sausage patties, I would have made a lot more money."

R10's response to the interview question about considering the local market's effect on the farmers' direct-marketing strategy displayed many traits of empathy:

> The demand. Doing vegetables that more people like them. Like tomatoes and corn and melons. Common vegetables, I produce more of because more of the population need them and like them. Whereas I can do more of specialty high dollar items for that smaller crowd that love them and will pay good money for them. Like beets, brussels sprouts. I try to reach every demographic and every socioeconomic level. With my pricing I try to reach everybody that way too. I try not to go so high that nobody wants to buy from me, I try to make it so it's available to everybody.

Trial and error. In addition to confidence and empathy, an experimental mindset of trial and error was a common theme that emerged from the participants' interview response data. R1 stated "I tried other things before like retail sales or deliveries, but it's just worth more to me direct sales to individual customers." R2 stated "We have always started small. It's never been our main form of income. We've always tried to find a niche in the market that isn't being filled." R7 stated "I'm always tweaking things." R3, R4, R5, R8, R9, R10, and R14 also mentioned activities of the trial and error nature. R14 explained:

> I just know that I can sell lamb in Iowa City and I don't sell it in Mt. Vernon or Cedar Rapids. I learned that through experience, trial and error. Really you just watch what you're selling. I even learned what kind of cuts to get—just trial and

error. Some people want convenience food that's been processed, and others want a product where nothing's been added to it. Ground beef isn't a real hot seller. A lot of trial and error. What moves, what sits in the freezer, what goes.

Resilience to failure. Another sub-theme that's grouped under the theme of mindset that emerged from the data was a mindset of resilience to failure. In addition to those that mentioned trial and error as an experimental mindset where failure is implied, R4 ("That fail [poor egg sales at farmers' markets] turned out to be a win..."), R6, and R13 ("We failed miserably at [regularly posting on social media]…") discussed perseverance through failures explicitly. R13 stated:

> Right now, on our table—this year has been a really hard year. We had an incredibly cold winter—it got down to negative 30 which is unheard of—it never goes below negative 20. Negative 30, real temperature, not windchill. Too much—it kills a lot of our perennials and was really hard on the animals. Then we went right into spring which was so darn wet—the river flooded and flooded. And our fields, which are clay, there was just standing water for weeks and weeks. Which is not good growing conditions. And since it cleared up, it's just been dry now. It's just been really hard. I see it left and right: in the springtime our radishes would not grow—they were waterlogged, and the roots couldn't get any oxygen, so they weren't growing. Our garlic, which is a huge crop for us—like thousands of dollars every year for us—did shit. Shit the fucking bed—pardon my French. It was unbelievable, we grow like ten varieties of garlic—which we grow many varieties of everything because every year something is going to do better than the others, and it's nice to have a variety on the table. But this year the earliest garlic,

> because of that terrible spring, just could not grow. What's supposed to happen is you plant a clove in the ground, and it makes a head of garlic the next year to harvest. But a significant portion—I'm going to say 70% of our early garlic, because it has a shorter season to grow in, I suppose—in those conditions it was not able to make a head, so they made what's called a round of garlic which is essentially one gigantic clove—which is shit. I'm supposed to be taking this out of the ground and it should be giving me maybe $2 worth each garlic head, because they're big, they're beautiful. But instead I get these giant rounds. What am I going to do?

Design process. Within the Farmers Designing Strategy theme, certain aspects of the design process emerged from the data as sub-themes.

Inspiration. In response to various interview questions, participants discussed inspiration and influence for what they were trying to solve. R9 mentioned learning from other CSAs and collaborating with another small farm operator on developing marketing materials, R10 mentioned overhearing customers discuss their experiences at the farmers' markets, R13 mentioned receiving feedback from CSA customers as well as receiving advice from other small farm operators via a mentor-apprentice relationship, and R15 mentioned inspiration stemming from intrinsic motivations:

> I get inspired by our potential, because I have not been on any farm where I have said to myself that I want this. It's mostly because I wouldn't do it that way. I'm inspired by not giving up—there's nothing more depressing than having the thoughts: what am I actually doing? How long is this going to last? Where is this going? You have to make a life commitment whether it be two years or 50 years,

because if you do it half ass, you won't get anywhere. I draw inspiration from the clock—I don't look at people to my right or my left. It's about what's in front of you and you have to get there. Just shut your eyes, close your ears, and go forward.

Ideation. Participant responses to various interview questions fell into themes of ideation as well. R10 stated "If something's not selling really well, then we brainstorm why isn't it." R7 mentioned starting out at the farmers' market baking bread and cookies then shifting to selling value-added products after thinking of possibilities of what to do next. R2 generated options from thinking of the needs of local organizations like the private college, the hospital, and other businesses. R4 mentioned "There are things I think about doing in the future that are ideas I've gleaned from other friends of mine." Other participants mentioned "thinking about" making different direct-marketing decisions, or doing performing other direct-marketing activities: R4, R5 ("We've thought about marketing to ESL groups from Chicago"), R6, R7, R9 ("I've thought about trying to do the sustainability thing more, because this farm is uniquely sustainable compared to other farms"), R13 ("We thought about the ways to attract customers, that our most likely customer base would be"), and R14. Some participants mentioned generating ideas with peers. R9 stated "I've had some friends too that I've talked to about marketing strategy and working through those ideas directly talking to someone else." R13 similarly stated "We share ideas about what we want to say with people because it's really important that we highlight the non-GMO."

Implementation and iteration. As it relates to direct-marketing strategy conceptualization, the last phase of the design process, implementation, and its related

concept of iteration also emerged as themes from the participant responses to various interview questions. R15 stated:

> So, when I implement these things, you have to know what problem you're trying to solve, you have to observe it, then you have to just do all the things necessary to make it happen. Make little steps to make little improvements. It's like pottery—just make little changes to the clay and before you know it you got a beautiful pot.

R3 mentioned "Those are the kind of decisions that you make in the Winter and just hope they pan out how you're thinking they will." R13 mentioned taking action based on previous decisions, including iterative components:

> The business plan was revised a lot throughout the winter, and also because we were doing things consensus-based and trying to do it very collaboratively, we were meeting each week to review. Different members would propose different sections and then we'd all discuss and edit the draft and re-evaluate. This had many different iterations, mostly looking like a lot of notes to then getting a polished semblance of final.

R5 mentioned the decision to change strategies based on changing markets [being outcompeted in the sweet corn market]. Other participants responded to various interview questions with answers that explicitly mentioned changing strategies from the previous seasons: R4 ("I had such anxiety about raising the price of my eggs."), R5 ("I go back to the notes that I've taken after each season."), R12 ("But I probably wouldn't do that again…I don't think what we gained from it was significant enough."), R13 ("in our pilot year…Taking some of those results and seeing what did really well without much effort

and what kind of crops we had failures on"), and R14 ("Someone mentioned to sell it in a box. A breakfast box. Sell it as a package for $50.").

R15 likened the yearly iterations to the scientific method:

> So, when I do something and make the decision, I go buy the tools and put it into practice. You've got your scientific method with your hypothesis, your theoretical yield, your actual yield, you take the average, you write it down, then just keep expounding on that year after year.

Theme 2: Data-Driven Decision-Making

The second theme that emerged from the data related to strategic decision-making based on data the farmers received.

Feedback. Feedback from customers was a common theme among research participants. In response to various interview questions, the participants mentioned the importance of feedback to decision-making. R11 stated "Feedback from customers is the biggest impact [in direct-marketing strategy]. We hear something—that's important. We can change something or do something better." Similarly, R13 mentioned customer feedback influencing product selection. R2 and R14 mentioned customer feedback influencing the storytelling and relationship-building aspects of the service delivery.

R4 mentioned two instances where customer feedback changed the marketing strategy. First R4 mentioned "I've thought about getting Humane Certified a couple of different seasons, but again I talked to my customers and asked, 'would this matter to you if I was animal welfare approved?' and hands down everyone said, 'we don't care.'" Second, R4 mentioned "I thought maybe the feedback I got from the survey would lead me to all heritage [turkeys], but that wasn't the case."

Some feedback was validating that the farmer's strategy was working, as R9 received: "Most of the comments and feedback I get from people. They love the freshness, they love the neighborhood, or they know this is the way we need to live to be sustainable and produce food this way."

Some farmers leveraged social media for feedback (R6 and R12), but R6 differentiated between the two: "I want real feedback, I don't want a like, I don't want a heart. I do like when people comment on the internet…But when I'm having conversations with people here, I'm getting that direct feedback, that's what I'm looking for."

Observation. In addition to customer feedback, the interview question responses showed that farmers also gathered information from observation of customers or other producers: R1 ("It's always good to have insight from other producers, the customer, neighbors"), R3 ("We're always looking to see what our neighbor vendors are doing to display their goods"), R4 ("I observe what other people do because I think it's really interesting"), R5 ("With social media, you see what everyone else is doing"), and R11 ("We do look at our competitors and sometimes we can learn something from them"). R10 explained:

> My first year starting our display looked completely different than my display now, because I've seen what other farmers do and what works well and does not work well. Signage is a big thing I've learned. Quality of produce. I helped a farmer out the first year, and I saw the quality he put out and some stuff was awesome, but some should go in the garbage—it was strange to me the quality he had. But he bought and resold, so whatever he had to throwaway was money lost

> to him, so I can understand how he wanted to get every penny out of it that he could. But you hear customers talking—they think you can't hear them because they're a table away from you—but you hear people talk and they say, "that looks kind of wilted, or those don't look very good," or the other way, "that looks really good and that's a good price." So, I learned to pay attention to that while helping him, and I learned you always have to set out your best stuff because people will pick it up, and feel, and smell, and make sure they're getting the best thing. I've seen some farmers not be very welcoming or being overly pushy—kind of like walking into a store and being too pushed to buy something. There's a happy medium to be inviting but give them space and time to make a decision.

R15 noted the connection between observation and decision-making: "If you're not willing to collect data and observe and act on that, you're going to set yourself up to go down dead-end roads of failures. You have to be able to observe what's going on and then act on it."

Evaluation. Another theme that emerged from the data that this study has grouped under data-driven decision-making was the concept of evaluation. Most participants, though not all, mentioned evaluation as a part of their decision-making process for direct-marketing strategy.

R3 stated "I grow ginger and turmeric…this is my second year growing it. I don't know if I'll continue, but I'll evaluate it over the winter and see how we did." R3 mentioned evaluation another time relating to the return on investment of certain farmers' markets: "Last year I was evaluating the numbers for two of my markets that just seemed to be…I was barely breaking even on those expenses."

Some participants evaluated direct-marketing strategy effectiveness based on qualitative feedback, like R7: "I ask people what do you think of this? I think people are the judge of it." Other participants evaluated based on quantitative feedback, like R8 ("for cash transactions I'll put them through Square. That helps a lot to be able to see how much I've sold this week at each CSA. I can tell what cuts to get, what cuts people don't like. Who's buying what and how often"), R14 ("I kept a spreadsheet for a while. I'm a dollar person. How much did I make in Mt. Vernon? How much did I make in Iowa City? On Wednesday, Thursday, and Saturday?"), and R15 [in response to the interview question about evaluating direct-marketing strategy effectiveness]:

> Dollars. You're selling stuff. A lot of inquiries. When you do something, they look at your website, so you start seeing traffic. Then you get phone calls, so you know they're serious about it. Then they start buying. Then the fourth stage is they start telling their friends. There's nothing more powerful than a review or a testimonial or a recommendation…If you can monitor each of those stages…You can't manage something you don't record, so you have to write down and record changes…Nothing drives me more crazy than having people tell me bogus data they didn't collect. Speculation is not data.

Strategic decision-making. Customer feedback, observation, and evaluation are related to another theme that emerged from the data: strategic decision-making. Every interview participant (n=15) made decisions about what to direct market. Some mentioned niche markets, such as R3: "I'm always interested in things that are a little more difficult to grow because there might be a niche market" and R5: "The focus from the very beginning was to have people come here, to an authentic farm."

Other participants made decisions about what not to do. R6 mentioned "So we've decided to not care for that market [perfectly aesthetic produce]. What we decide to grow is the funky stuff: the heirlooms, the beautiful things you don't see and can't get at the grocery store." Similarly, R10 stated "I don't try to do tomatoes because there's so many farmers with picture perfect tomatoes…I can't compete with, so that's not my focus…I grow greens of all…that's my niche and that's how I get people to come to my stand." R2 also mentioned filling a gap: "With the chickens, nobody was doing broilers when we started. We also had sheep and we primarily marketed those to the Halal community."

Some participants made strategic direct-marketing decisions based on the values of the farm business and its owners (R12), some made them based on less difficulty of business operations (R9, R14), some based on customer demand, like R4 ("customers told me I should raise turkeys") and R11 speaking about making a certain product based on a certain ethnic group of the city ("Our local market—you probably know about [city data redacted for participant anonymity], it's a little bit unique. With the [redacted for participant anonymity] population and so on. That's why for example [product redacted for participant anonymity]—which is used in [ethnic] dishes, is very popular here").

R15 stated a pragmatic response to the question about how they choose which products to compete with

> When I choose to sell something, I don't sell what I want to sell, I sell what people want to buy. Do you sell what you can make, or do you make what you can sell? I'm going to make what I can sell. If people are asking for chicken, I should raise chicken…That's how I make decisions on what I'm going to sell—

it's not what I want to do, it's what I can sell. If that happens to be bison or chicken or eggs, that's how I decide. I sell what people ask for.

Competition. Another theme that emerged from the data was the farmers' awareness of competition, and how that impacted their decision-making.

The interview participants indicated relationships between competition and decision-making, such as R2: "…we live in a ['foodie'] bubble…in Johnson County…there's a lot of competition too, a lot of other local farmers, [and] the co-op but we just try to differentiate ourselves with what we sell and the quality of what we sell." R5 mentioned competition influenced decisions on changing pricing as well as what products to compete with. R4 mentioned the need for differentiation through grass-based livestock and delivery service to compete.

R6 and R7 mentioned the need to enhance their direct-marketing strategy due to competition. R6 stated: "There's been a blossoming of these home growers. Essentially, they're my competition here…You up your game, that's what you do."

Price. Another sub-theme that emerged from the data that's related to decision-making was pricing. Many respondents explicitly stated they charged a premium for their products: R2 ("We typically charge a higher price point than other farmers but we feel comfortable doing that because of the quality of our meat and our eggs are worth it"), R3, R4 ("I try and keep the quality very high because I charge a premium for my eggs and I charge a premium for my meat"), R7 ("I tell people, you're paying a premium for this jar of probiotics, so use it wisely"), and R9 ("I just feel good about charging premium prices for the food that I sell because it's comparable or better than the stuff you can get at the store").

Some farmers more explicitly tied pricing to business models. R1 stated "You do need to price in a way that doesn't gouge the customer, but you need to make a living off of it…I expect any enterprise I do to make at least $20/hour for my labor." R15 stated:

> When you price anything, you have to know your customer, you also have to know how much money they make…I believe in the current [chicken] market people have gotten out of control: the first guy was $2.50/lbs. then the next guy was $2.75, then $3.60, then $5.95 because it's Des Moines. I've sat in the living rooms of these people buying my chickens and they tell me they can't afford $5.95—they're on a fixed income. They're 73 years old and they need organic chicken and grass-fed eggs—they can't afford it. Her husband is in a wheel chair on oxygen and she's trying to feed him healthy food and they're living in a 650 sq. ft. house built in 1954 in Des Moines—so she's got very high living expenses cooking every meal, very low mobility for both of them—they can't afford this stuff.

Theme 3: Differentiated Value

The third theme that emerged from the data related to the concept of differentiated value. Differentiated value was mentioned in some form or another by most participants.

Value. Some participants explicitly acknowledged the concept and importance of value in the eyes of the customer: R4 noted:

> Iowa City folks, Johnson County folks, really put a value on local food and they like to know where it comes from. That is very useful in my marketing as well—the eggs pretty much sell themselves. And our farm is very open too—we have guests and visitors and groups all the time. We're very transparent about the way

> our food is produced here, how we treat our animals. People really respect that as well. That also helps direct marketing. We have a very loyal following—it's often friends of friends.

R11 first mentioned a livestock-specific practice that added value, then mentioned: "Another is that we're local and people like to buy something local and they identify with it."

R3 mentioned value in the context of community value beyond just the value exchange between the customer and the farmer: "So we do a lunch and learn where I do a PowerPoint presentation where I talk about the value of a CSA, the value of supporting local—all of that. That's how I implement that type of strategy face-to-face."

R6 noted value beyond monetary and product exchange: "Half of our customers are much more than customers—they're our friends. Some of these people have crossed the line and become good friends…Even those who have not—there's a value to the relationship and it's beyond just customer."

R8 and R11 mentioned that the local market in eastern Iowa affects what is valued. R8 stated "Eastern Iowa is a unique market because we are so saturated with conventional agriculture…the press [states] how bad conventional agriculture is…they [customers] know I'm doing it differently [farming sustainably] and…that's all they need to know and they'll buy from me." R11 stated:

> Now if you're near a university town or a large metropolitan area, that might be good enough to sell it. You need a population base—you can't just sell it in Podunk, Iowa. So, you need demographics and you need something unique. We

have a few: one is that we're organic, another is that we're grass-based—our cows are on grass.

Relationships and connection. A major sub-theme that emerged from the data that's related to differentiated value was the sub-theme of connection and relationships. R3 stated:

> Relationships with my customers is one of the most important things. If you can build a relationship with a farmers' market customer, they're going to come to your table every week. It's a pretty amazing thing to watch at the farmers' market. Vendors like me that are engaging their customers and talking to children that are with them—just connecting with them at some sort of personal level—people just gather at that table. Vendors that don't connect and don't make eye contact and aren't engaging the customers—people just walk right by. Just being interested in your customers. Letting them know that they're important because without them you can't make this work. Just going the extra mile with your customers that way.

R12 similarly stated "Relationships are important." R15 stated "They're not buying because of what you have—they want to buy it from you because of you." R13 stated "the only reason it [local food] works, is those connective relationships with those feeling a part of that collection. And delicious food, but I don't think it has as much value without that connection."

> R1 was explicitly aware of the concepts of direct marketing and relationship marketing: …those kinds of things [exemplary customer service] are needed to build the relationship with the customer. Direct marketing can also be known as

relationship marketing. A lot of people want to have that connection to be able to say this is our farmer, this is who we go to—that builds the customer loyalty.

Participants mentioned the importance of values toward building relationships and forming connection: R11 ("being completely honest and transparent") and R12 ("we're centering our values").

R6 gave a story that spoke to the depth of the connection possible between these farmers and customers:

> The biggest success in our direct marketing is the community of customers that we have. I'd say the most outstanding example of that was—when we had our first child, we didn't have to buy our child anything because our community of customers offered hand-me-downs and this, that, and the other thing. It is so real—this relationship is so real. That was huge and continues to be. The farmers' market in general feels ancient—this goes back forever. There's this community of people, they pitch a tent for a day, you come down and get what you can, what's around, you trade gossip.

Storytelling. The data also suggested the theme of storytelling as important toward differentiated value. R15 stated:

> People want to hear our story. They want to know how we came up with the brand. They want to know how we live. They want to know who we are. They want to know our kids' names, how good their cursive is, what kind of car we drive. Because we have something that they want, and they want to be a part of it…They want to hear your story. In order to establish a relationship, you have to be able to reveal who you are and wait for people to like that.

R1 noted storytelling via an electronic newsletter:

> I do have my newsletter and a yearly update for people. It's not just about what the products are this year, it's about what happened last year. Here's the improvements. Here's this or that going up. Here's what happened with the guard animals. Give them a story about what's going on at the farm instead of just the beef's ready this month type of thing. Put a little more personal connection into the newsletter.

R6's table at the farmers' market had a sign that was a handmade quilt that served as a conversation piece:

> We try to look very homespun. I don't think there's anyone that looks quite like us at this market. Try to make it all as homemade as possible. It works. We feel the love. Our banner is a good representation. It took me two years to quilt it—the biggest project of my life. It all started because of my friend. She said we should make a gigantic quilt. And she started it, she got it going. All our friends, interns over the years, they've all put into. Each piece of fabric has a story. Some of the lace on there was tied by my husband's great grandma. There are dresses on there when I first came to the Quad Cities. There are pillowcases from my husband's uncle whom we inherited the farm from.

R6 used storytelling to turn the failures of the garlic mentioned earlier into a selling point: "So I'm trying to sell them, and how I'm doing that is by telling the story…I'm not going to make as much as if I had giant garlic heads, but at least I'm selling it. Storytelling is huge."

Community support. In addition to developing relationships as a means of differentiated value, the theme of community support also emerged from the data. R2 stated ("people who support local farmers do it for the quality but also do it for the community. They're investing in people and their community"), R3 ("In this area of Cedar Rapids, Iowa City, Mt. Vernon, supporting local small businesses [and the local food movement] has become more important to people"), R4 ("People in Johnson County, Iowa City in particular, really like knowing where their food comes from. They're very eager to support local farmers"), R9 ("Some of it's just to support me"), and R13 ("One customer of ours is a good friend of mine and she said she would pay $20 even if there were just two onions. That's a level of commitment and buy-in that goes beyond trust and more into support").

R14 mentioned making a decision to stop serving a specific small market due to lack of this type of community support.

Farm visit experience. Another theme that emerged from the data related to differentiated values was the concept of farm visits and the experience customers had on these visits. R4 stated:

> One of the marketing decisions we've recently made is we're going to start renovating our milk house into a guest house, because we've learned over time when people come to visit our farm that they love being at a farm. Not necessarily being here, but they just love being out in the country even though we're only six miles away from Iowa City. People really want to see what farms are like, to see how food is raised, they want to learn about goats or lamas or raising chickens, or they just want to be somewhere peaceful and bucolic. So that has helped us decide

we're going to put some money into renovating this milk house so we can add another farm enterprise.

Many of the interview participants mentioned farm visits as a valuable experience for the customer: R1 ("I try to invite them out to at least have a personal visit"), R3 ("Just creating an environment of community, inviting them to the farm, sending out newsletters with stories of what's going on, for my shareholders I refer to it as 'your farm'—come out to breakfast at your farm"), R11 ("We get a lot of visitors. A lot of customers want to come and see the cows. They kind of feel like they're their cows—like it's a community dairy and they're part of the whole thing"), R13 ("inviting people to be as much of a part of the farm as they want. We've had several members come out and volunteer at the farm and hang out"), R14 ("We fixed up this old farmhouse and just had some people stay in it for the first night—we are thinking of renting it out as an experience and calling it a farm stay"), and R15 ("Maybe if there's an experience where they can come get a couple dozen eggs, they can paint some pottery, they can walk around the property, throw out a fishing pole. It's kind of an elaborate plan but that's our decision from previous years").

R5 explained the importance of experience on a typical farm visit:

> We're trying to offer the farm as an experience for any type of group that comes, but specifically for the fall. We've done it for 21 years and we've never charged admission. We've charged for a hay rack ride that goes around and obviously for people that buy produce. Other than that, we have a haunted barn, a straw maze, a balloon jump, a fort fright, and playground equipment and that's all free. We wanted families to come and let their kids run around, especially low-income families. This is different than a big farm in central Iowa that charges a high

admission and charges for everything you do. If you have five kids or if you bring your extended family, that's a lot of money. So, we try to stay away from that. People know us as the free farm. This year we might change that because the family [farm owners] dynamic of how everything works has really changed, so we've had to focus on the financial aspects. But we were set apart in that way. We're also trying to establish ourselves as an education-based farm. Not just come to get your face painted, you actually learn something. Like the difference between sheep's' eyes and cows' eyes. Information about the Native Americans that used to settle around here. Or painting classes that teach you something about the technique and the artists like Grant Wood. Hopefully that will get the school groups and summer groups in because it has the education component.

Quality. Another theme related to differentiated value that emerged from the data was the concept of quality of products. Most interview participants made some mention of their products' quality as a point of differentiated value.

R11 stated that the product was so good that "the product sells itself." R11 went on to talk about the necessary conditions of a market that appreciates these uniquely differentiated products: "Quality has to be key. Not only quality but its uniqueness…I think with a unique product, you also need to be near a population based that would appreciate it…you can't just sell it in Podunk, Iowa."

The term quality was used by different farmers to refer to different aspects of the product such as its nutrition (R1, R15), its taste (R1, R8, R9, R15), its freshness (R9), or its handling (R1, R5, R10, R9).

Quality as a differentiated value characteristic relates to price and also to target customer empathy as R6 described:

> This lady came up, picked it up [cherry tomatoes], put it down and scoffed and said, "I can get three times this much at Wal-Mart for this price." And you know, I can't even be mad. It's not her fault. The thing is, it's not the same thing at Wal-Mart. It's not going to taste the same. It is 100% not the same product. So, I'm not going to sell it to you for one-third the price just because you can get some facsimile of this at Wal-Mart. No way. My husband calls himself the 'hell no lady.' He's very good at it. When people come up to you and try to get something for a lot less, he just says "hell no, lady." I can't afford to do that. I would rather feed this to my pigs than sell it to you for that amount of money.

Word of mouth. Another sub-theme that emerged from the data related to differentiated value was the concept of word-of-mouth marketing, or referrals. Many of the interview participants mentioned the prevalence of this: R1 ("word of mouth is my best advertising"), R2 ("Word of mouth really means something. If someone that they trust trusts us, then they're going to trust us as a result. Just building strong relationships with your community"), R5 ("We also do word of mouth"), R9 ("A lot of word of mouth the first year"), R11 ("Word of mouth is the biggest part of our marketing"), and R13 ("Word of mouth is a tool").

Theme 4: Opportunities for Growth

Finally, the fourth theme that emerged from the data signals that small farm operators have opportunities to enhance their usage of design thinking in their direct-marketing strategy conceptualization and implementation.

Self-awareness of gaps. One sub-theme that emerged from the data was some of the farmers' self-awareness of gaps in their marketing strategy. When an interview question asked, "Describe how your direct-marketing strategy is implemented," R11 replied:

> Very haphazard. We don't really have plans per se. We usually just get an idea. We might think about it and talk about it. We don't have a real marketing strategy. Probably because our product usually sells itself. We probably should start being a little more organized with our marketing.

To a different interview question that asked what kind of information would improve the farmers' direct-marketing strategy, R12 replied "We've already established my strategy is mostly non-existent other than to do stuff."

When an interview question asked how the farmer made a decision about what goods to compete with in the market, R9 answered:

> I want to produce a certain amount of value on each bed so I can pay my mortgage. The other thing is do I like to eat it myself, because there's some things that are considered staple vegetables that I won't grow because they're a pain in the ass from my perspective. And they don't have a high enough price. This is in my head—if I collected data, I might change my mind.

The same participant, R9, replied to a different interview question asking about the effect of local markets on the farmers' decision-making processes for direct-marketing activities: "But I'd say that's [freshness, supporting the community, sustainability] not the top decision for most people, but it's part of it. That's mostly just from conversations I've had with them—but I haven't collected actual data."

R11 replied to two separate questions with self-awareness of gaps. When asked how the farmer evaluates their direct-marketing effectiveness, R11 replied "We don't. Give me a zero on that one." When asked about building awareness, R11 replied "We don't do enough of that. We probably will do more of that with our new products we're looking at. We'll probably do some demonstrations with samples. Otherwise, we don't do much of it."

R12 went on:

> Our marketing strategy is not an overt thing—I just know we need to do certain things. It's not something I have to think about so much, but I can see where my age and the type of work I've done in the past lend themselves to it a little bit. I guess we don't have a huge strategy other than be present and do the stuff that most people are doing.

Informal approach. Another trend that emerged from the data was the theme of implementing direct-marketing strategy without planning or intention. When the interview question asked, "Describe how your direct-marketing strategy is implemented," R7 replied "Just do it. I don't have any formal marketing training except that I'm 65 years old—of course I've marketed. The people skills from my day job—those really transfer." R9 responded to the question similarly: "Just show up and do it. The hard part is making the decision to act and being confident that it's a good choice." R12 also responded similarly to the same question: "By doing it. I don't write stuff down on paper. I'm thinking about smaller-scale, diversified farms that are hella [sic] organized and super clean. They probably have plans with checklists. We don't have that."

CONCLUSIONS AND RECOMMENDATION FOR FURTHER RESEARCH

Introduction

The purpose of this study was to articulate and understand trends in decision-making processes related to how small-scale eastern Iowa farmers conceptualize their direct-marketing strategy through these specific research questions:

- **RQ1**: What are the trends in decision-making processes that assist small farm operators in eastern Iowa with direct marketing farm-to-table products?
- **RQ2**: Is there a relationship between small Iowa farm operators' direct-marketing strategy formulation and the design process?
- **RQ3**: How does the design process create valuable direct-marketing strategies for small Iowa farm operators?

In this section, the key findings are discussed in relation to the updated conceptual framework and the literature from chapter 2. Additionally, recommendations for further research are offered.

Revised Conceptual Framework

The conceptual framework (see Figure 8) was updated to introduce overlap between the three main areas of the design process, direct-marketing strategy, and small farm businesses as evidenced by statistically significant correlations from the quantitative results. The key findings from the data suggested that small farm operators do undertake design activities while developing direct-marketing strategies. The updated conceptual framework notes the major themes that emerged from the qualitative data as descriptions of the intersections between major areas and also highlights the knowledge gap in existing academic research between these three areas that currently exists. The previous

literature as well as this inductive, exploratory research study indicate a space where further research could be conducted to develop better insights for small farm operators' use of the design process for direct-marketing strategy formulation.

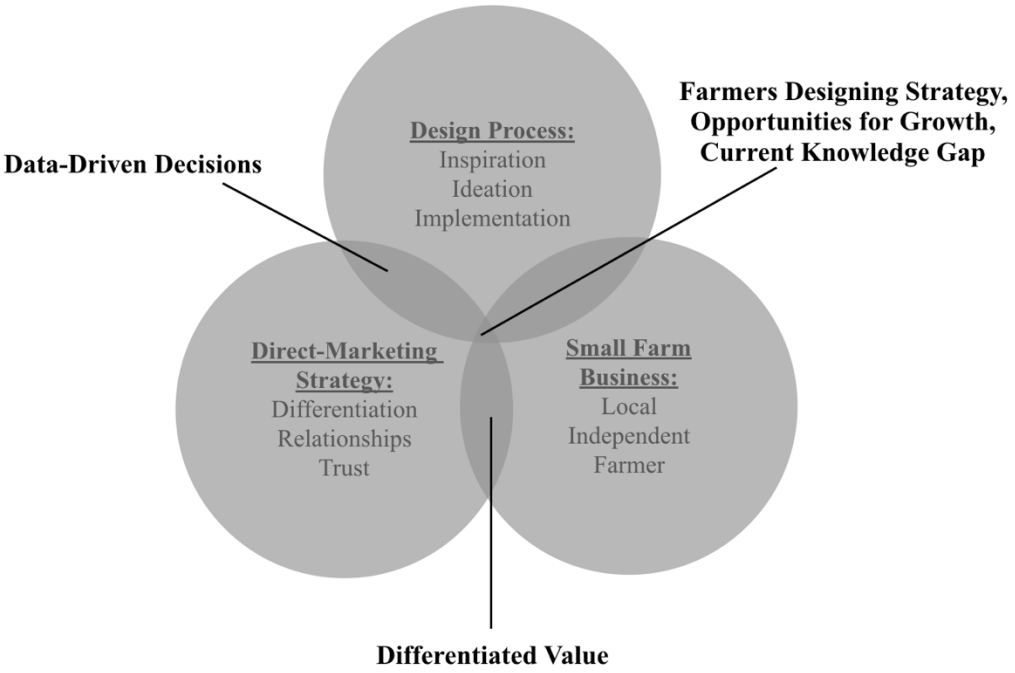

Figure 8. Revised conceptual framework.

Discussion of Key Findings

Research question 1 conclusions and discussion. What are the trends in decision-making processes that assist small farm operators in eastern Iowa with direct marketing farm-to-table products?

Descriptive and inferential statistics were calculated on the quantitative data set (n=30). As it relates to the three research questions of this study, the relevant survey questions and aggregate responses will be discussed in the context of the research questions. All survey response data was collected using a Likert scale with 1 corresponding to the value of "Strongly Disagree" and 5 corresponding to the value of

"Strongly Agree." That range of values was the standardized value set to allow for the descriptive and inferential statistics. Descriptive statistics listed below following this 1 (Strongly Disagree)-to-5 (Strongly Agree) scoring convention. The measure of central tendency used was the mean.

With regards to having a strategy and the farmers' awareness of that, the descriptive statistics suggest that most farmers do have a direct-marketing strategy with the measure of central tendency resulting in 4.30/5 (0.99 standard deviation). Similarly, the respondents were aware of their decision-making as it relates to their direct-marketing activities with a mean of 4.30/5 (0.92 standard deviation). The statistics suggested that most participants had a direct-marketing strategy and were aware of the decision-making activities that supported their strategy.

As it relates to the marketing mix variables from the marketing literature, 4.67/5 (0.66 standard deviation) made decisions on what goods to sell and what goods not to sell, 4.77/5 (0.57 standard deviation) described quality of goods as a key selling point compared to 3.10/5 (1.24 standard deviation) that described prices as a key selling point. With regards to marketing mix variables of product and price, the statistics suggested that participants were strongly focused on the quality of goods and what goods to sell and neutral about price comparisons.

4.40/5 (1.10 standard deviation) noted intentionally choosing products and marketing materials that differentiated them from other farm competitors. 4.57/5 (0.97 standard deviation) noted that building ongoing relationships was part of their direct-marketing activities. With regards to strategy by differentiation, most participants strongly agreed that they made direct-marketing decisions of products and marketing

materials that would differentiate them from the competition. An even stronger aggregate score indicated that building ongoing relationships was part of the respondents' direct-marketing activities.

Overwhelmingly, the quantitative data shows that small farm operators are making strategic decisions (Chernev, 2019) about marketing mix variables (Chernev, 2019; Zeithaml, Bitner, & Gremler, 2013). To summarize, the data from surveys indicates that small-farm operators intentionally attempt to differentiate themselves from competition through the quality of their products and their brand. Small-farm operators also make decisions to establish and cultivate relationships with customers to receive the benefits mentioned from relationship marketing (Zeithaml, Bitner, & Gremler, 2013).

Research question 2 conclusions and discussion. Is there a relationship between small Iowa farm operators' direct marketing strategy formulation and the design process?

For this research question, inferential statistics suggested statistically significant correlations between the following design and direct-marketing strategy concepts that were operationalized in the survey as Likert scales:

There was a .667 Pearson Correlation between "My direct-marketing strategies evolve based on lessons learned from previous years" (design: ideation) and "My goods' quality is a key selling point when compared with other vendors/competitors" (direct-marketing strategy: differentiation). As most qualitative data from the interview respondents (n=15) suggested that quality was a major "marketing mix" variable, the data suggests that farmers' improved iterations year over year is correlated with quality. As a limitation, these surveys were not designed to determine causation, so the correlation is the extent of analysis.

Next, there was a .640 Pearson Correlation between "I take time to evaluate my marketing strategies at the end of each season to learn what I can improve on for the next season" (design: iteration) and "I am aware of the decisions I make that drive my direct-marketing activities" (direct-marketing strategy). The data suggests that farmers' customer feedback, observations, and other learnings from previous years (iterations) is correlated with strategic decision-making. As a limitation, these surveys were not designed to determine causation, so the correlation is the extent of analysis.

Finally, there was a .488 Pearson Correlation between "My direct-marketing strategies evolve based on lessons learned from previous season" (design: ideation) and "I intentionally make decisions on what farm goods to sell and what farm goods not to sell as part of my direct-marketing activities" (direct-marketing strategy). The data suggests that farmers' improved iterations year over year is correlated with strategic decision-making about product offerings. As a limitation, these surveys were not designed to determine causation, so the correlation is the extent of analysis.

To summarize, the data described statistically significant correlations between design concepts and direct-marketing strategies. There appears to be a relationship between small-farm operators making evolved strategic decisions (Chernev, 2019) by working through the design process (Brown, 2009).

Research question 3 conclusions and discussion. How does the design process create valuable direct-marketing strategies for small Iowa farm operators?

Descriptive statistics for the survey questions designed to approximate design thinking mindset and activities were aggregately calculated as follows:

As sources of inspiration, ideation, and implementation/iteration 3.27/5 (1.41 standard deviation) noted learning direct-marketing tactics by observing the competition. 4.67/5 (0.61 standard deviation) noted evolving their direct-marketing strategy based on lessons learned from previous seasons. 4.17/5 (1.15 standard deviation) noted taking the time to evaluate their marketing strategies after each season to learn what to improve for the next season.

As it relates to the design process from the literature, the survey respondents learned more from their own efforts and experiences than from observing the competition. This may have relation to the strong influence of the customer relationships as demonstrated in the "ongoing relationships" survey question as well as the qualitative data responses.

Beyond the quantitative findings, the categories and themes that emerged from the qualitative data indicated that farmers designed their strategies by following the design process (Brown, 2009). The data showed that they gained inspiration from many sources including competitors and customers, they ideated by brainstorming or "thinking of" doing things, and they implemented by "just doing it." There was an iterative characteristic to their process as well, where they would evaluate their outcomes and redesign their strategies based on insights gained from previous efforts.

In addition to the process aspects that emerged from the qualitative data, the mindset of a designer also emerged as factors in how small-farm operators conceptualize their direct-marketing strategies. Empathy, observation, and a willingness to try and fail were common themes that emerged from the qualitative data.

Implications for Practice, Importance for Population

With regards to the research questions and the findings of the study, the data suggests that design thinking has many similarities with strategic decision-making and with elements of marketing such as service design. It would be prudent to continue to rigorously study the intersection of those areas beyond what's available in popular trade literature.

With regards to small-scale local farms, agriculture programs and agriculture schools at universities already discuss economics, management, marketing, and even direct marketing. However, there seems to exist a gap (in agriculture schools) between those topics and design thinking and the design process. It would be prudent for agriculture schools and programs to explore design thinking as much as it has explored business. As the literature shows, all humans are designers (Papanek, 1984), and agriculture has been affected by design throughout history.

With regards to small-scale local farms, most land-grant universities in the United States have agricultural extension offices in local farm-based communities. Perhaps some type of design thinking workshops for small farm operators could be facilitated. As the literature alluded to, design is a generalizable problem-identification and problem-solving methodology that could be applied to other farm concerns beyond direct-marketing.

With regards to strategic innovation and value creation, clearly the design process is already vital. For industry, it would be interesting to explore how many different industries could utilize design thinking for innovation. As this study explored small farms, other industries may explore utilizing design in a similar way. How might design thinking add innovative value to healthcare, education, research, philanthropy, science,

software engineering, etc. Many of these fields have already utilized design thinking to some extent, but what if design thinking was normalized into all levels of the organization and working-life discourses in general?

Future Research

Even though the data collection limitations make generalizability of this study problematic, design thinking and strategy can be applied to many areas. While not specific to direct marketing, Berthet, Hickey, and Klerkx (2018) authored an editorial that listed many previous studies at the intersection of agriculture and design or management sciences. From their literature review, the authors identified three major areas that would benefit from additional research—two of the three being relevant to this study: advancing the use of design techniques and tools for agricultural activities and breaking down discipline silos in order to accelerate innovation in agriculture by bringing new ideas from other disciplines (p. 113).

In light of Berthet, Hickey, and Klerkx (2018) recommendations and the findings of this research study, suggested future research that could be interesting to cross-pollinate with ideas from this research study are included in Table 5.

Table 5

Future Research Opportunities

	Design Thinking	Direct-Marketing Strategy for Small Farm Operators
Regenerative agriculture and permaculture	(intentionally left blank)	What are the trends in marketing strategy of products produced by regenerative or permaculture-style farms?
Experience design, particularly transformational experiences	How does design thinking affect experience design?	(intentionally left blank)
Growth mindset and self-efficacy	How can positive psychology concepts of growth mindset be applied to design thinking practitioners?	(intentionally left blank)

Limitations of This Study

As previously mentioned, demographic characteristics of the sample population were not collected, so generalizing the findings is problematic. Further, the grounded theory data analysis was limited to open coding and would have been stronger if it added additional phases of axial coding and selective coding. The descriptive and inferential statistics could have been stronger if the sample size of survey participants was at least 100 observations.

Final Thoughts

This research study concludes that there is a relationship between direct-marketing strategy conceptualization for small farm operators and the design process. The trends that assist small farm operators with direct marketing their products relate strongly to theoretical concepts about marketing such as strategic decision-making, marketing mix variables, and enhanced value through service, experience, and relationships. While these connections exist in the data, the researcher concludes that *most* small farm operators in eastern Iowa (from the sampled population) are not explicitly utilizing the design process with intention—rather, it's a side effect of their innate problem-solving skills. The researcher concludes that there are opportunities for growth related to small farm operators intentionally using the design process to innovate and create differentiated value. Further, there are opportunities to more rigorously explore the research gap between small farm operators selling local food, direct-marketing strategy, and design thinking identified and confirmed by this study.

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APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

EXEMPTION GRANTED

Kenneth Brooks
HIDA: The Design School
480/965-2533
Kenneth.Brooks@asu.edu

Dear Kenneth Brooks:

On 6/6/2019 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Direct-Marketing Strategy Conceptualization for Small Farmers in Iowa: Decision-Making Activities and their Parallels to the Design Process
Investigator:	Kenneth Brooks
IRB ID:	STUDY00010261
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	• Larew-IRB-Certification, Category: Non-ASU human subjects training (if taken within last 3 years to grandfather in); • Larew-Consent-Form, Category: Consent Form; • Larew-Survey-Form, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Larew-Interview-Guide, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Larew-IRB-Protocol, Category: IRB Protocol; • Brooks-IRB-Certification, Category: Non-ASU human subjects training (if taken within last 3 years to grandfather in); • Larew-IRB-Recruitment-Script, Category: Recruitment Materials;

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (2) Tests, surveys, interviews, or observation on 6/6/2019.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Hart Larew
Chingwen Cheng
Kenneth Brooks
Hart Larew

APPENDIX B

INFORMED CONSENT FORM

Title of research study: Direct-Marketing Strategy Conceptualization for Small Farmers in Iowa: Decision-Making Activities and their Parallels to the Design Process
Investigator: Dr. Kenneth Brooks

Why am I being invited to take part in a research study?
We invite you to take part in a research study because: you are an eastern Iowa small farm operator that direct markets your goods to your customers in public settings such as farmers markets. You must be 18 or older to participate in the study.

Why is this research being done?
The study's intent is to articulate and understand trends in decision-making processes that assist intensive, small-scale farmers in producing farm-to-table products for direct marketing in eastern Iowa. We will analyze how it relates to design thinking and decision-making of the building and deployment of agricultural business services.

The goals for this study are to understand how the design process can generate enhanced options when forming a direct-marketing strategy, to understand how the best aspects of different concepts can be combined, and to understand the process of prototyping and iterating these concepts towards an implementation strategy.

This study is inspired by previous literature; however, it will provide an opportunity to explore a gap where different topics meet and specific to the region of Iowa. There is no prior literature at the intersection of the design process, direct-marketing strategy, and small-scale farming in Iowa.

There's no prior literature that bridges this gap.

How long will the research last?
We expect that individuals will spend 10 minutes to complete a survey, if selected for an interview spend 20 minutes up to an hour to participate in the interview, and the research will be published by December 2019.

How many people will be studied?
We expect about 100 people will participate in this research study. 100 participants for the survey, and 15 of those 100 participants will participate in the interview.

What happens if I say yes, I want to be in this research?
If you consent to participate in this research, you will complete a short survey form and may be asked to participate in a 20- to 60-minute interview. We are also asking your permission to record the interview. Only the research team will have access to the recordings. The audio will be recorded to a laptop that is encrypted and password protected. The recordings will be deleted immediately after being transcribed and any published quotes will be anonymous. To protect your identity, please refrain from using names or other identifying information during the interview. Let me know if, at any time, you do not want to be recorded and I will stop.
Your responses will be the data for the research study. Your data will be aggregated and anonymized. Your data will be part of a larger data set for a graduate Thesis. If you want, you can ask to receive a short Summary of the research findings that the research team will email to you after the research has been completed. You are free to decide whether you wish to participate in this study. Instead of being in this research study, your choices may include: Decline to participate in the study. There are no foreseeable risks or discomforts to your participation.

What happens if I say yes, but I change my mind later?
You can leave the research at any time it will not be held against you.

Will being in this study help me in any way?
We cannot promise any benefits to you or others from your taking part in this research. However, possible benefits include helping participants reflect on their activities in a way they may not have ever been prompted to. We will provide the option to share a summary of findings of this research (aggregated and anonymized) with the participants as an additional benefit.

Who can I talk to?
If you have questions, concerns, or complaints, talk to the research team at:
Hart Larew, hart.larew@asu.edu; 480-751-7923
My Faculty Advisor: Ken Brooks, kenneth.brooks@asu.edu;480-251-4277
This research has been reviewed and approved by the Social Behavioral IRB. You may talk to them at (480) 965-6788 or by email at research.integrity@asu.edu if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research participant.
- You want to get information or provide input about this research.

Your verbal agreement indicates your consent to participate.

APPENDIX C

INTERVIEW PARTICIPANT RECRUITMENT SCRIPT

Interview Participant Recruitment Script

My name is Hart Larew, and I am an MSD Industrial Design student at Arizona State University. I am conducting research on decision making activities that small-scale Iowa farmers utilize when making direct marketing strategy decisions. I am inviting you to voluntarily participate in an interview for me to collect data on this topic. You are not required to participate, it is voluntary. I will audio record the interview to aid with transcription. I will keep your identity confidential. The data I collect will be aggregated with other participants' data so participants are non-identifiable. Your responses will be anonymous. If you have questions, you can contact me, my committee of three ASU professors, or ASU's Institutional Review Board office (all contact info listed on the cards I present to potential participants). I have an additional card for you to share your contact information if you are interested in receiving an executive summary of the findings—just fill out that card and email to me, then I will share the summary with you once my research is complete. I plan to have the research completed before December of 2019.

Questions or concerns can be shared with: Hart Larew, hart.larew@asu.edu; My Faculty Advisor: Ken Brooks, kenneth.brooks@asu.edu, or the Office of Research Integrity and Assurance at research.integrity@asu.edu.

APPENDIX D

SURVEY PARTICIPANT RECRUITMENT SCRIPT

Survey Participant Recruitment Script

My name is Hart Larew, and I am an MSD Industrial Design student at Arizona State University. I am conducting research on decision making activities that small-scale Iowa farmers utilize when making direct marketing strategy decisions. I am inviting you to voluntarily participate in a survey for me to collect data on this topic. You are not required to participate, it is voluntary. I will keep your identity confidential. The data I collect will be aggregated with other participants' data so participants are non-identifiable. Your responses will be anonymous. If you have questions, you can contact me, my committee of three ASU professors, or ASU's Institutional Review Board office (all contact info listed on the cards I present to potential participants). I have an additional card for you to share your contact information if you are interested in receiving an executive summary of the findings—just fill out that card and send to me, then I will share the summary with you once my research is complete. I plan to have the research completed before December of 2019.

Questions or concerns can be shared with: Hart Larew, hart.larew@asu.edu; My Faculty Advisor: Ken Brooks, kenneth.brooks@asu.edu, or the Office of Research Integrity and Assurance at research.integrity@asu.edu.

APPENDIX E

INTERVIEW GUIDE

Interview Guide
Researcher: Hart Larew
Direct Marketing Strategy Conceptualization for Small Farmers in Iowa: Decision-Making Activities and their Parallels to the Design Process
Semi-Structured Interview Guide
Interview Number: _____

- Do you consent to this voluntary interview? Yes | No

- Describe how you develop a direct-marketing strategy for your farm business
    - How do you go about this?
    - How do you decide what is important?
- Describe how your local market affects your decision-making processes with regard to direct-marketing activities
    - How does marketing locally affect your efforts?
- Describe how the region of Eastern Iowa affects your decision-making processes with regard to direct-marketing activities
    - What makes Eastern Iowa a unique market? How does that affect your decision-making and the activities you undertake?
- Describe how you decide what goods to compete with in the market
    - Why do you choose certain goods vs. other goods?
- Describe how you build relationships with customers
    - Why are customer relationships important to your farm business?
    - What activities do you undertake to build these relationships?
- Describe how you set yourself apart from the competition
    - How do you differentiate yourself from other vendors/competitors with similar goods?
- Describe how production schedules of various goods inform your direct marketing activities
    - How do harvest windows affect your efforts?
    - What decisions do you make based on the harvest and availability of certain goods?
- Describe how your direct-marketing activities evolve based on what you observe your competitors doing
    - What have you learned from other vendors?
    - How do these insights affect your direct marketing activities?
- Describe what you have done differently with direct-marketing activities as a result of the previous season's lessons learned
    - How does your decision making evolve from previous years' experiences?
    - What different activities do you undertake based on previous years' experiences?
- Describe how your direct-marketing strategy is implemented
    - How do you execute your plans?

- Describe your perspective on the quality of your goods as it relates to direct-marketing activities
    - What decisions do you make around the quality of your goods that affect your direct-marketing strategies?
    - What activities do you undertake with regard to the quality of your goods that affect your direct-marketing strategies?
- Describe your perspective on the prices of your goods as it relates to direct-marketing activities
    - What decisions do you make around the price of your goods that affect your direct-marketing strategies?
    - What activities do you undertake with regard to the price of your goods that affect your direct-marketing strategies?
- Describe any tools you use for direct-marketing and how and why you use them
- Describe how you gain trust with customers
    - In your own words, why is trust important if it is?
- Describe how you build awareness in the market of your offerings
    - What decisions do you make to build awareness?
    - How do you do it? What activities do you undertake?
- Describe how you evaluate the effectiveness of your direct-marketing activities
    - How do you know what works effectively?
- Describe the biggest risks to your direct-marketing activities
- Describe setbacks you've experienced with your direct-marketing activities
- Describe successes you've experienced with your direct-marketing activities
    - How do your production efforts support this?
- The kind of information that has had the greatest impact on the development of my direct-marketing strategies is: _____.
- The kind of information I wish I could get to help me improve my direct-marketing strategies is: _____.

APPENDIX F

SURVEY FORM

Survey Form
Researcher: Hart Larew
Direct-Marketing Strategy Conceptualization for Small Farmers in Iowa: Decision-Making Activities and their Parallels to the Design Process

1. Do you consent to this voluntary survey form?	Yes | No

*Please answer questions with values of 1 through 5, with **1 being Strongly Disagree and 5 being Strongly Agree**:*

2. I intentionally have a direct-marketing strategy to sell my goods to customers	1 2 3 4 5
3. My direct-marketing activities are influenced by the context of the marketplace being located in the region of Eastern Iowa	1 2 3 4 5
4. My direct-marketing activities are influenced by the context of being a local producer to my regional marketplace	1 2 3 4 5
5. I intentionally make decisions on what farm goods to sell and what farm goods not to sell as part of my direct-marketing activities	1 2 3 4 5
6. Building ongoing relationships with customers is part of my direct-marketing activities	1 2 3 4 5
7. I intentionally choose products and marketing materials that differentiate me from other farms/competitors	1 2 3 4 5
8. I am aware of the product availability windows of various goods and make marketing decisions based on the availability of the goods and what I think my competitors will have available	1 2 3 4 5
9. I learn direct-marketing tactics from observing my competition	1 2 3 4 5
10. My direct-marketing strategies evolve based on lessons learned from previous seasons	1 2 3 4 5
11. My goods' quality is a key selling point when compared with other vendors/competitors	1 2 3 4 5
12. My goods' price is a key selling point when compared with other vendors/competitors	1 2 3 4 5
13. I utilize technologies such as customer databases to enhance my marketing efforts	1 2 3 4 5
14. I utilize electronic media such as email newsletters, blog posts, and social media to enhance my marketing efforts	1 2 3 4 5
15. My farm business's brand is important to my ability to sell my goods to customers	1 2 3 4 5
16. I take time to evaluate my marketing strategies at the end of each season to learn what I can improve on for the next season	1 2 3 4 5
17. I am aware of the decisions I make that drive my direct-marketing activities	1 2 3 4 5
18. I am aware of the activities I undertake that drive my direct-marketing strategy	1 2 3 4 5

APPENDIX G

RAW SURVEY DATA

Table 6

Raw Data of Measures of Central Tendency and Variance

Survey Question	N	Mean	Median	Mode	Minimum	Maximum	Standard Deviation
I intentionally have a direct-marketing strategy to sell my goods to customers	30	4.30	5	5	1	5	0.99
I am aware of the decisions I make that drive my direct-marketing activities	30	4.30	5	5	2	5	0.92
I am aware of the activities I undertake that drive my direct-marketing strategy	30	4.20	4.5	5	2	5	1.00
I intentionally make decisions on what farm goods to sell and what farm goods not to sell as part of my direct-marketing activities	30	4.67	5	5	3	5	0.66
I am aware of the product availability windows of various goods and make marketing decisions based on the availability of the goods and what I think my competitors will have available	30	3.97	4.5	5	1	5	1.27
My direct-marketing activities are influenced by the context of the marketplace being located in the region of eastern Iowa	30	4.23	5	5	1	5	1.10
I learn direct-marketing tactics from observing my competition	30	3.27	3.5	4	1	5	1.41
My direct-marketing strategies evolve based on lessons learned from previous seasons	30	4.67	5	5	3	5	0.61
I utilize technologies such as customer databases to enhance my marketing efforts	30	2.77	2	1	1	5	1.63
I take time to evaluate my marketing strategies at the end of each season to learn what I can improve on for the next season	30	4.17	5	5	1	5	1.15
My direct-marketing activities are influenced by the context of being a local producer to my regional marketplace	30	4.33	5	5	1	5	1.03
Building ongoing relationships with customers is part of my direct-marketing activities	30	4.57	5	5	1	5	0.97
I intentionally choose products and marketing materials that differentiate me from other farms/competitors	30	4.40	5	5	2	5	1.10
I utilize electronic media such as email newsletters, blog posts, and social media to enhance my marketing efforts	30	3.73	4	5	1	5	1.34
My farm business's brand is important to my ability to sell my goods to customers	30	4.17	5	5	1	5	1.26

My goods' quality is a key selling point when compared with other vendors/competitors	30	4.77	5	5	3	5	0.57
My goods' price is a key selling point when compared with other vendors/competitors	30	3.10	3	3	1	5	1.24

APPENDIX H

RAW CORRELATIONS

Table 7

Full Data of Correlations Between Concepts

Concept	Pearson Correlation	Concept
I am aware of the activities I undertake that drive my direct-marketing strategy	.726**	I am aware of the decisions I make that drive my direct-marketing activities
My goods' quality is a key selling point when compared with other vendors/competitors	.667**	My direct-marketing strategies evolve based on lessons learned from previous seasons
I am aware of the decisions I make that drive my direct-marketing activities	.640**	I take time to evaluate my marketing strategies at the end of each season to learn what I can improve on for the next season
I am aware of the product availability windows of various goods and make marketing decisions based on the availability of the goods and what I think my competitors will have available	.600**	I intentionally choose products and marketing materials that differentiate me from other farms/competitors
I take time to evaluate my marketing strategies at the end of each season to learn what I can improve on for the next season	.563**	I intentionally have a direct-marketing strategy to sell my goods to customers
I utilize electronic media such as email newsletters, blog posts, and social media to enhance my marketing efforts	.555**	I utilize technologies such as customer databases to enhance my marketing efforts
I take time to evaluate my marketing strategies at the end of each season to learn what I can improve on for the next season	.537**	I utilize technologies such as customer databases to enhance my marketing efforts
My goods' quality is a key selling point when compared with other vendors/competitors	.520**	I intentionally make decisions on what farm goods to sell and what farm goods not to sell as part of my direct-marketing activities
My goods' quality is a key selling point when compared with other vendors/competitors	.513**	I am aware of the product availability windows of various goods and make marketing decisions based on the availability of the goods and what I think my competitors will have available
I am aware of the activities I undertake that drive my direct-marketing strategy	.513**	I take time to evaluate my marketing strategies at the end of each season to learn what I can improve on for the next season
I am aware of the decisions I make that drive my direct-marketing activities	.507**	I intentionally have a direct-marketing strategy to sell my goods to customers
My farm business's brand is important to my ability to sell my goods to customers	.505**	I utilize technologies such as customer databases to enhance my marketing efforts
I take time to evaluate my marketing strategies at the end of each season to learn what I can improve on for the next season	.504**	My farm business's brand is important to my ability to sell my goods to customers
I utilize electronic media such as email newsletters, blog posts, and social media to enhance my marketing efforts	.501**	I am aware of the product availability windows of various goods and make marketing decisions based on the availability of the goods and what I think my competitors will have available

I utilize technologies such as customer databases to enhance my marketing efforts	.494**	I intentionally have a direct-marketing strategy to sell my goods to customers
My direct-marketing strategies evolve based on lessons learned from previous seasons	.488**	I intentionally make decisions on what farm goods to sell and what farm goods not to sell as part of my direct-marketing activities
I utilize electronic media such as email newsletters, blog posts, and social media to enhance my marketing efforts	.480**	I intentionally have a direct-marketing strategy to sell my goods to customers
I take time to evaluate my marketing strategies at the end of each season to learn what I can improve on for the next season	.479**	I utilize electronic media such as email newsletters, blog posts, and social media to enhance my marketing efforts
My goods' price is a key selling point when compared with other vendors/competitors	.466**	Building ongoing relationships with customers is part of my direct-marketing activities

**. Correlation is significant at the 0.01 level (2-tailed).