AN EXPLORATORY STUDY OF INFORMATION RESOURCES USED BY SMALL MANUFACTURING OWNERS IN MANAGING THE BUSINESS IN SEDGWICK COUNTY, KANSAS

by

ELAINE W. HANNA

B.S., San Diego State University, 1971
M.N., Wichita State University, 1989

AN ABSTRACT OF A DISSERTATION

Submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Department of Educational Leadership
College of Education

KANSAS STATE UNIVERSITY

Manhattan, Kansas
2007

ABSTRACT

The purpose of this study was to identify the informational resources used by small manufacturing owners who were in the NAICS 336 sector of manufacturers in Sedgwick County, Kansas, and determine which are most helpful to the owner in managing their business. Prior studies have utilized all small businesses and have not examined industry specific information gathering.

A qualitative method was used in the study using a semi-structured interview process to provide in-depth information from the perspective of the small manufacturing owner. The semi-structured interview identified the information resources used by small manufacturing owners in managing their business and the level of helpfulness those resources had for them.

Ten small manufacturers whose owner was on site and employed from 20-100 employees were used in the study. Informal resources were most often used by this group of manufacturers. The Internet was identified by the manufacturers as the most important and useful resource to managing their businesses. The small manufacturers used multiple resources to manage their business and rarely relied on only one resource of information whether it was for financial, management, marketing/sales or benchmarking information. Formal sources of information such as colleges, trade schools and seminars were less frequently used. Nonformal resources which were mostly governmental and included the Small Business Association, Small Business Development Center, Manufacturing Extension Partnerships, SCORE, local and federal government resources were rarely used by this group of manufacturers.

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CHAPTER I

Introduction

The application of business management skills is a critical requirement for success in small business. Newton (2001b) proposes management skills are critical to achieve enhanced competitiveness, innovation, higher productivity, growth, and jobs. With this in mind, this study examined how and where small manufacturing owners gather information to effectively and efficiently manage their business.

There are limited studies of small manufacturing in the literature and few that have examined the nature of information resources that are used by small manufacturing owners. The majority of available research has treated all small businesses the same. Research of all types of small businesses were included in this study due to the limited number of studies specific to small manufacturing. Newton (2001b) determined small businesses were diverse and postulated that to identify a specific set of information resources that would meet such a diverse group was “hazardous.” Newton (2001b) also suggested that identifying specific industries or occupations would yield clearer results. It is the intent of this research to narrow the scope to a specific industry, small manufacturing, to determine if as is suggested in the Newton (2001b) study, that the diversity of small businesses has made it difficult to determine specific information gathering options when all small businesses are treated the same.

Small businesses make up 99% of all businesses in the U.S. (National Association of Manufacturers, 2006). While small businesses contribute substantially to the growth of the economy producing $5.8 billion in 1990 to $10.9 billion in 2003 of the gross national product in the U.S, the number of firms has not changed dramatically over time (U.S. Small Business Administration Office of Advocacy, 2003). From the lessons learned in the Newton (2001b) study, the current study utilized a specific segment of small businesses, small manufacturing, to identify information gathering resources used by owners. From 1990 to 2002 in Kansas, the number of small business grew from 58,573 in 1990 to 67,197 in 2002 (U.S. Small Business Administration, Office of Advocacy, 2004). Manufacturing is the third largest major industry group of small businesses, the first two being retail and service industries (U.S. Small Business Administration, Office of Advocacy, 2004). The majority of manufacturers are small, and they provide the base for continued economic growth for the U.S. (Mulligan, 2004). Using the criteria of from 20-100 employees from the Canadian study (Newton, 2001a), the number of small manufacturers in the State of Kansas is 600. The largest concentration of manufacturers in the State of Kansas is in Sedgwick County where there are nearly 200 manufacturers (U.S. Census Bureau, 2003). According to the U.S. Census Bureau (2003), the largest segment of small manufacturers in Kansas falls in the North American Industry Classification System (NAICS) of 336 Transportation Equipment Manufacturing. The State of Kansas has a total of 164 firms with more than twenty employees in the 336 classification, with the greatest number of firms in Sedgwick County. Sedgwick County has 39 manufacturing firms with greater than twenty employees. Sedgwick County small manufacturers in classification 336 were used in this study. Sedgwick County provides

the small manufacturers' access to information resources since the largest city in the State of Kansas, Wichita, is located in the county. This study focused on the continued growth of small manufacturers and the importance of knowing what resources are available to manufacturing owners and where this population finds resources to manage their businesses.

There have been some studies describing small manufacturing business owners' attitudes, characteristics, and personalities. Many of the studies have taken the entrepreneurial view of determining the characteristics of the owner and describing their personal attributes (Floren, 2003; Gibb, 1997; Guglielmi, 2000; Kotey & Meredith, 1997; Miller & Toulouse, 1986; Petrini, 1992). These studies have assisted in the categorizing of the owner personalities but have not looked at what resources the owner uses for gathering information and if that is determined by education, personality, or attitude. Brockett and Heimstra (1991) found a direct correlation between the level of education and engagement in self-directed learning. It is unclear in any of these studies whether personal attributes are related to owner self-directed learning or the resources they most often use and whether that learning impacts how they run their business. A common theme in the adult education literature as it relates to business is a focus on the learner including motivation and participation. There has been less of a focus on the resources used by self-directed business learners.

This study investigated the nature and type of information resources used by small manufacturers in Sedgwick County using a qualitative methodology. "This chapter provides an overview of the study including background for the study, purpose of the

study, and research questions. The chapter also includes the significance of the study, research methodology, limitations, assumptions, and definition of key terms.

Background

In large businesses there are departments for marketing, human resources, financial accounting, sales, and administrative duties. In small companies, these roles are usually filled by the owner (Covin & Slevin, 1997; Gibb, 1997). Small businesses may contract out some aspects of their business, such as accounting, but the rest of the roles are handled by the owner (Gibb, 1997). The need for continued learning is apparent for these owners who are filling multiple roles (Covin & Slevin, 1997; Jordan & Michel, 2000; Thompson & Kelly, 1988). While filling the various roles, small manufacturing owners are likely to be self-directed learners, seeking information resources that meet their limited time constraints (Gibb, 1997).

Covin and Slevin (1997) describe the challenge of finding the needed information for both the business owner and the educator.

> As firms increase in size and complexity, the entrepreneurs managing them face a number of unique problems. Often entrepreneurs lack experience to address these challenges. Further, finding the best method to acquire the needed information has proven elusive for both the entrepreneur and educators. (p. 112)

The self-directed learning model seems a natural fit for small manufacturing owners' use of resources. Which resources small manufacturing owners utilize and the importance of

those resources is as yet unanswered. Merriam and Caffarella (1999) described learning opportunities that come in many sizes, shapes, and forms, as well as diverse settings for learning. Courtney (1989) defined three types of learning settings: formal, informal and nonformal. Formal settings are those within an institutional setting such as colleges and universities. Informal settings are noted as a truly lifelong process of incidental learning defined by the learner. Nonformal settings are defined as organized outside the established formal system, such as presentations at trade associations.

Identifying the importance of the resources utilized and how helpful each resource is provides valuable information for the adult educator (Merriam & Caffarella, 1991). Understanding the resources used by small manufacturing owners, whether formal, informal or nonformal, will assist adult educators to better meet the needs of small manufacturing owners by providing information through the resources that small manufacturers currently use and find most helpful (Knowles, 1990).

Jordan and Michel (2000) state that the need for lifelong learning in manufacturing has become even more important in recent years with changes in the business of manufacturing due to the effects of globalization, international marketing, and technology improvements. Guglielmino and Murdick (1997) describe “just-in-time learning; learning at just the point in time the learning is needed.” Just-in time learning describes a form of self-directed learning as learning at a specific time to meet a specific need (Candy, 1991). Guglielmino and Guglielmino (2001) state the reasons self-directed learning is well suited to the working adults are that it is flexible, meets a specific need, and is driven by the learner.

Formal Resources

Formal resources are defined as those available through an educational institution as well as specialized programs offered in technical and professional training (Merriam & Brockett, 1997). Participation by adults in formalized education (Kleiner, Carver, Hagedorn, & Chapman, 2005) is increasing. Findings from the 2005 (Kleiner et al.) report found that 40% of adults in the nation participated in some type of formal adult education for work-related reasons and that 58% of adults participated in informal work-related learning activities. In Hankinson's (2000) study of 90 small manufacturing owners in southern England, most stated they rarely participated in an organized or formal learning activity. In 1984, Sotrines studied the need for educational resources to meet the needs of small business. Of the 50 companies that were surveyed, only two were manufacturers. The Sotrines (1984) study suggested that small business owners wanted formal education resources but did not identify the resources the owners currently used nor the value those resources served in their business operations. Much has changed in the 20 years since the Sotrines study. The personal computer and access to immediate information through email and the Internet have changed the way the business world works. If owners do not participate in organized learning as was found by Hankinson (2000) but identified learning new skills as a requirement as in Sotrines study (1984), then the current study will seek to clarify whether small manufacturers participate in formal resources.

Nonformal Resources

Nonformal resources are defined as an organized activity outside the formal educational system (Merriam & Brockett, 1997). In 2001, the National Federation of Independent Business (NFIB) National Small Business Poll (Dennis, 2001) found that

more than 50% of small businesses belong to at least one business organization. These organizations are most often trade or professional associations. Most of the respondents to the survey (Dennis, 2001) found networking the least important aspect of belonging to an organization, while stating that the most important aspects of membership were information about government rules and providing industry specific technical information.

In the 2003 NFIB National Small Business Poll (Dennis, 2003), small businesses with greater than 10 employees belonged to at least one business organization. The value of belonging to a business organization for these small businesses owners was the exchange of information related to their specific small business. This is consistent with the NFIB 2001 Poll (Dennis, 2001). Based upon these survey results, the use of business organizations as a resource for owners was included in the current study. In 1994, Raffe, Sloan and Venicll, studied the information resources of small businesses and found that 64% of small businesses had attended a paid workshop in the past year.

Informal Resources

Informal resources are defined as incidental non-structured resources (Merriam & Brockett, 1997). The Commission on Engineering and Technical Systems (2004) did a study of barriers to change for small and mid-sized manufacturers. Owners stated it was difficult to find high-quality, unbiased information, advice, and assistance, but no specifics were provided about what resources were currently being used or exactly what the owners were looking for and unable to find. The Commission also suggested small and mid-sized manufacturers have few opportunities for interaction with other companies in similar situations.

In 2001(a), Newton surveyed small business owners in Canada to determine the resources used and the importance of those resources to the owner of small businesses. The survey was commissioned by Industry Canada to obtain feedback from small businesses on the development of web-based information products. The study surveyed 1,000 small business owners to determine where the owners found information used in their business and the level of importance the resource was for them in meeting their business needs.

Managers were asked to rate the importance of the resources as a business resource (Newton, 2001a) on a scale of 1-7 with one being not important at all and seven being very important. The most often used resources as reported by these business owners were informal sources, such as clients, suppliers, and business colleagues. The sources of business information chosen for the study were:

- Industry or trade associations, including publications and meetings,
- The Government of Canada,
- Provincial governments,
- The media, including TV, newspapers and magazines,
- The Internet,
- Outside private sector consultants,
- Other business managers or colleagues,
- Clients,
- Suppliers, and
- Banks or other financial institutions.

The sources of information chosen by the Newton study (2001a) are broad and pre-determined by the researcher. It is not known if there are other resources that owners find important or if there are more specific resources available which were not included in the Newton (2001a) study parameters. The Internet was identified as a resource but

whether specific sites were used consistently was not addressed. Providing the study participants with only limited input options on the resources list may have skewed the results, causing valuable information to be unreported.

The Small Business Administration (SBA) is the government source in the U.S. The SBA is similar to Industry Canada who commissioned the Newton study (2001b). Of the information available through the Small Business Administration Office of Advocacy, whose focus is on the small business environment, one study was found on information sources used by small businesses. The study (Raffe, Sloan, & Vencill, 1994) surveyed over 1,000 small businesses on the resources of information they used in managing their business. The focus of the study was to determine what resources small businesses use and prefer for business information. The intent was to determine how government agencies could better reach small businesses. The study utilized a list of 24 sources of information for small business owners. For each resource used by the small business owner, he/she was asked the frequency of use from often to never. The small business owner was then asked to rate some of the sources of information on ease of use, timeliness of the information, relevancy to the business, accuracy of the information, and how easy it was to understand. Most of the sources rated were government resources. While manufacturing business were 9.5% of the surveyed companies, over one third of manufacturing business had less than twenty employees.

There is a wealth of information on the SBA website for starting a business, and tools are provided on the site for handling many of the issues related to managing a small business. The Raffe et al. study (1994) asked small businesses about their use of government resources, including the SBA. The results demonstrated that government

resources were the least used and the least valuable for the small business. The small businesses most often used customers and suppliers for business information. Of interest in the Raffe et al. (1994) study was the frequency with which small businesses were seeking information on technology, specifically computers. One might speculate that this study may have found different results now since the personal computer is more commonly used than 12 years ago.

The Industry Canada (Newton, 2001b) study of 1,000 small businesses provided another insight into the information needs of small business owners. The Newton (2001a) study asked the question of which resources were used from a non-exhaustive pre-determined list, and prioritized the level of importance of each resource to small businesses. Five percent of the companies surveyed were manufacturers, but all were small businesses. In another study, Sotrines (1984) asked 50 small businesses if they needed information on a variety of topics, including marketing, financial accounting, and sales. The answer from the business owners was that they felt additional information on these areas would benefit their companies. Raffe et.al., (1994) also used a specific set of information resources in their survey and focused much of the questioning around the use of government resources. Allowing the manufacturing owner the opportunity to identify the information resources used has the potential for identifying a more specific list of information resources specific to manufacturing.

The Newton study (2001b) identified informal resources as most preferred by small businesses but did not break out manufacturing from other small businesses. While the Newton (2001a) study asked about information resources for all types of small businesses, this dissertation research will further define the information resources of

small manufacturers. The Newton (2001b) study examined only small businesses but did not specify the type of small business. It is unclear if owners of retail business are similar to owners of manufacturing businesses in terms of needed information resources.

The small manufacturing owner, while needing to learn to keep pace with his/her own business, has limited resources of time and money. This study investigated what information resources small manufacturers utilize to gain business information.

Statement of the Problem and Purpose

Owners of business, especially manufacturing, face continuous challenges in managing their businesses (Christman, 2005; Mulligan, 2004). Small manufacturers face challenges including globalization, maintaining innovation, changing business trends, and information technology. In small manufacturing businesses with competitive pressures to continuously improve the output of the business, owners need resources that are directed at meeting their specific needs (Christman, 2005; Glastra, Hake & Schedler, 2004; Mulligan, 2004). The focus of much of the training and adult education literature is on employee skills and higher levels of technology capabilities (Bergman, 1996; Lankard, 1991; Mason, Bowling & Niemi, 2000; Meldrum & de Berranger, 1999; Modernization Forum Skills Commission, 1993; U.S. Department of Labor, 1994). While enhanced employee skills and technology are important for the production of products, the business management resource needs of the small manufacturing owners has not been addressed in the adult education literature.

The owners of small manufacturing business need to increase their knowledge of the managing of the business to improve the way business is done while less focus is needed on the skills of being a better worker (Sotrines, 1984; Raffe, Sloan, & Vencill,

1994). Improving employee skills has been well addressed in the business and training and development literature. The differences between the resources used by the small businesses reported in the Canadian (Newton, 2001b) and Raffe, et.al (1994) studies and the resources of a specific set of small businesses, namely the small manufacturers in Sedgwick County, was researched in this study. The specific resources used by small manufacturing business owners to gather information to improve their businesses and remain competitive in the current global business environment was the problem addressed in the current study.

The purpose of the study was to fill a void in the literature regarding the specific resources used by small manufacturing owners and the helpfulness of those resources in meeting the needs of small manufacturers. This study also determined if the results found in Canada (Newton, 2001b) and in the U.S. (Raffe, Sloan, & Vencill, 1994) for all small businesses, regardless of type of business, is the same for small manufacturers in Sedgwick County. The information from this study will assist adult educators in providing directed learning experiences to meet the specific needs of small manufacturers.

Research Questions

The following research questions guided this study:

1. What are the preferred information resources utilized by owners of small manufacturing businesses for managing their business?
2. Are there common resources utilized among these owners? If so, what are they?
3. How helpful are the identified resources to managing the small manufacturing business?

Significance of the Study

This study of small manufacturing company owners is significant for a number of reasons. First, there is a lack of research specific to small manufacturers' information gathering. Small manufacturing is usually combined with all small businesses in research. Thus, the current study contributes to the knowledge base of which resources are used by small manufacturers.

Secondly, organizations whose focus in on small business, such as the Manufacturing Extension Partnership (MEP) and government agencies such as the Small Business Association (SBA), have spent significant amounts of money creating seminars, workshops, and websites, as well as creating departments to work with small businesses. By defining what a specific industry needs for informational resources, a more focused and effective return on investment can be made to create effective resources for small manufacturers.

This study adds to the body of knowledge of small manufacturers and determines if small manufacturers are similar to all small businesses in their resource needs or if there are intrinsic differences by delineated industry type. There have been studies of small businesses in many parts of the world from the United Kingdom to Bangladesh, but few have focused specifically on small manufacturing as a focused entity, and fewer have focused on small manufacturing in the United States (Box, Watts, Hisrich & Rosa, 1994;

Fletcher, 2000; Guglielmi, 2000; Hankinson, 2000; Sarder, Ghosh, & Rosa, 1997). There is also little information in the adult education literature specific to manufacturing.

Adult educators are often challenged with developing and meeting the needs of adult learners. Adult educators need to identify and address the needs of small manufacturing owners. The Canadian (Newton, 2001b) and the Raffe et al. (1994) studies surveyed 1,000 small businesses to determine the information resources used by all small businesses. The current study identified the resources used by a specific industry that of small manufacturing, which enhances the ability of adult educators to provide more directed information delivered through the resources that small manufacturing owners define as most useful and accessible to their business.

Methodology

A qualitative research methodology was used for this study to determine from the owner's perspective which information resources were used. An oral person-to-person interview was used to gather information from the owners of small manufacturing firms in order to understand the value of the identified resources to managing their business. The Newton (2001a) and Raffe et al. (1994) studies utilized a structured survey which limited the answers of owners to a specific set of resources. Using the oral interview allowed the voice of the customer of the information resources to be heard. The interview process also allowed the owners to explain how and where information was gathered. Candy (1991) and Merriam and Caffarella (1999) proposed that the self-directed learner does not always recognize that they are learning. Self-directed learners sometimes have spent significant time reading and interacting with others for a specific purpose but do not describe themselves as learners during this activity. Using an oral interview to obtain

information from the owner assisted in helping to identify resources they may not have been recognized as learning resources.

A random sample of small manufacturers in the greater Wichita metropolitan area of south central Kansas was used. The population for this study consisted of small manufacturers with between 20 and100 employees in privately held company whose owner is on site. The sample of companies was initially identified using the Kansas Manufacturers Directory (2006). The sample of companies was sent a letter of request to participate in the study. A phone call was made as a follow up to the letter, to obtain agreement for participation, and to create a list of participants. Those who participated were interviewed using a semi-structured format. The semi-structured interview was used to gather information from the participant in such a way that with care taken not to direct their thinking in any specific direction (Brockett & Heimstra, 1991).

This qualitative approach was used to better expand on the current understanding of the information resources specific to small manufacturing owners. It also provided knowledge about the level of help those resources have for the small manufacturing owner. It is important to identify the resources used and the helpfulness of those resources from the learner's perspective (Merriam, 1998; Brockett & Heimstra, 1991). According to Lang, Calantone and Gudmendson (1997), "the different organizational characteristics of smaller firms suggest the need for research focused on small firm information-gathering priorities and processes." (p.11)

A quantitative approach limits the information collected to a list of resources, while a qualitative approach has the potential to uncover critical resources not defined in earlier studies such as those of Newton (2001a) and Raffe et al. (1994). The person-to-

person interview was used to explore the motivations and to understand from the manufacturers what resources were most helpful to their business. The interview allowed the owner to discuss where and how they gathered information relative to managing their business. Sotrines (1984) studied small business educational needs through the use of a personal survey. It was determined that in-depth questioning and clarification of information enhanced the results.

In Sotrines' study, specific areas of competency were assessed against what the small business owner identified as their current needs. The majority of companies in the Storines study and the Canadian study (Newton, 2001b) were service provider companies. The Raffe et al. (1994) study was divided among five industries: construction (14%), retail (24%), services (31%), manufacturing (20%) and financial/real estate/insurance (10%). Small manufacturers may be a unique or different group of small companies that rely on different resources from service provider companies.

The person-to-person interview was used to identify the resources that small manufacturing company owners utilized and felt provided them with useful information while assisting them in growing, changing, or enhancing their business. Once all the resources were identified, the interviewees were then asked to identify each of the resources in terms of the level of helpfulness for his/her business.

The information was collected from the owners until there was a pattern of type of resources and their helpfulness to the owner. The results provided a list of resources utilized by owners of small manufacturing companies that are currently used in managing their business using the constant comparative method.

The qualitative approach allowed the owner the opportunity to determine what resources were most useful and most helpful in their business without limiting their options. These results, specific to manufacturing, were compared to all small businesses from the previous studies (Newton, 2001b; Raffe et al., 1994) to determine how manufacturing companies compare to all small businesses. In the literature, small business owners have suggested that the resources available to them do not provide the important information they need to run their business (Hankinson, 2000; Gibb, 1997). If owners do not read books (Sutton, 2000) and do not attend classes or other educational offerings, then adult educators need to identify what resources they find important and useful to better meet their needs. While participation in formal education for adults has increased, managers and professional have decreased their participation (Kleiner, Carver, Hegedorn, & Chapman, 2005).

Limitations of the Study

This study looked at small manufacturers in Sedgwick County, Kansas. Other small businesses were not used in the study. Small manufacturers have been the least studied group of small businesses, so a comparison of the literature on small business which includes service providers and retail companies was used to determine if manufacturing owners are similar or different from all small businesses.

Utilizing a qualitative approach generated a list of the resources and their level of helpfulness to a specific group of small manufacturers in the Sedgwick County area of south central Kansas. Those resources may be different in other parts of the country limiting the generalizability of the results of this study to other areas of the country.

Assumptions

The following assumptions were made for the purpose of this study:

1. Small manufacturers will honestly and accurately describe the information resources they use in their business.
2. The resources identified can be described as formal, non formal, or informal resources by the researcher.
3. A pattern of resources used by small manufacturers would emerge from the interviews with the small manufacturing owners.
4. The person-to-person interview method would not alter the results of the study through researcher questioning.

Definition of Terms

For the purpose of this study, the following definitions were used:

AS9100 – international quality standard system for aerospace companies,

Audio/Visual Media – Television, videos, cassette tapes, CD's.

Customers – Recipient of produced goods.

Educational offering – A learning opportunity provided by an institution of higher learning, usually lasting for a semester.

Formal resources – institutional or professional resources.

Government resources – Information sponsored or provided by the Government.

Informal Resources - Non-structured, incidental resources.

Internet – Web-based information gathering activity.

Lean Manufacturing – A process improvement program.

MEP – Manufacturing Extension Partnership.

NAICS – North American Industry Classification System.

Network – Family, social, or professional group that shares information.

Nonformal resources – Organized resources that are usually governmental related.

Peers – Business colleagues, owners of small businesses.

Perception – The best understanding, opinion, or insight of the small manufacturing owner.

Print media – Books, newspapers, magazines, and trade journals.

Private sector consultants – Organizations/ companies who provide paid assistance.

Professional resources – Banks, financial institutions, accountants, and lawyers.

SBDC – Small Business Development Center including consulting and seminar activities.

SCORE – Retired executives who provide consulting resources to business.

Seminars/Workshop – Focused learning on a specific topic, provided by a training organization usually lasting for one day.

Six Sigma – A specific program of using statistical control for process improvements.

Small manufacturer – Those businesses that produce a product and whose employee base is 20-100 persons.

Suppliers – Raw material, providers of hard goods.

Trade Association – Professional organization that provides information through lecture or company tour.

Trade Shows – Visual information-gathering or hearing about what other professionals are doing and using in their industry.

Summary

This study identified the information resources utilized by small manufacturers in Sedgwick County, Kansas. Using a semi-structured oral interview process, information on the various resources used by small manufacturers was identified. From those resources, the degree of helpfulness for the small manufacturing owners was determined. The constant comparative method was used to identify commonalities among the small manufacturers.

The significance of this study lies in the limited number of studies on information resources that are industry specific. Studies on information resources have collected data from all types of small businesses and regarded them as all inclusive. Knowing the resources used by a specific industry will allow organizations whose focus is small businesses to have a better understanding of the specific resources used by small manufacturing. Hiemstra (1994) suggested that further research on the quality of self-directed resources should be studied, along with the way that educators can relate to self-directed learners. Knowing the resources and their helpfulness to the small manufacturer will allow directed assistance to meet their learning needs. This study will add to the knowledge of which information gathering resources are utilized by small manufacturing owners and will enhance the ways that educators can meet the learning needs of the owners..

The next chapter will provide a review of the literature and research on small business and manufacturing conducted around the world, including business, adult education and government literature. The third chapter is a review of the methodology of

the study. The fourth chapter provides the results of the study. The final chapter discusses the results and summarizes the issues for further research within this field of work.

CHAPTER II

Literature Review

Literature related to understanding the small manufacturer and their information resources was discussed in this chapter. The literature on entrepreneurs and small business, small business management, the formal and informal information resources for small businesses, and the literature related to self-directed learning as it applies to the small manufacturers was reviewed.

Entrepreneurs

In order to create a clear picture of small manufacturing owners, it was helpful to begin a review of the literature on entrepreneurs. The entrepreneurial literature is a source for understanding the reasons and the individuals who start businesses. Small businesses are started by people who have a creative, imaginative new idea that fits an unfilled niche in the market. These entrepreneurial individuals are described as risk-takers who persevere on an idea (Hall, 2002; Norton & Moore, 2002; Messeghem, 2003; Sutton, 2000; Young & Sexton, 1997). The definition of entrepreneurs in the literature is broad. There is no one single definition. Rather, entrepreneurs are often described by their individualism and risk-taking behaviors. Norton and Moore (2002) propose that risk-taking is based on prior knowledge and confidence in that knowledge, while Hall (2002) implies that all entrepreneurs possess a strong belief in risk-taking as the sole characteristic. Messeghem (2003) suggests the concept of entrepreneurship is not limited to an individual, but rather that businesses are entrepreneurial when they display

flexibility and adaptability to the changing environment. Businesses are entrepreneurial according to Messeghem when they seek outside resources of knowledge and utilize market analysis to maintain their competitive edge.

In defining entrepreneurs, Cunningham and Lischeron (1991) identified six different traits of entrepreneurs and defined them as distinct groups. The groups ranged from the strong willed individual to the company intraprenuer. The “Great Person” concept is the strong willed leader who inspires and succeeds based upon their natural intuitive ability for success. Biographies are often written on these types of individuals who seize an opportunity and intuitively make the right decisions. Intuition is described by Lank and Lank (1995) as critical to business success as small companies use their intuition in making decisions. Another of Cunningham and Lischeron’s (1991) types of entrepreneur is the person driven by the need for power, recognition, or achievement. These individuals have a tendency to be high risk-takers in their endeavors. High risk-takers are not trained or schooled in entrepreneurship; they are naturally occurring based on the personality traits of power, recognition and achievement. The other models define entrepreneurs according to schooling, innovation, creativity, leadership, and the intrapreneur within an organization. While defining entrepreneurs by type is interesting, the majority of the literature does not use types of entrepreneurs, but rather defines the term “entrepreneur” as an innovative risk-taker. The common thread in all of the definitions within the research is the ability to see a new way of doing business than currently exists, whether it is making a product or developing a service. This may well be the best method of defining the entrepreneurial small business owner. The person starting a business envisions something different and acts on that vision.

In visiting with small manufacturers in the south central region of Kansas, this researcher has found that the owners have stated similar attitudes and rationalization for starting their businesses as are found in the entrepreneurial literature. They felt they had a unique idea, believed that their product would fit a niche in the market, and took the risk to start their business.

Covin and Slevin (1997) created a complexity model to describe the successful entrepreneurial business. In the model, complexity is related to the rapidly changing environment of business within which managers must deal. They propose that as organizations increase in size, the challenges multiply. One way a company grows is by building capability within the organization. This capability building emphasizes developing new skills and competencies within the current personnel. For a small manufacturer, enhancing the skills of current personnel would require a commitment of time away from the business which most small businesses are hesitant to do because of the loss of production time (Gibb, 1997; Vickerstaff, 1992).

Much of the entrepreneur literature suggests that entrepreneurs seek knowledge to fill a need or solve a problem (Gibb, 1997; Meldrum & de Berranger, 1999; Young, 1997). Young (1997) suggests entrepreneurs seek learning based on fulfilling a need which could be filled either through formal, nonformal, or informal opportunities. Gibb (1997) suggests that entrepreneurs have little interest in formal training. Learning through trial and error or through experience is often the option that small businesses utilize most often (Boyatzis & Kolb, 1995).

Young (1997) stated that the difference in entrepreneur gathering of knowledge is based on the entrepreneur's background knowledge and available resources. Young

suggests that practicing entrepreneurs are different than university trained entrepreneurs in their self-directedness in learning. Entrepreneurs are innovative and seek information through personal relationships and networking, and they prefer to learn from other entrepreneurs and practicing business owners.

Small Business Management

The pace of business in today's global economy is challenging the knowledge of small business owners. The small manufacturing owner's ability to stay current in their information gathering is critical to their business success.

"Businesses today are facing extraordinarily challenging environments, marked by increased complexity and the need for more rapid and dramatic transitions to different strategic postures and more viable organizational forms" (Covin & Slevin, 1997, p.100).

"Organizations have never faced a more turbulent, complex or changing environment. Traditional management approaches need to be supplemented to enable the business to survive." (Lank & Lank, 1995, p.18).

Since businesses are facing a rapidly changing and challenging environment, the importance of understanding where manufacturing owners gather the information needed to manage the business becomes even more important. Understanding the entrepreneur's behavior from the beginning of the business start-up and where his/her need for expanded knowledge is obtained has been addressed in a variety of studies (Newton, 2001b; Pineda, Lerner, Miller, & Phillips, 1997; Pineda, Lerner, Miller, 2003; Raffe, Sloan, & Vencill, 1994; Young, Wyman & Brenner, 1999). While few have been of manufacturers, all have been of small businesses.

In a study of satisfaction measures of small business owners, most business owners were least confident dealing with finance, personnel, and marketing issues, and they were most satisfied when working on producing goods and services (Dennis, 2001). The issues that small businesses find least satisfying relate directly to the growth of the business. The owners wanted to continue to work on their products and services and were least interested in growing their businesses because growth would require them to do less with their products and services and more in the areas they found less satisfying. Owners felt the quality of their products and services were most important to them and their customers, and these were the areas they could most influence. The owners spent most of their time creating the goods and services and only a fraction of their time on marketing, financial, and human resources. The NFIB Poll (Dennis, 2001) surveyed businesses with fewer than 250 employees, and only 9.2% were manufacturers. Small manufacturing owners growth from a start-up to more mature business requires them to expand their knowledge into areas that are least satisfying.

Identifying the management competencies that are needed by small business owners is addressed in the literature. Winterton (2002) reports small business management competencies are related to seven occupational management standards: managing resources, managing activities, managing people, managing information, managing energy, managing quality, and managing projects. The standards were developed to be able to capture the information on small businesses that drive growth in the small businesses in Britain. Similarly, the Small Business Policy Branch (2004) in Canada sampled 326 small businesses to determine the management skills of managers. The study identified 25 different activities that were undertaken by small business owners

to determine the breadth of management knowledge and related them to the success of the small business. It was determined that upgrading of general management knowledge and skills were the most critical to business growth and success. In the study by Dalby and Jaska (2004) of seven small businesses, the authors found cost is one of the major factors owners use when they look for needed resources to resolve issues or to enhance the business. One might surmise this finding could hold with larger populations.

Management skills have been suggested as a cause for small business failure. In the Fuller-Love (2002) study, it was concluded that if failure of companies is due to a lack of management skills, then there needs to be a model for training that meets the needs of small businesses. The author states among small business there is little use of management development programs and concludes that development of management training programs for small business should be developed. Jones, Jones, and Waldman (1993) found that short management courses dealing with marketing skills, human relations skills, and computers were popular among small businesses. The owners of the small businesses in this study reported that the reason they attended was to solve a specific problem. Each of the authors on management skills needed by small businesses defined their own set of management skills, but all believed the success of the small businesses was dependent on the development of these skills.

The issue of time and relevancy was addressed by Vickerstaff (1992) when he questioned over 200 small companies in Britain on their management training. The concerns of many of the companies related to time pressures for both their employees and managers. With the small workforce, providing the coverage for individuals to be away from the business created a severe constraint of resources. The issues identified in this

study were common for owners as well as their workers. Issues of relevancy of the training to their specific needs, to time constraints, and to finding appropriate training resources were identified for both the owner and the workforce. One important point identified in this study was the understanding of the level of skill of the managers. As managers were promoted to positions of increased responsibility, their knowledge was mostly technical, and few had training in managing the business. The lack of training and knowledge for promoted managers is similar to the lack of knowledge of entrepreneurial owners of manufacturing businesses. In each case, the technical skills needed to manufacture a product are not the same as the skills needed to manage and grow the business.

Informational Resources

The literature on information resources used for small business varies with the author and the area of concentration. This section covers the information resources as a general topic, then covers the more specific literature on formal resources, the Internet, government resources, networking and scanning, and finally professional resources.

Brockett and Hiemstra (1991) place learning resources into four major categories: mediated, individualized, agency, and mentored. Specific references to the Internet or government resources are not specified in the list of potential resources. The list may have been a reasonable list in 1985, but the potential for business learning in the current climate includes additional activities and groups that are not on the resource list.

Several studies have been done on the information resources used by small companies. Small companies are less likely to invest in training unless they can identify an immediate application (Meldrum & de Berranger, 1999). Informal resources were

most often identified in several studies of small businesses. Most of the small businesses in the studies were service providers. While the information is on small business, all the studies looked at small businesses with less than 250 employees (De Kok, 2002; Doyle & Young, 2003; Newton, 2001a; Pineda et al., 1997; Raffe et al., 1994; Young et al., 1999). The informal resources most often used by small businesses were equipment vendors and suppliers, colleagues, and customers. In the Newton (2001a) study of small businesses, the Internet, government, and private consultants were the least important resources of information. Young and Sexton (1997) describe entrepreneurial learning as the action of acquiring knowledge while entrepreneurial knowledge is the application of the learning in growing the business. They propose that learning is more often through informal sources such as personal networks, trade associations, vendors, and customers. These informal learning resources provide the practicing entrepreneur with the information they need to grow their business. This suggests that once in business, owners utilize informal learning more frequently than formalized learning resources (Newton, 2001b; Pineda et al., 1997; Young et al., 1999).

The level of education may determine where owners seek business learning (Robinson & Sexton, 1994). The U.S. Census Bureau in the 1992 Survey of Business Owners (U.S. Census Bureau, 1992) found 22.6% of business owners had a High School education while in the 2002 Survey of Business Owners (U.S. Census Bureau, 2002), 24% had a High School or less education. The 1992 Census also had information on those with less than a High School education but those numbers were combined in the 2002 survey. The U.S. Census Survey was of all business owners. The Office of Advocacy statistics collects information on small business owners (U.S. Small Business

Administration, Office of Advocacy, 1998). The educational level of business owners increased from 1992-1996. In 1992, fifty six percent of small business owners had some college or graduate degree. At the national level in 1996, fifty nine percent of small business owners had some college or graduate degrees (U.S. Small Business Administration, Office of Advocacy, 1998). In the statistics from the State of Kansas (U.S. Small Business Administration, Office of Advocacy, 2003), the majority of small business owners have a high school education or less. The level of education among Kansas companies and perhaps the general population of small business may be a determining factor in where they seek learning resources.

The Small Business Administration report on the "Characteristics of Small Business Employees and Owners" (U.S. Small Business Administration, Office of Advocacy, 1998), and The Report to the President on the State of Small Business (U.S. Small Business Administration, 2001) found that forty percent of small business owners had a high school education or less with more than seventy percent being the original owners of the company. This suggests there may be a correlation between the more informal learning resources based on the owners' educational level while formal learning resources may be used by owners with higher education. In the 2002 Small Business Poll (Dennis, 2003) thirty five percent of small business owners had a college degree, twenty one percent had a high school education, and twenty percent had some college. This poll was for all small businesses and not limited to manufacturing. Only nine percent of the 752 surveyed respondents were manufacturers. These two reports provide conflicting data on the level of education of small business owners.

The study of small businesses in Canada (Newton, 2001b) and the U.S. (Raffe et al., 1994) are the most useful of the studies of information sources for small businesses. In these studies, small businesses were asked for the information resources they used and the level of importance the resources had for them. While the majority of small businesses identified informal resources of peers, suppliers and customers as the most preferred source of information, when asked about the level of relevance the source had for their business only thirty two percent rated them as highly effective in meeting their needs (Newton, 2001b). A majority of business managers in the study felt they knew where to go to get information for their business and an equal number felt that government sources did not provide them with the useful information needed (Raffe et al., 1994). Small business owners also felt that most of the information they received did not apply to them. These studies were supported by government agencies which provide significant information on the web. These studies determined that most small businesses felt government information was not useful to them for their business. From these studies of small businesses, it was interesting to see if the results found in the current study of small manufacturers was similar, especially since only five of the companies surveyed in the Canada study were manufacturers. The majority of companies surveyed were involved in retail, construction, and professional/technical services (Newton, 2001b).

The two studies done by Pineda et al. (1997; Pineda et al., 2003) found that small businesses in Tennessee seek information related to product or service most often. In this 1997 study, the small businesses were asked which source of information they used in making decisions for their business. Many of them sought information when they were making decisions on product or service and used informal resources such as equipment

suppliers and vendors as resources for that information. This study looked at the intensity of seeking information related to the type of decision the small business owner was making. Again, the majority of the small businesses were service providers. Pineda et al. (1997) did not break out the kinds of companies other than service and some form of manufacturing technology. The definition of manufacturing technology was not provided in the study, and the study only identified pure service and others. In 2003 Pineda et al. used the data collected in 1997 and looked at when a small business manager used external resources in making decision for the business. The descriptions of external sources were industry standards/trade publications; advice from bankers, lawyers, accountants; personal research; competition; and customer reactions. Young et al. (1999) looked at small businesses in Texas to determine the needs for outside assistance among the companies. In this study, more than fifty percent of the surveyed companies were service firms. The companies reported that the majority of the time they used suppliers and equipment vendors for assistance. The companies also identified their need for assistance in financial, legal, and business planning. In this study, the available resources listed by the authors as potential resources were not used. Most of the companies in Texas were unaware of the resources available and instead used suppliers and vendors. Again, in this study as in the Newton (2001b) and Raffe et al. (1994) studies, the level of usefulness of the information resources that were used by the companies were rated as adequate in providing the needed information.

In a historical study done in 1984 (Sotrines, 1984), the needs for information and assistance for financial, legal and business planning were identified but the source for gathering the information was different that the more current studies. The Sotrines (1984)

study of the need for business education among small business owners found sixty two percent of owners indicated a need for that education. The study interviewed fifty business owners to determine their interest in continuing education on business. The results of the study of owners identified that 75 percent had participated in management learning of some sort. Forty three percent attended universities and associations for this learning and preferred university programs for their business education. In the study, Sotrines interviewed only two manufacturing owners, while the majority was service and retail industry owners. The questions raised from this study are whether there is a difference in learning choices among service/retail and manufacturing companies. Another question is if in the twenty years since the study, business owners found other learning resources, such as consultants or the Internet, to be of more benefit. There were insufficient numbers of manufacturers to make any conclusions related to learning among manufacturers. Additionally, in this study 66 percent of owners interviewed had some college or graduate degrees, which is higher than the national average of small business owners (U.S. Small Business Administration, Office of Advocacy, 1998). Further, this sample was also different than the average education level reported for the State of Kansas (U.S. Small Business Administration, Office of Advocacy, 2003).

The majority of the literature on information resources can be grouped into the following subcategories: formal resources, the Internet, Government resources, networking and scanning, and professional resources. Formal resources are those defined as institutional in origin such as universities and colleges or other structured classroom learning. The remaining resources fall under the informal resource heading identified by Courtney (1989). The Internet includes all resources available that provide information,

websites, and resources to small businesses. Government resources include those resources provided by the government to include websites as well as government agencies that offer assistance to small businesses. Networking and scanning include trade associations, trade shows, personal networks, suppliers, customers and peers. Professional resources include bankers, lawyers, accountants, and external consultants that are non-government supported.

Formal resources.

Several universities have implemented courses and degrees in entrepreneurship (Young et al., 1999). Brown (2000) suggested that teaching entrepreneurship is beyond basic business management education in that the idea of entrepreneurship involves risk-taking, creativity, and innovation. He suggested students can be nurtured into taking the risk of beginning a new venture by providing them with a clear understanding of how to recognize business opportunities, how to prepare to start a business, and how to build a business. This idea raises the question of whether innovativeness and risk-taking can be taught or if these courses are more likely directed at the intrapreneur within an organization. Sexton, Upton, Wacholtz, and McDougall (1997) suggest that the basic educational system of a structured setting with a specific duration does not fit the practicing entrepreneur. They suggest that entrepreneurs want short, content oriented learning experiences taught by other entrepreneurs, while Sotrines (1984) found that many small businesses felt that business education was best taught by universities. Gibb (1993) suggested that with changes in the approach to providing entrepreneurial learning in school systems, schools can provide information and knowledge for the development of small businesses. Gibb suggested that changing the approach to teaching with a focus

on practicing small business enhances the potential for developing capable owners of small businesses.

Large corporations have developed the corporate university concept whose mission is to prepare leaders and employees within the company. Corporate universities provide corporate-specific learning and are replacing training departments (Waltuck, 2003). Corporate universities are providing employees with certificates of attendance which builds company-specific information and knowledge.

Hall (2003) found through a survey of 560 training professionals that the focus among corporations is higher for soft skills training such as leadership and management skills than for technical training. Small companies rely on external sources for their employee training or simply provide on-the-job training for their employees (Devins & Johnson, 2003; Gibb, 1997) and rarely have formal internal training departments. Frequently in small businesses, the person responsible for human resources coordinates any external training that occurs.

Universities are beginning to transform the way they deliver graduate education to executives. The Executive Masters of Business Administration (EMBA) Programs are now provided to students in the evenings, through distance learning options or self-directed mechanisms (Boyatzis, Cowen, & Kolb, 1995). The use of these training programs by small manufacturing owners has not been established. Anderson (1983) studied the management training of a select group of Black business leaders. In his study, some of the managers had attended management training provided by their employers but few had utilized college or university courses for their management training. Candy (1991) and Meizrow (1991) address the idea of intentional learning to solve specific

problems which may fit well for the small manufacturer with limited resources. Intentional learning is seeking learning to solve a specific need. Intentional learning may be through a formal, nonformal, or informal resource.

The need for life long learning for manufacturing was addressed by Jordan and Michel (2000). In the book, *Next Generation Manufacturing*, Jordan and Michel (2000) devote an entire chapter of the book to the importance of life-long learning for a company to remain competitive. They purport that it is imperative that "individuals take the initiative to acquire whatever knowledge they need" (p.325). Much of the focus of the chapter is directed at employee learning to support the continuous improvement of the organization. They state the company that provides an environment for questioning will benefit by increased productivity. It is assumed that leaders of companies are continuously learning and that it is the employees that need the development of a model to assist the manufacturing community. Jordan and Michel suggest that formal educational institutions provide for the new learning that must be acquired. They also suggest that the use of distance learning and Internet based learning modules should be used to allow students to learn at a time that is most convenient for them, as well as reducing the cost for the company. While owner learning is not addressed by Jordan and Michel, the use of distance learning and the Internet modules could be information resources used by the owner.

While employee learning is important for any company, the learning for the business owner continues to be ignored. Perhaps it is assumed that business owners will surround themselves with people who fill the gap of knowledge they do not have, as was suggested by Covin and Slevin (1997). For a large company, it may be possible to

provide business management skills in this way, but for the small manufacturing company owner, the challenge is knowing how to make the entire company work, and this task falls squarely on the owner for all or most management tasks. In order for the small manufacturing company to grow and to expand into a large company or simply to survive, the owner is required to have knowledge of finance, marketing, human resources, purchasing, and supply chain management, as well as be an expert in the production of the product.

There are vast literature resources on employee training, and many are now looking at meeting the needs of small business employees (Bates, 1998; Chaston & Mangels, 1997; Cohen, 1998; DeKok, 2002; Gibb, 2002; Lankard, 1991; Pangarkar & Kirkwood, 2002; Petrini, 1992; Smallbone, Supri & Baldock, 2000; Thompson & Kelly, 1988). Each of these authors discussed the opportunity in small companies to build employee learning and develop training programs for employees. Smallbone, Supri and Baldock (2000) studied the use of training in small and medium-sized printing companies in the United Kingdom. They found that in small printing companies, key workers were sent to an external training resource on new technology and then informally trained by others in the company. This informal sharing of knowledge did not always reap the benefits the company had hoped. Only a few of the printing companies had a systematic process for sharing training; consequently, the results of the initial training were not always realized. Most authors recognize the limited resources available to small business and provide suggestions for employee training while ignoring training for owners.

The American Society for Training and Development (ASTD) in 2002 reported there was an average of 77 percent of classroom training time, as opposed to other types

of training, with total training hours per eligible employee of 23.7 hours in all the companies reporting. If greater than 70 percent of learning occurs in the classroom, then structured training would be more common than informal training, at least for the employees. Headd (2000) states that in his study of small business employees, small businesses had a "higher percentage of employees who had less than a high school education and/or employees whose highest degree was a high school diploma" (p.15) compared to large firms. Devins and Johnson (2003) report on 211 companies in Britain who had utilized the training resources of universities, training providers, and colleges to enhance the skills of a group of workers who were at risk of losing their jobs due to the potential loss of their skills due to obsolescence (Jordan & Michel, 2000) . Whether or not prior educational attainment is related to the available resources used has not been addressed in the literature.

In 1997, the Center for Occupational Research and Development identified the need to support skill standards to keep the workforce employable. The study recommended that employers begin to hire and train employees to industry-specific skill standards. This attempt to provide universal knowledge for the workforce was suggested so that as the company changes, the employees skills would not become outdated. This approach would keep the employee prepared for the changing work through new technology or problem solving abilities and communication. The study suggested that in order for the United States to remain competitive in the global environment, we need to change our school and worker training system to prepare for continuous changes in the global market. The National Council for Advanced Manufacturing (NACFAM) Conference Report (2003) focused on the crisis in manufacturing skills and supported the

use of skill standards to keep the manufacturing workforce competitive now and in the future. The overarching theme of the conference was to implement these skills standards starting in middle school and continuing through college. The message was that training should be viewed as lifelong learning and that advanced, high-performance manufacturing would keep United States manufacturing competitive. Small businesses have little interest in using skill standards (Gibb, 1997). Skill standards are formed around core competencies and small businesses do not relate readily to that concept for employees or for owners.

Internet.

The use of the Internet as a learning informational resource was described by Jordan and Michel (2000) and has had increased attention in the literature in recent years. The information available on the Internet continues to explode. For small manufacturers and other small businesses, the Newton study (2001b) found few companies utilize it as a resource. The Small Business Administration (Williams, 1999; U.S. Small Business Administration, 2000) found small businesses use the Internet for sales and reaching new customers. However, the Small Business Administration (SBA) studies were for all small business and not specific to manufacturing. Molylneux (2003) described the value of the Internet as a learning tool for small businesses but did not identify whether small businesses were actually utilizing the Internet.

In the SBA (Williams, 1999) study on electronic commerce for small businesses, the number of small business with Internet access doubled from 1996-1998. The majority of small businesses used the Internet for e-mail and exchanging data with customers, while few used the Internet for education, according to the results of the study. The study

concludes that the use of the Internet for small businesses will continue to expand. In their 2000 study, the U.S. Small Business Administration found that small businesses have increased their use of the Internet to grow their businesses through on-line commerce. There was no discussion of how small business used the Internet as a source of learning or information gathering to grow their business, but rather the study focused on the increased use among small business to sell their products. A study done by the Small Business Administration (2003) found that among self-employed business owners there were three key uses of the Internet: sending and receiving email, accomplishing job-related tasks, and searching for information.

The Internet can provide a cost effective information resource for small business owners as well as their employees (Molyneux, 2003). A search on Google for "learning on the Internet" generated 14,700,000 sites of information on learning (December 30, 2004 search). Burke (2004) studied the use of the Internet by small businesses. In the study, Burke divided the small businesses by number of employees. Burke divided companies into employee groups of 1-5, 6-10, 11-20, 21-50, and 51-250. The results of this study on Internet use established that the smaller the company, the greater use of computer and the Internet. In the study, Burke did not ask the companies the reasons they were using the computer and Internet. Burke examined only frequency of use. This study was most interested in the technology adoption in the small businesses rather than the value of the information gathered.

There are a significant number of manufacturing associations that have web sites that provide information that may be used by manufacturing owners to gather information to enhance their businesses. Many of the sites are industry-specific such as plastics,

machining, tooling, electrical, insulation, and chemical. In a search on the Internet, the National Tooling and Machining Association lists 22 different resources on their website. They also list three educational web links that provide learning on the national skill standards, a university, and a vocational technical school. They link thirteen different industry publications that are on-line. It was interesting to see if the small manufacturing owner uses the on-line publications rather than the printed publications as a resource for information and learning about what is changing in their industry.

The Small Business Administration website (http://www.SBA.gov) provides a handbook for small businesses which gives a complete list of activities for someone wanting to create a small business. A list of questions in the beginning of the information asks: "Do I know where I can get help and information?" This handbook is an excellent resource for starting a business and includes issues related to manufacturing such as inventory and cost accounting. Also available on the Internet are on-line learning resources specific to manufacturing, such as the cyber university (www.cyber-u.org). This resource is produced by Midwest Manufacturing Technology Corporation of St. Louis. A number of online learning opportunities are available through Cyber university that deal with manufacturing techniques as well as business related issues like supply chain management. The explosion of information available on the Internet as well as on-line classes may be sources of learning among manufacturers that have not been quantified in the previous literature. In the Canadian study (Newton, 2001b), the government Internet resources were the least used and the least valuable to the small businesses surveyed.

The Small Business Administration website has a wealth of training for small businesses (www.sba.gov/classroom/courses.html). This resource for learning has not been identified in the literature as a source of knowledge for the small business owner. While the Internet has expanded significantly in the last few years, the use of the Internet as a learning source was extremely low in the Canadian study (Newton, 2001b) focusing on small business owners. The use of college and university on-line courses continues to grow and this also may be utilized by owners to enhance their learning and provide them with the information they seek.

Government.

While government was not listed under the list presented in Brockett and Hiemstra (1991), there are currently significant resources available both on the Internet and through organizations that have been developed specially for small businesses. The Small Business Administration (SBA) and Small Business Development Centers (SBDC) are both readily available to small businesses. Whether small manufacturers use these resources has not been reported in the literature. The studies completed by Newton (2001b), Pineda et al. (1997), Pineda et al. (2003), Raffe et al. (1994), and Young et al. (1999) found that small businesses either were unaware of the resources provided by the government or did not find them of value.

The SBDCs are located across the United States and have a mission of providing free services to small and start up businesses. The SBDCs are sponsored by the Small Business Administration to provide a resource for counseling and training on business development (U. S. Small Business Administration, 1995). The majority of clients served by the SBDCs are service industry businesses. Of the clients served, twenty four percent

were looking for advice about available sources on capital and twenty one percent wanted marketing advice (U. S. Small Business Administration, 2001). Manufacturing business clients were the least served at around nine percent (U.S. Small Business Administration, 2001). The SBDC located in Wichita, Kansas, has developed a pamphlet of resources available to businesses in South Central Kansas. This pamphlet lists twenty two organizations that provide resources to businesses. These organizations all have a focus of growing businesses in the area, including assistance from economic development offices, safety and tax services, and consulting and international business resources.

The Manufacturing Extension Partnership (MEP) is a manufacturing assistance program developed in 1991 to be a resource for information and learning for small and medium-sized manufacturers throughout the country (Commission on Engineering and Technical Systems, 2004). There are MEP centers in every state. The MEP program was specifically developed to provide manufacturers with resources specific to their needs (http://www.nist.mep.gov). Young et al. (1999) asked specifically about the use of the Texas MEP in their survey. Only twenty one of the 572 companies had used the Texas MEP. The challenge with the results in this study is in the lack of manufacturers in the study. This fact would account for so few having used the manufacturing assistance center.

The intent of the Canadian study of small businesses (Newton, 2001b) was to determine if the variety of government sources for information available on-line was meeting the needs of the small businesses. The small businesses did not use the information available through the government or the on-line services. Other resources for information were identified and provided a baseline of data on small business information

gathering. Informal sources such as suppliers, customers, and peers were the most often used resources of information for the small businesses of Canada. Interestingly, the business owners felt the usefulness of the information resources they used was low. The study did not ask small business owners about universities, conferences, workshops, or other formal learning activities.

Government resources for small businesses in recent studies (Newton, 2001b; Pineda et al., 1997; Young et al., 1999) have been the least used by most small businesses, and most owners do not feel the information from the government resources was useful to them. There are several government resources, most of which have information for the small business on the Internet, including Internal Revenue Service, legal and regulatory information on Firstgov.gov, U.S. Business Advisor, Department of Transportation, Department of Energy, Department of Environmental Protection Agency, and Small Business Advancement Centers. With the wealth of information available to small businesses and small manufacturing companies which are available from government resources on the Internet, as well as the government offices locally, in the current study it was interesting that the small manufacturing owner did not utilize these resources even though there was an increase in the increase in Internet usage.

N*etworking and scanning*.

The most frequent resources used by small businesses reported in the literature is networking. Networking as a resource is described in most of the literature as the use of personal contacts, associations, or as knowing an individual or contact person that can provide answers on a particular issue.

Tinelli (2000) studied two company leaders and their learning in transforming their organizations to meet financial pressures. The study looked at determining how leaders learn and how they are motivated to learn. This study tried to identify the mechanisms of how leaders learn rather than where leaders find their information. Both organizations were non-profits undergoing significant financial challenges as funding was being reduced. This qualitative study with the two company leaders provided insight into the use of networking that has been identified as a source of learning and knowledge for business leaders. While this was not the focus of the study, the use of networking with other leaders as a source of information was determined to be a useful and helpful aspect for these leaders in transforming their organizations.

In the literature, it is unclear what is more helpful to the small business owner, networking, informal resources or outside consultants. Kotey and Meredith (1997) in a study of small furniture manufacturers in Australia found owners of small companies who utilize networking and outside resources for training or who utilized consultants was more successful than those who do not. The question of which outside resources were used or whether they found consultants of more value than other information resources is not answered in the study. Fletcher (2000) studied small businesses and globalization. In his study, entrepreneurial small businesses learned to conduct international business using informal learning strategies of networks and partners. Pineda et al. (2003) found the use of external resources depended upon the critical importance of the decision the company owner was making.

Networking and scanning have been discussed in the literature as an important source of learning resources (Hannon, Patton & Marlow, 2000; Gibb, 1997; Kotey &

Meredith, 1997; McGee, 2000; Meldrum & de Berranger, 1999; Messeghem, 2003). Each of these authors suggested that networking for small business includes the use of suppliers, customers, and social networks that provide the owners with information that they use in growing their businesses. Hannon et al. (2000) divided networks into six clusters to more clearly define why small firms utilize networking in developing their businesses. While the breakdown into types or clusters of networking can be helpful, the premise remains that owners define those networks that best serve their business needs. Each business owner would define the individuals that they network with differently, depending on the relationship they have established. For example, a banker could be used as a personal friend and as a professional resource. This might fit into more than one cluster of the network as described by Hannon et al. (2000) as either a physical cluster, an offer cluster, or a competence cluster. It would be of value to determine the how helpful each of the business owners' networks served in growing their business.

In another study of networking, Allee (2000) suggested that informal knowledge networks and business networks are constantly changing and shifting as business people change the information they need. This concept of networking fits into the realm of small manufacturers as the need for continued learning for business growth evolves. The Canadian study (Newton, 2001a) divided the concept of networks down into groups of suppliers, customers, peers, and professional services. Professional resources was discussed separately in the Newton study.

The positive impact of networking on business growth is supported in much of the literature on networking. This informal source of learning as described in Merriam and Caffarella (1999) is defined as learning that occurs in the learners' own environment

and is carried out by the learner. McGee (2000) states, “While the entrepreneur could research issues for themselves, it is often more expedient to get the information and advice from other people informally instead.” McGee’s study of 161 small high technology manufacturing firms identified that personal networks were used by successful firms on an as-needed basis to fill gaps in knowledge for operating the business. The age of the firm was not indicative of the use of personal networks. In another study, Donckels and Lambrecht (1997) interviewed 900 small businesses in Belgium and their use of networks in growing their businesses. They identified five different types of networks and the frequency that owners utilized each different type of network. The owners reported using each of the five identified networks, including external consultants, seminar attendance, trade fair participation, geographical distribution of contacts, and discussions with relatives. The results demonstrated differences by industry, education of the owner, and length of time in business. While this study was able to identify the value of networks, the level of importance the owner placed on each of the network types was not investigated. One would surmise that the convenience of networks may determine the frequency of use of those networks as a learning resource and information gathering tool.

Knight (2002) takes the idea of networking to another level. Knight professes that networks themselves learn, not just individuals within networks. As individuals in the networks share information, the organization of the network learns. This takes the concept of organizational learning and expands it to a group of individuals who make up the network and treats the network as an organization, thereby allowing network learning to occur. The network learning concept may fit well into supply chains where the

organizations making up the network supply chain learn as a function of the length of time an organization belongs to the supply chain. Shanmugam (2003) studied the effect of relationships on supply chains. The network of companies that make up the supply chain and the information shared between the companies is a horizontal network as described by O'Donnell, Gilmore, Cummins and Carson (2000). While Shanmugam did not refer to the relationships proposed by O'Donnell et al. (2000), the companies functioned as such by the manner in which the sharing of information occurred. Horizontal networks described by O'Donnell et al. (2000) are relationships across a supply chain or industry, while vertical networks are relationships within the supply chain.

Communities of practice (Allee, 2000; Storck & Lesser, 2001) are a more structured form of networking where individuals intentionally develop a group for the purpose of sharing and learning based on common needs. These communities of practice are similar to memberships in professional associations where the membership changes as the learning needs of the individuals evolve. Communities of practice are more often developed within organizations than as external groups and are found most often in large organizations. Small businesses more often utilize external networks as a resource of information which are more informal that the structured communities of practice described in the literature.

While networking is a defined activity, scanning for information is yet another tool used by businesses. McEwen (2004) describes the importance of environmental scanning for entrepreneurs with the ever-changing information required to run a business today. The author describes scanning as learning from the environment and using the

knowledge in problem solving and strategic planning. McEwen describes scanning in much the same way that networks are described, mainly that scanning or information gathering is done with associates and friends. McEwen believes that business success depends on the effectiveness of the information gathered and the use of that information in organizational knowledge.

Khan and Manopichetwattana (1989) also used the term “scanning” as information gathering for business. They studied fifty small Texas manufacturers and the use of scanning and innovation among the firms. They found a positive relationship between innovation and the level of scanning done by the business. While the study showed a positive relationship between innovativeness and scanning, there were other differences that may have had greater impact. The younger firms showed a higher amount of innovativeness than firms that had been in business for a number of years. The younger executives demonstrated a higher degree of innovativeness and a greater the use of scanning. Box, Watts and Hisrish (1994) found similar results on the impact of scanning and firm performance. They also found that younger owners use scanning more than firms whose owner had been in business for some time. This study utilized owners of small manufacturing firms in the Tulsa area.

Scanning activities relationship to the instability of the business environment has also been studied. Merz and Sauber (1995) studied small firms and developed four company profiles. They found the companies who rated higher in scanning activities were companies with a highly centralized management and moderately specialized products. These company owners were voracious in information gathering. According to the authors, this information gathering activity was the result of the unstable

environments of their businesses. The majority of businesses in the group were manufacturing companies. The dynamic nature of the manufacturing environment encourages information gathering for these businesses. In a study of large companies, Miller, Kets, De Vries, and Toulouse (1982) found that executives who were new in their positions scanned more those with longer tenure in their positions. Executives who are early in their careers utilize information gathered and rely less on their experience in decision making. While this study was of firms with an average number of employees of 2,750, it may be that small manufacturers who have less than ten years in ownership of their business may seek additional information more often than those who have been in business for longer.

The literature on scanning and networking concludes that this process is effective for small businesses as well as large businesses. The sources of information gathered are not well identified in the literature but the importance of networking and scanning has continued to be accepted in the literature. What are missing are the specific sources and their helpfulness in gaining knowledge for the business owner. As technology has expanded and the use of the Internet for gaining information continues to expand, the change of scanning behaviors for small manufacturing owners may be increasing.

Personal networks or personal relationships as a valuable source of information have been discussed in the literature. Ostgaard and Birley (1994) determined that personal networks comprised of small firm owners were the most important resource in the early stages of business development. The question they raised was whether the networks had an impact on the firms' competitiveness. They identified six different networks utilized by new or emerging firms and found that it was not networking per se

but the selective use of particular networks that contributed to the firms' competitive strategies. The authors determined that the owner's business strategy drove the use of networks, suggesting the way the owner conducts their business is similar to their use of personal networks. The companies studied were comprised of a sample of manufacturing, engineering, and software development companies in the United Kingdom. For this study, personal networks were defined as a specific type of network that includes friends and relatives.

Johannisson (1996) found that entrepreneurs build personal networks which combine social and business concerns as they develop their business. The author also found business networks frequently evolve into social contacts the longer the contact is utilized. O'Donnell et al. (2001) compared the concepts of inter-organizational networks and personal networks. One of their networks was called "industrial districts." These networks are geographically located close together and are made up of small competitive firms producing similar products. This network is described as a group of competitive companies who exchange information as well as personnel. The authors also refer to vertical networks which are made up of supply chain networks and horizontal networks which are made up of similar businesses. The "industrial districts" may be less common with the globalization of the economy where competitors are not necessarily geographically close. Horizontal networks may be more descriptive of the kinds of networks that exist among a group of manufacturers who share information and may be competitors in the marketplace.

Professional Resources.

The use of professional resources is consistently confirmed in the literature to include lawyers, bankers, and accountants as resources that small businesses use for information. The questions asked of the small business in Canada (Newton, 2001b) reported that banks were the fourth rated source in terms of importance for information for businesses, while in the Young, Wyman, and Brenner (1999) study 42.6% of small business had received assistance on accounting, and 32.1% had received assistance on legal issues. In the Raffe et al. (1994) study, accountants and bankers were used by up to 60% of the companies surveyed. Lawyers, bankers, and accountants are of value for small businesses when they start their business, but small businesses may find that once the business is managing, they use these resources less frequently. The use of private consultants as resources of information and learning among small businesses was reported to be of high value. In the Young et al. (1999) study, 37% of the companies used a private consultant and rated their use as highly valued. Conversely, in the Canadian (Newton, 2001b) and U.S. (Raffe et al., 1994) studies, the importance of private consultants were the least important of the resources identified. The use of professional resources such as lawyers, bankers, and accountants may be of great importance for small manufacturers in the initial stages of their business, while the use of private consultants may be of greater use as the company grows. Pineda, et al (2003) reported that the use of private consultants was dependent on the decisions that the business owner was making. The authors did not identify the differences in the stage of the business but rather identified the decision that was to be made as a crucial factor.

Self-directed learning

There is a plethora of literature on self-directed learning. An attempt was made in this discussion to limit the resources that best fit with the small manufacturing owner. In addition to the literature base addressing the characteristics of the entrepreneur, the practices of small business owners, and the usefulness of networking as a tool, the adult education literature on self-directed learning offers additional insight into the small manufacturing owner search for information.

Knowles (1990) lists four statements on adult learning that fit well with the small manufacturing owner:

1. Adults are motivated to learn as they experience needs and interests that learning will satisfy.
2. Adults' orientation to learning is life-centered.
3. Experience is the richest resource for adults' learning.
4. Adults have a deep need to be self-directed. (p.31)

Adult learning is life long learning and Knowles (1990) four statements readily describe the small manufacturing owner.

Cross (1981) further describes lifelong learning as a "concept. . .involving learning on the part of people of all ages and from all walks of life using the multiple learning resources of society to learn whatever they want or need to know"(p.x). The small manufacturing owner with little time to commit to their learning seems to be the quintessential self-directed learner when the self-directed learner is defined as one who takes responsibility for their own learning (Merriam & Caffarella, 1999),.

Additionally, Abdullah (2001) defines self-directed learning as learner-driven where the learner takes the responsibility for what and how they learn. In this article, the descriptions of the self-directed learner compared to the small business owner have common traits: independent, self-disciplined, self-confident, and persistent. Candy (1991) uses similar descriptions of the self-directed learner. The small manufacturing owner or entrepreneur has been defined as self-confident and someone who perseveres. This definition fits well with that of the self-directed learner. Merriam and Caffarella(1999) point out that

> Clearly, technology and the information age that it spawned are changing the nature of adult learning. Professionals whose knowledge becomes outdated in a few years, auto mechanics who must now master sophisticated electronic diagnostic systems, adults who must learn new ways to bank or shop from home computers: all must be able to function in a fast-changing society, and this necessitates continued learning. Technology is not only making learning mandatory, it is providing many of the mechanisms for it to occur. Computer-assisted instruction, teleconferencing, interactive videodisk, the Internet, and the World Wide Web are expanding the possibilities of meeting the growing learning needs of adults (p.17).

The fast-changing society and the speed of change will affect adults and certainly all small manufacturing owners (Cross, 1981; Merriam & Caffarella, 1999). The rate of change in the world directly impacts manufacturing and the ability of the owner to keep on top of those changes (Cross, 1981; Hiemstra, 1998). If learning is continuous and self-directed, as Merriam and Caffarella suggest, then understanding the small manufacturing

owner as an adult learner, where they learn, and the resources they use is critical to understanding the group of adult learners who may not utilize formal institutional learning settings as suggested by the Hankinson (2000). This group of adults has been some of the frequently overlooked adult population to which Brockett and Hiemstra (1991) refer. Small manufacturing owners have been overlooked due to their lack of involvement in university or other formal learning options and their independence in seeking their own learning resources.

Adult education literature has addressed self-directed learning, life long learning and intentional learning in a number of ways. Candy (1991) defines a difference between the self–directed learning process and self-directed learning outcomes. The process of self-directed learning is the method of organizing instruction, while outcomes are the result of a learning activity or action. In this study, the idea of self-directed learning outcomes holds more value when looking at owners of small manufacturing companies who most likely seek a learning action for a specific purpose. Their learning may be sporadic and not have a distinct process of life-long learning that has been described by Merriam and Caffarella (1991). The life-long learning described by Merriam and Caffarella (1991) is more of a learning process than that of sporadic learning for specific outcomes that owners of small manufacturing companies utilize. Mezirow (1991) uses the term intentional learning as a way to describe the learning to solve a problem or to answer a specific deficit. Long (Long, Hiemstra & Associates, 1982) defines the learning in adulthood as ". . .any planned learning activity engaged in by and for anyone who possess the biological, civil, and cultural characteristics of an adult" (p.4). The intention of owners to solve a specific learning deficit or need is clearly the outcome of learning

for this group. This is a group of independent self-starters who will seek to fill a knowledge gap in their own independent way. To understand this learner, the information on how, when, and where they fill their learning need was explored in this study.

Small manufacturing owners may be best defined by Houle as goal directed learners. In *The Inquiring Mind,* Houle (1993) suggests that to understand a group of learners, it is important to know who, what, when, and why they learn. Houle identified three groups of learners; those who are goal oriented, activity oriented, and learning oriented. Houle noted that

> Goal-oriented are those who use education as a means of accomplishing fairly clear-cur objectives. Activity-oriented, are those who take part because they find in the circumstances of the learning a meaning which often has no connection at all, with the content or the announced purposes of the activity. The learning-oriented, seek knowledge for its own sake. (p.15)

Goal-oriented learners, those who seek learning with a specific objective, most likely best describe the small manufacturing owner. They seek learning to fill a gap in knowledge or to solve a problem. Belonging to an association and attendance at meetings may fall under the activity–oriented learning that small manufacturing owners utilize when problems become sufficiently pressing. Small manufacturers mostly likely are goal-oriented learners. It is the outcome of the learning that has meaning for these owners.

Candy (1991) describes the self-directed learner as having several characteristics that correspond closely to the entrepreneur. The characteristics that could describe an entrepreneur as well as the self-directed learner are: “demonstrating curiosity, openness, and motivation; being persistent and responsible; being venturesome and creative;

showing confidence and having a positive self-concept; and being independent and self-sufficient" (p.130). Candy goes on to define a variety of other terms to describe the self-directed learner. The autonomous learner is defined by Candy as one who takes the initiative with or without the help of others. Individuals who run small companies believe that the concept of the business is viable and worth doing and so take initiative without help from others. Candy also discussed independent and self-sufficient learners. Candy offers examples of research on various groups and subgroups of individuals that suggest that understanding the how and where of self-directed learners is of interest in understanding the practice of autodidaxy. Autodidaxy is defined by Candy (1991) as learning directed by the learner that is outside of the formal setting. In Candy' examples of various groups that have been studied, none have been of small business owners. Candy offers studies of teachers, nurses, engineers, physicians, and others, but none of the studies looked at business owners, or specifically small manufacturing business owners.

Marsick and Watkins (2001) define informal learning as learning that is not structured but is intentional. They include self-directed learning and networking in their definition of informal learning. While according to Hiemstra (1994), self-directed learning involves social activities and groups. The social activities and groups provide intentional informal learning. Marsick and Watkins (2001) describe one study of the impact of business incubators on participant learning. In the incubator, technical specialists learn from each other, from observation, and from dialogue about managing a business. This may be a strong reinforcement for business incubators and may initiate the importance of networking to expand their learning for those starting in a business

incubator. Not all small companies begin in incubators, so it was interesting to see in this study whether business owners' use networking among associates, clients, and suppliers to learn about managing their business as has been described earlier.

Critical reflection as an aspect of self-directed learning is proposed by Brookfield. Brookfield (Brockett & Hiemstra, 1991) believes that the most important aspect of self-directed learning is with critical reflection. Whether adult learners utilize critical reflection in their decision to seek learning, or if adults utilize critical reflection to determine the need for learning, or whether it is an unconscious activity, continues to be debated in the literature. Small manufacturing owners' use of critical reflection has not been studied in the literature.

Merriam & Caffarella (1999) suggest that self-directed learning may not necessarily be learning alone but rather learning directed by the learner through and with other people or, as Candy (1991) suggests, in the social context. Places for learning can range from formal institutions to the private home or workplace. The self-directed small manufacturing owner may utilize many different resources for learning and may include all the options suggested by Merriam & Caffarella (1999). As new skills are needed, the small manufacturing owner will seek learning from available resources which may well be social in context (Lowry, 1989; Newton, 2001b).

The small manufacturing owner is most likely self-directed and identifies resources to assist in filling the gaps in knowledge (Cope, 2003). The exact mechanism, source, and importance that each resource of information holds for this self-directed learner, is the focus of this study. It is not clear if there is a specific trigger, such as critical reflection, critical episode, or defining moment that determines the learning but it

is clear that filling the gaps of knowing and learning are accomplished as companies remain in business and grow.

Summary

This chapter has reviewed the literature on small business, entrepreneurs, small manufacturing, small business management, and informational learning resources. A discussion of self-directed learning and how it fits the needs of the small manufacturing owner are also considered.

Small manufacturers have a significant impact on the U.S. economy, making up the largest group of employers, yet there are few studies that have looked at the learning of manufacturers as a specific entity. Most of the research has focused on the larger classification of all small businesses. The majority of research on small businesses has included service and manufacturing as if they were the same. There is a wealth of information on employee learning in companies but little on the owners of small companies. Executive learning research has focused on large corporations, universities, and other formal learning centers, but few have looked at small manufacturing companies. The Newton (2001b) and Raffe et al. (1994) studies were the only studies to question small businesses regarding what resources were used by owners and what the value those owners place on each resource. Both of the studies looked at small businesses and did not break out manufacturing from retail and services oriented companies. While there have been studies on specific aspects of small business including networking, business management and self-directed learning, all small business have been defined the same and no distinction has been made for industry specific resources.

The next Chapter will describe the methodology that was used in this study.

CHAPTER III

Methodology

Research Questions

The purpose of this study was to fill a void in the literature regarding which resources are used by small manufacturing owners and the helpfulness of those resources in meeting their business needs. Additionally this study determined if the results found in Canada (Newton, 2001b) and the U.S. (Raffe et al., 1994) for all small businesses are the same for small manufacturers as a subset. The following questions were posed to determine what resources are used and how helpful those resources are for the small manufacturing owner in order to compare the findings on this subset to the research on the population of all small businesses currently found in the literature:

1. What are the information resources utilized by owners of small manufacturers for managing the business?
2. Are there common resources utilized among owners? If so, what are they?
3. How helpful are the identified resources to managing the business?

Rationale for Selecting a Qualitative Research Design

A qualitative research design was used in this study in order to better understand from the learner's perspective which resources are used in their business and how helpful those resources are in meeting their business needs. It is important to understand how this population thinks and how they came to use the resources they chose as suggested by Bogdan & Biklen (2003).

Qualitative methods can be used to "uncover and understand what lies behind any phenomenon about which little is yet known. It can give intricate details that are difficult to convey with quantitative methods; or to gain novel and fresh slants on things about which quite a bit is already known (Strauss & Corbin, 1990). Qualitative research provides an opportunity for the individual to express their thoughts and ideas into the research. Merriam (1998) pointed out that qualitative research is

> Research focused on discovery, insight, and understanding from the perspectives of those being studied offers the greatest promise of making significant contributions to the knowledge base and practice of education.(p.1)

There are five characteristics of qualitative research described by Merriam (1998). Qualitative research helps understand a situation from the perspective of the individual. While there are five characteristics of qualitative research, not all are present to the same degree in each piece of research. The common characteristics include the ideas that

- reality is constructed by individuals' interaction with their social worlds,
- the researcher is the primary instrument for data collection and analysis,
- the act of researching usually involves fieldwork,
- the research primarily employs an inductive research strategy, and
- the product of a qualitative study is richly descriptive. (p. 6-8)

Additionally, the study is flexible and evolves with the information obtained during the study.

Qualitative methods include the use of interviews, observations, and documents to gain insight into the participant's perspective (Merriam, 1998; Seidman, 1998). In this study of the resources utilized by small manufacturing business owners, qualitative

methods helped to expand the understanding of the prior studies done by Sotrines (1984), Raffe et al., (1994), and Newton (2001b) and to determine how helpful each resource was for the owner, to gain an understanding of resources used by owners, and to determine how they chose those resources.

A semi-structured interview method was used in this study. The interview provided the best method of understanding what resources were used and how helpful those resources were to the manufacturing owner. The interview method allowed the owner to respond from their own frame of reference rather than limiting them to a choice of pre-determined resources of information. Interviewing allowed a way to explore motivations and feelings and allowed insight into understanding the resources used (Denzil & Lincoln, 2000).

Quality Indicators in Qualitative Research

All research, whether quantitative or qualitative, is concerned with the quality indicators of validity and reliability. The method of determining validity for qualitative research is based on "rigorously conducted" research. The research should present insight and conclusions that are believable by the reader and include trustworthiness and confidence in the researcher to present the conclusions that make sense (Bogdan & Biklen, 2003; Merriam, 1998; Seidman, 1998).

Validity of qualitative research refers to the ability of the research finding to match reality; how congruent the findings are with reality and do the findings capture what is really there (Bogdan & Biklen, 2003; Merriam, 1998; Seidman, 1998). Merriam (1998) suggests six ways to enhance the internal validity of a qualitative study: triangulation, member checks, long-term observations, peers' examination, participatory

or collaborative modes, and researcher bias. For the purposes of this study, member checks and peer examination were utilized to insure validity. The interviewees were provided a copy of the dialogue from the interview to verify their input. The use of a peer examination provided for additional validity checks of the interview and findings. The peer reviewer was the Director of Small Business Development Center in Wichita, Kansas whose responsibilities include providing assistance to start up companies and growing small businesses. The knowledge of the small business community provided valuable verification of the small manufacturing owners as compared to all small businesses owners.

Reliability refers to the ability to get the same results with repeated procedures in quantitative research. In qualitative research, reliability refers to the ability to have dependable results from the data collected (Merriam, 1998; Ryan & Bernard, 2003; Seidman, 1998). Reliability of the study was assured through the use of an audit trail; as Merriam (1998) suggested, all recordings were maintained along with all field notes. Bogdan and Biklen (2003) suggest that reliability is intrinsically determined when patterns are identified. Patterns of reliability in the research are demonstrated with consistent responses from the interviewee of the resources used for information gathering.

Ethics related to research have and will continue to be an issue (Merriam, 1998). Federally, there are guidelines that protect the subject from harm, provide their right to privacy, and require informed consent. In this study, ethics were maintained through the signed informed consent of each interviewee (Appendix B); their right to privacy was maintained by not identifying the individual or their company by name. All interviews

were tape recorded but identified by a number and initials to maintain the privacy of the individual.

Population and Sample

A purposeful sample of the current small manufacturing business in Sedgwick county who employ between 20-100 people and were noted in the NAICS (North American Industry Classification System) as 336, Transportation Equipment Manufacturing, were interviewed using a semi-structured interviewing instrument The 336 NAICS classification was chosen as it had the largest number of small manufacturers in Sedgwick County. The 336 classification was defined as: “Industries in the Transportation Equipment Manufacturing sub sector. These establishments utilize production processes similar to those of other machinery manufacturing establishments” (U.S. Census Bureau, 2005). Subjects were selected from the 2006 Kansas Manufacturing Directory. A random sample of the 37 businesses was asked to participate in the study until a pattern emerged or a sample of ten was obtained.

A cover letter was sent to the selected company owners (Appendix A) requesting their participation and assuring confidentiality (Appendix B). Each of the participants was then contacted by phone to set up the interview arrangement. The interview was conducted at the owner’s place of business to provide for a comfortable environment for the interviewee.

The demographic data collected during the interviews were the interviewee’s length of time in business, prior education attainment, gender, age, and events that led them into their business. This data was used to compare length of time in business to the resources used and to determine if prior education related to the number and type of

resources used. The demographic data were also utilized to determine whether age and gender impacted the kinds of resources utilized.

The interview questions were derived from Newton's Canadian survey of small businesses (2001a), Raffe et al. (1994) survey of U. S. small businesses, and the Sotrines (1984) instrument. All of these studies utilized all small businesses rather than focusing exclusively on manufacturing. A list of the resources identified in the prior studies was used as a guide to determine whether the manufacturers identified similar resources. With the use of the semi-structured interview, the interviewee determined the resources used and which were most helpful. At the end of the interview, any resources not mentioned from the resources guide was clarified to determine if the resources was used and not originally identified by the manufacturer. This clarified the resources and allowed comparison to the prior studies.

Data Collection

According to Merriam (1998), **"**In all forms of qualitative research, some and occasionally all of the data are collected through interviews. The most common form of interview is the person-to-person encounter in which one person elicits information from another." (p.71). Or, as Seidman (1998) suggested: "At the root of in-depth interviewing is an interest in understanding the experience of other people and the meaning they make of that experience" (p.3).The interview provided the in-depth understanding needed for the study.

Based on the best practices suggested in the literature, a semi-structured interview protocol (Appendix C) was used for this study in order to gather information from the small manufacturer, to expand on the information gathered from the prior survey data,

and to learn from the interviewee what resources they find helpful in their business. The interview has long been a method of gathering information about individuals and groups (Fontana & Frey, 2003).

Each interviewee was asked questions about the resources they used in their business as well as how helpful those resources were in managing their business. While a structured telephone survey was used in the Newton (2001a) and Raffe et al. (1994) studies and a written survey was used in the Sotrines (1984) study, the person-to-person interview process in the current research allowed the participants to modify or add to the list of resources and expand on or explain how, if, and when resources were used and what kind of value these resources held for them.

The data was collected and coded after each interview using the constant comparative model described by Bogdan & Biklen (2003). Key resources were identified after each interview, allowing for categorization of those resources for usefulness and importance. A list of questions to ask of each participant was developed and organized for the interviewer as resources were identified (Appendix C), but the exact wording and order of the questions varied. Additional questions were asked to clarify and expand upon what emerged during the interviews. The constant comparative method revealed consistent comments from the interviews.

All interviews were conducted by the researcher, tape-recorded, and transcribed by a professional transcriber for analysis. Additional information was collected for clarification after review by the participants.

Pilot of the Interview Protocol

The interview guide was piloted with two manufacturers known to the researcher. The two were small manufacturers who provided rich feedback on the questions and the process to the researcher. The pilot was undertaken to test the interview process and to determine if the questions would elicit useful feedback for the study.

The pilot interviews were conducted in the interviewee's place of business to validate the interview plan. Each interview lasted approximately 60 minutes, and the questions were used as a guide for information gathering. The questions were not used in the same sequence with each of the interviews, reinforcing the use of the semi-structured interview process. The pilot interviews reinforced the benefit of having a list of potential resources to help prompt the interviewee, and the questions elicited reflection on the part of the owner of what resources were helpful. It was also found that creating headings for the interview was helpful to the interviewer. This allowed the interviewer to ensure that the important topics were covered. It was also suggested in the pilot interviews that a rating system be used to determine if a resource was helpful once the resources were identified. A rating system ranging from "very helpful" to "not helpful" helped the interviewee describe the level of each resource. The pilot interviewees felt that having a way to express how they felt about the resource was easier with a rating system, and this helped them be more consistent in their responses.

The pilot interviews varied in terms of the length of time in business. One had been in business for twenty years while the other had been in business for seven years. One of the businesses had 30 employees while the other had 95 employees.

Both interviewees were males in their forties who had a high school education. Both manufacturers were in the NAICS code of 336 and produced parts for the aerospace industry. The owners of both companies got into the manufacturing business because they identified a market that was currently not being met.

Data Analysis

The interviews of the participants were recorded and transcribed for analysis. The constant comparative method was used as data was collected and began with the first interview. Field notes were taken at each interview to better clarify the information collected. From the constant comparative method, patterns were identified and key resources to the manufacturing owners were identified.

The use of guidelines in analyzing the conversation of an interview was suggested by Silverman (2000). The first is to attempt to identify sequences of related talk. By identifying a sequence of related talk, categories or tags can be discovered. Secondly, the analysis should determine if the interviewee takes on certain roles or identities, such as expert or professional. The role the interviewee takes might lead them to respond in a certain way such that they answer questions with expected responses rather than from their own experiences. And lastly, attempts must be made to identify whether the question seems to be confusing for the interviewee. This is accomplished by asking for clarification, laughter, or other delays in response. Given the wealth of information that analyzing related talk generates, in this study, the field notes and tape recordings were analyzed to identify any issues that would taint the data results and the findings.

At the end of each interview, the research used the constant comparative method to determine patterns and consistency. After each interview, the researcher provided a

transcript to the interviewee to determine if the information captured was valid from the point of view of the interviewee. This confirmation by the interviewee allowed him or her to make any clarifications or add to the information provided. Interviews continued through the sample until patterns emerged.

A peer, who directs the Small Business Development Center in Wichita, provided review and checks during the process to analyze the results and the researcher's interpretations in order to verify the data analysis for accuracy and logic. This peer review was the second method of validation of the research and findings.

Summary

The use of a semi-structured interview for collecting information from owners of small manufacturing businesses allowed the small manufacturing owner to process through the resources used and the helpfulness of each resource to the business. The semi-structured interview best met the objectives of this study because it allowed an in-depth examination to gather insights from the participants' point of view. It also allowed the participants to speak for themselves and to create thick description regarding small manufacturing business owners' learning processes.

Because of the dynamic nature of qualitative research, the design was not strictly defined before the study began. The researcher was the primary instrument for both data collection and analysis. All of the interviews were conducted by the researcher, tape recorded, and transcribed for analysis. Having the researcher conduct all the interviews provided for consistency of information collected and allowed for the constant comparative method to be used. A purposeful sample was used of small manufacturers in

Sedgwick County, who are doing business in the 336 NAICS classification to provide a more focused study of the resources used by a specific set of owners.

Validity of the research was conducted through the use of member checking and peer review. Member checking allowed the interviewee to verify the information provided and gave additional insight into the data collected. The peer review provided a reference check on the logic of the data collected and analyzed by the researcher.

The purposeful sample of small manufacturers in Sedgwick County, Kansas provided in-depth information about a group of adult learners who have limited time for finding resources that meet their business needs. The interview provided them with the opportunity to review the helpfulness of their resources and to share their stories.

CHAPTER IV

Findings

Overview of the Study

The purpose of this study was to identify specific resources used by small manufacturing owners and the helpfulness of those resources in managing their businesses. The results were compared to the results of two previous studies (Newton, 2001; Raffe et al,, 1994) of small businesses in all industries to determine if small manufacturing owner's utilization of resources are the same as those used by small businesses in general.

The data answered the following research questions:

1. What were the preferred information resources utilized by owners of small manufacturing businesses for managing their business?
2. Were there common resources utilized among these owners? What were they?
3. How helpful were the identified resources in managing the small manufacturing business?

Data Collection Procedures

Small manufacturing business owners were identified from the Kansas Manufacturing Directory 2006. A total of 39 small manufacturing businesses in the NAICS code of 336 (Transportation Equipment Manufacturing) were identified in Sedgwick County, Kansas. Two of the companies were used for the pilot study of the interview. Seven companies were removed from the original list because they were corporately owned with no owner on site. Ten owners who met the criteria were interviewed from the sample.

A letter requesting participation (Appendix A) was sent to each of the participants from October 1 through November 28, 2006. A follow-up phone call was made to each business owner to verify his/her willingness to participate in the interview and to schedule an appointment at the place of business. The interviews were scheduled for one hour. Those who declined to be interviewed were asked why they chose not to participate. The reason stated by seven small manufacturing owners who chose not to participate was a lack of time due to the volume of work being done in their business. Ten small manufacturing owners would not return the phone call to participate. For the purposes of the data analysis, the non participants were separated out into a category containing those who did not respond and those who were too busy to participate. (Table 1)

Table 1

Participants and non-participants

Employees	Participants	Non Participants	
		Lack of response	Too busy
20-29	2	1	1
30-39	2	2	4
40-49	1	2	0
50-59	2	2	0
60-69	1	0	1
70-80	1	2	0
90-100	1	1	1

Thirteen small manufacturing business owners participated in the interview. Three did not qualify for the study. One business had over 100 employees, and two businesses had less than 20 employees. In another instance, the business had more than one location

with one location employing less than twenty, and another location employing more than twenty people. This business was included as one participant. A total of 10 small manufacturing owners were interviewed for the study (Table 1).

The interviews were conducted at the small manufacturing business. The written consent to participate (Appendix B) was obtained at the interview. Each participant was assured of the confidentiality of the information provided and agreed to participate. All interviews were tape recorded, and the interviewer took field notes during the interview. The interview guide (Appendix C) was used to assist the interviewer in gathering information on resources that had been identified in the literature.

Demographic data

Each participate was asked four demographic questions including the length of time the owner had been in business, the owner's age range, the owner's educational attainment, and the owner's interest in starting a manufacturing business. All participants in the study were male. The demographic data for all participants include the number of employees (Appendix D). The following analysis includes specific data gathered for each question in the semi-structured interview protocol

The ages of the ten participants ranged from forty to sixty (Figure 1). Seventy percent of the participants were between mid-forties and mid-fifties. The length of time in business ranged from 6 years to 28 years (Figure 2). There was no direct relationship between the age of the participant and the length of time in business. Four participants had worked for other small manufacturers prior to starting their own business, two of the participants had worked with their families in the business, and four had worked for other manufacturing business before buying their own business. The four owners who had not

grown up in small manufacturing had worked for other types of manufacturers before starting their own small manufacturing company.

The participants were asked why they went into business for themselves. The primary themes in their answers were that it felt like low risk since they knew manufacturing, they wanted more control over lives, and they knew they could do a better job than the people they were previously working for.

Figure 1

Age group of participants

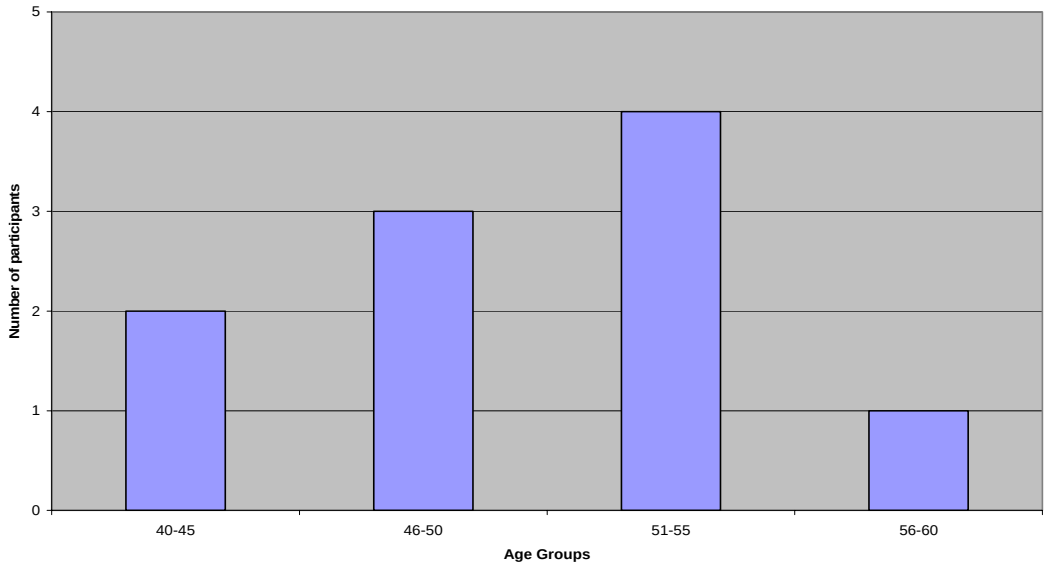
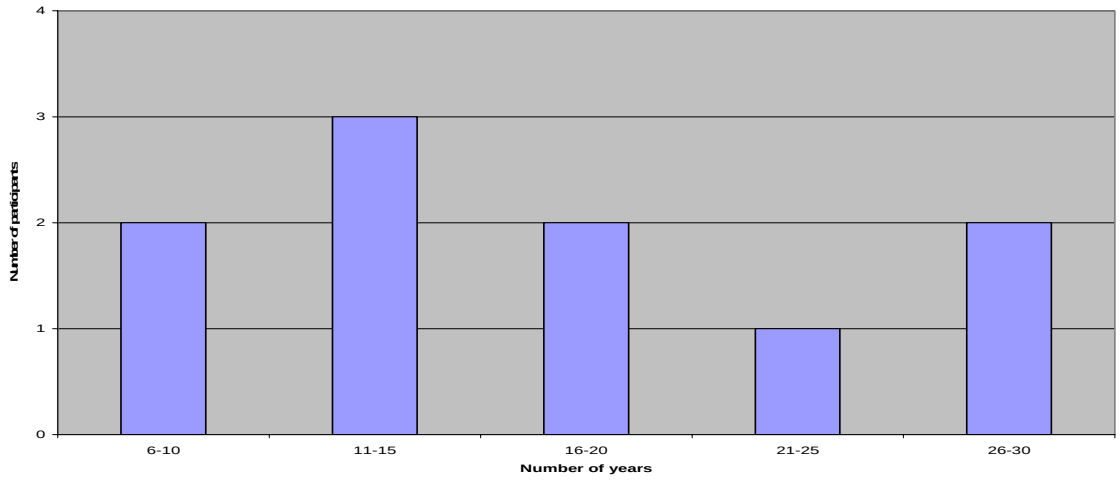


Figure 2

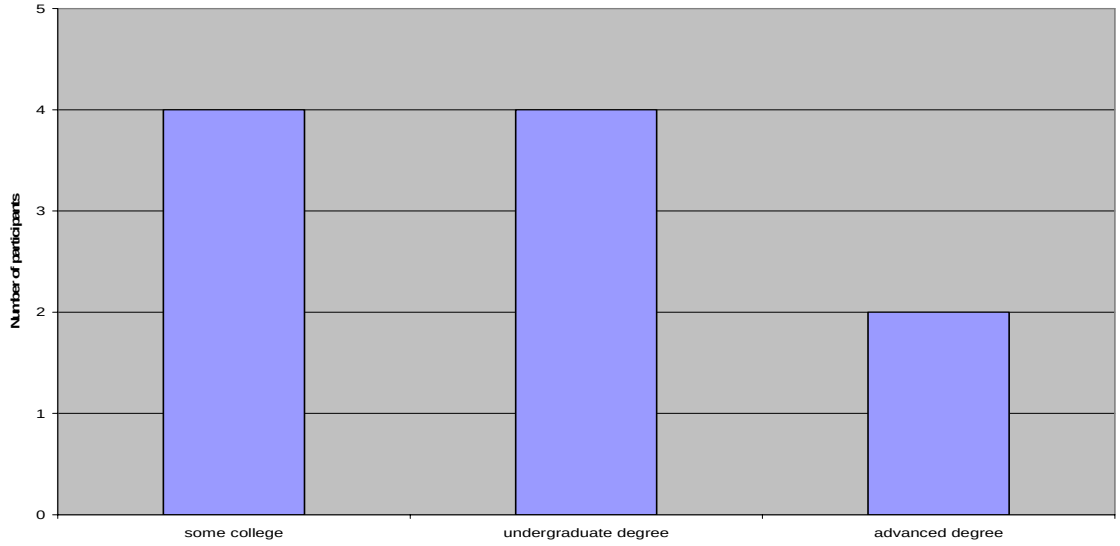
Length of time in Business



The education of the participants ranged from some college to an advanced degree. Two of the participants had advanced degrees, four had undergraduate degrees, and four had taken some college courses (Figure 3).

Figure 3

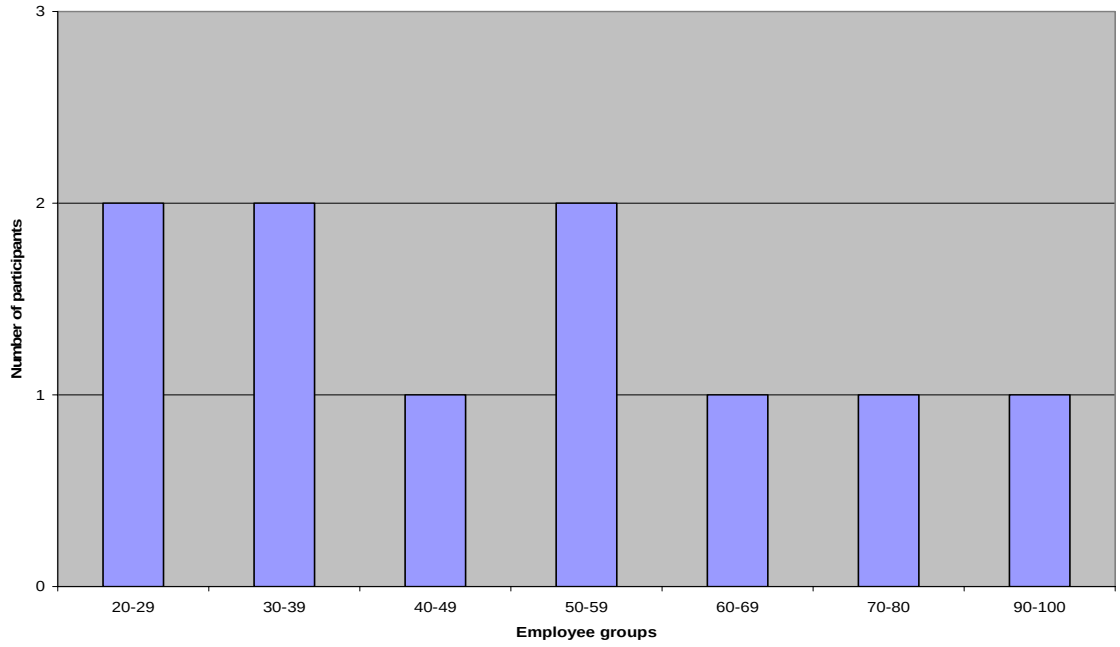
Education Completed



The number of employees (Figure 4) in the businesses of the participants ranged from 28-100 employees. There was no direct relationship from the data analysis to indicate a pattern for the number of employees, the length of time in business, the age, or the educational attainment of the owner. The largest company owner had an undergraduate degree, had been in business for 15 years, and was in the 46-50 age range. The smallest company owner had some college, had been in business for 14 years, and was in the 40-45 age range.

Figure 4

Number of employees



The data collected and analysis generated several findings in responses to the research questions. The finding will be discussed for each research question.

Research Question One

What were the preferred information resources utilized by owners of small manufacturing businesses for managing their business?

The interviewees were asked to identify the resources they used in managing their business. Eight of the ten participants identified the Internet as the preferred resource of information for managing their business. Additionally, eight of ten participants stated that they use their personal network of business associates or friends as a preferred resource of information. Half of the participants identified industry-specific trade journals as preferred sources of information that they used in managing their business. Other preferred resources of information the owners identified were consultants, customers, suppliers, employees, trade shows, professional organizations, universities, and the information technology system. Specific resources were referenced several times by the participants including: consultants three times, suppliers three times, customers two times, employees two times, trade shows two times, professional organization once, the local state university once, and the company management information software once. The resources most frequently identified by the owners were the Internet eight times, personal networks eight times, and industry trade journals five times.

The participants with advanced degrees and undergraduate degrees most often mentioned the Internet and their personal network as resources of information. Those with some college identified the Internet and trade journals most often. There were no consistent resources of information identified based on the length of time in business. The Internet was identified by all participants as an invaluable source of information.

The level of importance of the resources varied over the length of time in business. The participants who had been in business less than 10 years stated their partner was important. Those who had been in business for 11-15 years stated the Internet, consultants, and bankers were important to their business. Those who had been in business for 16-20 years varied in the resources they felt were important. Trade journals were the only common important resource for them. Those who had been in business for more than twenty years identified the Internet, trade journals, and their personal network as most important to managing their business.

Research Question Two

Were there common resources utilized among these owners? What were they?

The resource identified by all ten of the small manufacturing owners was the Internet. As more than one of the owners said, “If I need to find out something, I just ‘Google’ it”. When asked to identify if there were specific sites used most often, the answer was it depended on what information they were attempting to find. The Internet had changed the way they looked for information. Before the Internet, the small manufacturing owners said they used the telephone to make calls to anyone they knew who might have an answer. In the past, the time it took to look for information sometimes took a significant amount of time, and often they just gave up and relied on their gut feeling. Now, they use the Internet for a variety of information for their business such as finding potential new customers, and Government websites like the Bureau of Labor Statistics to track wages. They also use the Internet to search for new equipment, find new employees, for market research, and communication with their customers and suppliers.

All of the participants stated that they communicated almost exclusively with their customers and suppliers via email. One participant stated that

> It is faster than using the phone, it is on your time, and you don't have to waste time. You can send an email to more than one person and actually carry on conversations via email with more than one person. It makes getting answers and information more timely and accurate.

Personal contacts were identified by eight of the ten participants as an often used resource of information. Of interest is that among the owners with undergraduate and advanced degrees, the use of personal contacts was mentioned more often than among the owners with some college. Personal contacts were identified as friends, partners, and business associates. The participants described business associates as friends or partners and used them interchangeably. Employees were mentioned specifically as personal contacts by two of the participants as resources of information.

Industry or trade journals were identified by half of the participants as a good resource of information for their business. Some of the trade journals were available in an online format while others were distributed in print. There was no consistent preference among the owners of receiving the journal online versus a printed copy. Some trade journals had weekly emails on specific topics that were used by some while others preferred the print copy so they could hand it to others in the company.

When the participants were asked how they decided to use the resources they identified, they commonly stated that their preferences had evolved over time. Some resources, like consultants, were referred by someone else while other participants referred to the use of the Internet and doing a "Google" search to find information. The

ease of use of the Internet with a “Google” search made using the resource helpful. For the use of trade journals, the journals were given to them from equipment suppliers or associations, and over time the owners had relied on them. Personal contacts came from the network of small manufacturers in the area or from a friend of a friend or someone they had met through doing business. One participant statement exemplified the decision of what resources to use:

> I just start asking questions of everyone I know. I do a “Google” search. I can always find someone I know who might know something. They will refer me to someone else or give me suggestions of where to go to find the information.

The participants were asked if their resources of information had changed over the time they had been in business. The Internet had become the most important resource of information for all participants in the past ten years. Some of the words used to describe this change were dramatically, overwhelmingly, significantly. Prior to the use of the Internet, the company owners stated that they would spend more time on the telephone trying to get information from their personal network whether it be on financial, management, or business trend information. They believed that the Internet improved their ability to find information when they needed it.

The length of time in business and the resources used showed little difference among the various participants. Those who had been in business 6-10 years stated consultants, business partners, suppliers, banks, customers, and trade associations were the most useful to their business. Those who were in business for 11-15 years stated the Internet, consultants, personal networks, and customers were most useful to their business. Participants who had been in business for 16-20 years stated the Internet,

customers, trade journals, trade shows, and their personal network were most useful to managing their business. Participants who had been in business for over twenty years found trade journals, the Internet, trade shows, and suppliers were useful. Consultants were more useful to business owners with less time in business, and trade journals were more useful for those who had been in business longer. The Internet was useful for participants regardless of how long they had been in business.

The participants were asked about resources of information related to specific areas of managing their business: accounting/financial, management, business trends, marketing/sales, human resources/personnel, and benchmarking/competitive intelligence. Nine of ten participants used their internal accountant and their Certified Public Account as the resource of information for financial and accounting information. One participant stated that he used his banker for financial and accounting information.

For resources of information on management, four of the ten participants used friends and personal contacts and four used consultants. Other resources of information on management identified were trade journals, trial and error, Internet searches, and business books. The participants usually used more than one source of information for management. Those that identified friends and personal contacts also used trade journals, the Internet, suppliers, and trial and error. Those who used consultants also utilized the Internet, vendors/suppliers, and friends. All of the small manufacturers in the sample used a combination of resources for management information.

Resources of information on business trends included customers, which were mentioned by seven of the ten participants. In several instances, the customer would provide seminars and workshops to the small manufacturing business on the newest

business trends such as Lean Manufacturing and Six Sigma with the expectation that the small manufacturer would implement these principles into their business. Additionally, the small manufacturers in this study were all transportation equipment manufactures specifically aerospace parts providers. Their customers had placed requirements on them to implement quality standards such as AS9100 into their business. The customers kept them informed about business trends and provided educational opportunities in the form of workshops. As in the other topics of information, the participants used additional resources of information on business trends such as consultants, friends, suppliers, trade shows, trade journals, the Internet, and their own experiences.

Internal sales were used by three of the companies as a resource for marketing and sales information. Two of the companies did not have a resource of information that they used for marketing and sales. Two of the participants identified trade shows as a good resource of information for marketing and sales. Two others mentioned the use of a personal network of contacts. One participant used his knowledge from his undergraduate degree most often. Two of the participants utilized Internet searches for new potential customers. Four of the participants use external sales/marketing resources for information.

Human Resources/personnel information was provided by outside resources for nine of the ten companies. Two owners used information provided by the State and Federal Labor Department. The company lawyer was identified by three owners, and outside consultants were identified by four owners. The participants identified needing help with personnel issues, policies, and procedures and most often utilized a consultant for assistance in these matters. Three of the companies had hired consulting agencies to

handle their personnel issues. Only one company relied solely on an internal resources for information on human resource and personnel issues.

For benchmarking/competitive intelligence resources of information, there was no consistent source identified by the participants. Each participant indicated using a variety of sources of information including customers, trade shows, personal networks, internet searches, and word of mouth. These small manufacturing companies were all privately held, and the information for competitive analysis of peer institutions was not public knowledge or available in any specific location. The participants said they would get benchmarking information from suppliers who visited other small manufacturers, from their customers when they were bidding for a job, or as one of the participants said, “from the word on the street.” One participant stated he was looking at other industries to gather information he could use to improve his business since there was nothing available about small aerospace manufacturers.

Research Question Three

How helpful were the identified resources to managing the small manufacturing business?

Each of the participants was asked what their most important resource of information was for managing their business and how helpful those most important resources were. Six of the participants stated that the Internet was the one most important and very useful resource for managing their business. Two other participants did not list the Internet as an important resource but found it useful to them when they did use it. One participant felt that the Internet was fairly important and mostly used it to find suppliers. One participant said the Internet was somewhat important but very useful. He said the

Internet had the most current information and was very useful but not as important as trade shows for finding information for managing his business.

The list of resources of information was divided into informal, formal, and non formal resources. The first research question asked the participants what resources the found most important to their business. After the resources were identified by the participant, they were asked to discuss the helpfulness of each resource to managing their business.

Informal resources

For the purpose of this study, informal resources were defined as unstructured resources such as customers, suppliers, friends/business associates, consultants, and the Internet. The informal resources of information were the most useful to all the participants. The participants felt that customers were an important resource of information. When they were asked to list their top three or four most important resources, only one participant identified customers as one of the top most important resources. When the participants were asked if customers were useful resources of information, the responses were: “They are a big part of running the business” or “They are very helpful and useful.”

Trade or industry journals were useful, and half of the participants thought they were important while three felt that the trade journals were somewhat useful but not important. Two of the participants felt that trade journals were not useful to them.

Of the seven participants who had used consultants, six felt they were very useful, but only three said consultants were an important source of information. One of the

participants had only used a consultant once. In this instance it had cost him a great deal of money, and he received no useful assistance from the consultant.

Personal contacts were defined by participants as either other business managers or as friends or social network. Six of the participants had used other business managers as a resource of information and found them useful. Four of the participants did not use other business managers as a resource of information. Friends and social networks were useful for four of the participants, and three of them said they were an important resource of information for managing the business. Three of the participants did not identify friends or a social network as a source of information. The remaining three participants rarely or did not use friends or a social network as a resource for information.

All except one of the participants found suppliers as useful or somewhat useful for specific information. Two participants felt that suppliers were an important resource of information and that they were useful for technical information or equipment information.

Formal resources

In this study, formal resources were defined as professional in nature including information from bankers/lawyers, colleges/trade schools, trade show, and seminar/workshops. The participants in this study indicated that formal resources of information were less important resources but were useful for specific business situations. Two of the companies were currently expanding their business, and the banker was cited as a critical resource for essential information. Other participants stated their banker was useful when they needed him/her but was not a resource they used often.

Half of the participants did not find seminars or conferences useful sources of information. The remaining half of the participants said they had attended customer sponsored seminars and found them to be of some value. Two participants stated that seminars or workshops that were in town and that met a specific need, such as legal seminars, were useful but they did not often attend such a conference or workshop.

Colleges and technical schools were useful when utilized by the participants. One used the product testing capabilities of a local college while another used students from a college as a supplement to the engineering department. One of the participants had been on the board of the technical college for a long time and found it a useful resource. Seven of the participants did not use colleges or technical schools as a resource.

Four of the participants viewed trade shows as a useful resource of information. Three of the participants did not think that trade shows were useful sources of information. Three of the participants used trade shows only to identify equipment and new technologies.

Formal resources of information were not defined by the participants as educational in nature. Only one of the participants said he took a course every year if he could, just to keep up with what is being taught. None of the participants used the trade show seminars but used trade shows to see what was new in equipment and what other businesses were doing. Three stated that trade shows were good for marketing/sales.

Nonformal resources

The nonformal sources of information were defined as trade associations, local and federal governments, as well as other government resources such as the Small Business Association (SBA), the Small Business Development Center (SBDC), and the

Manufacturing Extension Partnership (MEP). The only consistently utilized nonformal resource identified by the participants was trade associations. Three of the participants said that trade associations were useful in managing their businesses. One of the participants stated that professional associations were useful. Six of the participants said they either did not use trade associations or found them useless resources of information. One participant said “I don’t belong to any. I don’t have time for it.” This was a common thread of response for the six interviewees that did not belong to an organization.

Five of the participants had used the local MEP to assist them on implementing some programs like AS9100 international quality standard or other quality systems. One participant stated that he used the Federal Government website for tracking wages and product index. Two of the participants had tried to utilize the SBA for loans but found the system cumbersome. None of the participants had used the SBDC for any information. The participants stated the local government did not understand the issues facing small manufacturing and had not used them for information. Two participants did not identify or use any nonformal resources.

Each of the participants was asked if the resources of information they used were directly applicable to their organization. All of the participants felt that the information would have to be adjusted to fit their businesses if it was not a processing piece of information. “If it is material processes, it was directly applicable. If it more general business stuff, we have to see if it will work for us and then make adjustments to make it fit us,” as one participant stated. Another participant stated “I would say 80% of the time it directly applies and 20% doesn’t fit well so we make adjustments”.

When asked if the participants felt confident that they could find a resource of information, they were confident that they knew where to go to find the information they needed. None of the participants had a plan for finding information. The participants were also asked how frequently they used specific resources; the amount of time varied from an hour a day to constantly. When asked how much time they spend looking for resources, it depended on the nature of the issue. One participant estimated that he spent approximately 10 minutes a week seeking out resources while another said that he might spend up to one day a week seeking out information. The responses varied with the issues they were addressing, whether it was a piece of equipment, a new building, understanding a new product line, or trying to solve a problem. All of the participants indicated that they used email to communicate with their customers, suppliers, and their accountant or banker. For the participants in this study, email had replaced the telephone for rapid and efficient communication.

Summary

In summary, the common resources used by small manufacturing owners are informal resources, including the Internet. The use of the Internet has changed the way small manufacturers manage the business. The small manufacturer uses more than one resource of information and rarely relies on just one source. They will use their personal networks to verify information gathered by the Internet or trade journals.

Formal and nonformal resources are the least used and the least helpful to the owners in managing their business. The only formal resources utilized by these participants were bankers, CPA’s and lawyers.

CHAPTER V

Discussion, Implications and Future Research

Discussion

The resources most often used by small manufacturing owners in the NAICS 336 that were interviewed for the study were informal resources. They were often the most important resources and the most useful. The Internet was identified by all the participants as a useful resource of information, and eight of ten felt it was a preferred source of information. All participants indicated that it was useful. This finding is different than the earlier studies of Raffe, et al (1994) and Newton (2001a). In the Raffe, et al (1994) study, the Internet was not even an information resource listed. In the Newton (2001a) study, the importance of the Internet ranked seventh of ten important sources of business information, while clients and suppliers ranked first and second. The difference in finding between the previous studies and this one indicate that in the last ten years, the Internet has become an important and useful source of information for small manufacturing owners. The growth in use of the Internet is changing what kinds of information are available for small manufacturing owners. The manufacturing owners in this study said that the Internet has changed the way they do business, and over the past ten years it has made finding the information they need to run their business easier. One owner even said, “I am not sure how I ran the business before the Internet! It hasn’t cut down the amount of paper I use, but it has increased my ability to find the information I need.”

Informal sources of information continue to be the most important sources of information for small manufacturing business owners. In both the Newton (2001a) and

the Raffe, et al (1994) studies, the use of informal resources of information for small business were rated as most important. This is consistent with the results of the current study of informal resources as these are the most important and useful for the small manufacturing owners. The difference with small manufacturers is the level of importance of each of the informal resources of information compared to the prior studies. In the Raffe et al (1994) and Newton (2001) studies, the preferred sources of information were customers and suppliers.

Another significant difference is the addition of the Internet because it has become the most important source of information for small manufacturing owners. In a Small Business Administration report (2004) manufacturing and specifically the NAICS 336 sector of manufacturing has the highest usage of electronic commerce among all industries. This reinforces the response of the manufacturers in the study that the Internet has changed the resources of information and the way they do business.

The use of the Internet for communication was identified by the study participants as the most useful tool for sharing information between their customers, suppliers, and other business managers. A study done by the Small Business Administration (2003) found that among self-employed business owners there were three key uses of the Internet: sending and receiving email, accomplishing job-related tasks, and searching for information.

Customers were considered useful but when asked the most important resources owners used for managing the company, customers were only listed by one company as very important. In the both the Newton (2001a) and Raffe, et al (1994) studies, clients/customers were the most important source of business information of the business

surveyed. This finding demonstrates the differences between small businesses as a whole and the industry specific focus of the small manufacturer.

Trade journals were useful information and were important for half of the participants. In the Newton (2001a) study, the importance of trade associations and media were ranked higher than the Internet while the Raffe, et al (1994) study did not identify trade associations as a source of information for small businesses but did identify newsletters as important resources of information for small businesses. The industry specific sector that was interviewed for the current study reinforces the need to research the information needs of specific small industry groups for the most useful and important information resources preferred and utilized.

Only 30% of the participants in the current study found other business managers, friends, social network, and suppliers as important and useful, while in the Newton (2001a) and Raffe, et al (1994) studies customers were most important and suppliers were second most important sources of information. Additionally, the Newton (2001a) study had other business managers as third most important. The change in the current society towards the use of the computer as a significant resource of information may explain some of the findings that are different from the prior studies.

In the Raffee, et al (1994) study, the small business owners that were surveyed attended workshops 64% of the time, while in the current study 50 percent of the participants had not attended a workshop or seminar. Thirty percent of the participants had attended a workshop put on by their customers, and 20 percent had attended a workshop put on by a law firm. Of the small manufacturers in the current study who had attended a workshop or seminar, all stated that they found the information from workshop

only somewhat helpful. Four of the manufactures stated they had sent employees to workshops rather than go themselves. The participants indicated that the information from the workshop was not usually used in their business when the employee returned from the workshop. One participant observed that workshops are too general and are not something that is helpful or useful for managing the business.

Specific resources of information by topic or category revealed the diversity of resources used by small manufacturers. All ten of the small manufacturers utilized internal accountants and Certified Public Accountant as financial resource of information. This is consistent with the prior studies (Newton, 2001a; Raffe, Sloan, and Vencill, 1994) of important resources of business information among small companies. Financial resources are critical to the success of the company. As one participant stated, “They [accountants] keep me out of trouble.”

The small manufacturing owners used a variety of resources for information on general management including the Internet, consultants, trade journals, other business managers, suppliers, friends/social network, and legal seminars. The role of personal networks including friends and business connections as important resources of information for small businesses has been identified in the literature. It is important to realize that small manufacturers utilize more than one source for information in various topic areas. One source commonly stated for general management was the personal network of friends and other business managers by the participants.

For business trends, participants used trade journals, customers, trade shows, the local MEP, the Internet, and their personal network. Customers of the small manufacturers were mentioned by seven of the ten participants for information on

business trends. According to the participants, responding to customer needs and closely following where the customer is headed allowed the small manufacturers to stay current and in touch with their customers. As one participant said about getting business trends from the customer, “You get it from the people you are doing business with because they want you to have a certain standard and they have to train you to get you there.” Again as in the other topic areas, small manufacturers also used other resources for information and did not rely solely on their customers.

For marketing and sales, the participants used internal resources, trade shows, customers, outside sales representatives, the Internet, and the local MEP as sources of information. Marketing for the small manufacturer was not seen as an important aspect for managing their business. Many had static websites they would refer potential new customers to that described their capabilities. Most of the participants worked with the major aircraft companies and stated that marketing was not as important to them as it might be to other types of businesses. The small manufacturers were busy with enough orders most of the time, so marketing their businesses was not important to them. Some of the discussion on marketing with the small manufacturers was related to the cyclical nature of the aircraft business. As one of the participants stated, “When times are good, like now, marketing isn’t important. When the cycle turns, then I think about marketing and what I need to do to grow the business.”

Human resources and personnel resources included internal resources, consultants, state and federal laws, legal seminars, their own college degree information, and their lawyers. The human resource aspect of the business for the small manufacturers related most to finding qualified new employees. The small manufacturers most often

used an outside service to manage the human resources aspect of their businesses. They used each other as resources when they were looking to hire new employees and wanted to make sure that they were paying what is currently necessary. One of the participants stated that he had wanted to provide a bonus to the workers who were exceeding expectations, but when he contacted a consultant for assistance in setting up the program he found that it would not benefit the employee and would cost the company due to the regulations. Many of the small manufacturers stated their accountant or lawyer kept them informed of the regulations.

Benchmarking for small privately held manufacturers was difficult to obtain. The participants in this study searched for information on benchmarking and competitive intelligence on the Internet, in trade journals, from customers, trade shows, and personal networks. Many of the company owners said that they had to assume that since they had orders in house and repeat business from their customers, they had used production and sales as a benchmark that they were providing a good service to their customers at a competitive price.

Using mostly informal resources of information for managing the business, the small manufacturing owners were self-directed learners who took the responsibility for what and how they learned (Abdullah, 2001). Cross's (1981) description of the lifelong learner as one who uses multiple learning resources to learn whatever they want or need to know seemed to be an accurate description for the the small manufacturing owners who use multiple resources of information to meet their needs. Additionally, Mezirow's (1991) term of intentional learning fit well with the resources used among the small manufacturing owners in this study, and Houle's (1993) definition of the goal-oriented

learner as one who seeks learning with a specific objective, also described the small manufacturing owners.

Small manufacturing owners seek information to solve a specific question or to find an answer for a specific need. The goal directed individual who seeks information with a specific objective in mind means for adult educators the concept of learning just in time is important to the owners. Information resources need to be readily available to the manufacturing owner, when they want it. This is a challenge that providers of adult education learning will need to address to meet the needs of the small manufacturing owner.

Conclusions

The small manufacturing owner participants in this study identified the resources they used to manage their businesses. Informal resources of information were utilized most often among the owners. The primary source of information used by small manufacturing owners was the Internet. They used the Internet for searching for information and communications. The Internet has changed the way business is conducted. The informal resources identified in the interview guide were those most often referred to by the owner. Only two informal resources were mentioned that were not used by all and are not found in the literature: employees and the company internal business software program.

The other preferred resources of information identified by the small manufacturing owners were their personal contacts and trade journals. Personal contacts were other small manufacturing owners that the participants had a relationship with either

currently or in the past. The longer the owner had been in business, the more frequently personal contacts were mentioned as a resource of information. The participants with undergraduate degrees and advanced degrees identified personal contact more often than those with some college.

Trade journals provided the owners with information on new technology, where the industry was heading, and the current business trends. The trade journals were industry specific publications, such as Aviation Weekly, which provided specialized information. Trade journals were mentioned by participants no matter how long they had been in business or what their level of educational attainments was. Journals were consistently identified as a source of information for managing the business of small manufacturing.

The study of a specific industry of small businesses, small manufacturing in NAICS 336, allowed the information resources to be more clearly identified, and common threads were found. While there was some variety in which resources were chosen over others in their level of importance, each owner was clear about the resources he found to be most helpful to him. Among the participants in this study, it was most common for small manufacturing owners to outsource the areas that they felt the least comfortable in managing, such as human resources and accounting.

All owners were confident that they could find the information they needed, while the majority of them used a resource because it was referred to them by someone they knew and trusted.

The use of the interview gave the small manufacturing owner the ability to expand on how he viewed the the resources and to define how he utilized each of them

for his own purpose. The interview allowed the small manufacturing owners to describe their use of more than one resource of information and to discuss how they had used the resources to meet their needs.

Implications

The implications of this study are small manufacturing business are different than other small business. They require a significant financial investment of capital to start and grow their businesses. The information resources they use currently rely on the computer for information gathering, communication and commerce. The manufacturing environment has changed drastically with a higher reliance on the use of the computer, information technology and exchange of information via the Internet over the past decade. As the needs of business have transformed so is the need for adult educators to adapt their approaches to this changing industry.

The implications of the findings of this study lead to the following recommendations for practice and further research.

Recommendations for Practice

1. With the increasing use of the Internet as an information resource, reaching the small manufacturer with information that is specific to them will require educators and providers of information to put electronic information sites in the hands of the small manufacturer either through word of mouth, as a referral among business owners, or a business portal specific to small manufacturing. Small manufacturers believe in their uniqueness and want information that is easily found, user friendly and specific to their needs.

2. The high utilization of consultants for human resources is an area where education can be directed specific to the small manufacturer.
3. Coordination with the small manufacturers' customers as a resource of information on business trends will help provide the small manufacturing owner with the direction they need to take to meet customer expectations.
4. Seminars and workshops are the least utilized resource of information for small manufacturing owners. Providers of educational offerings should adapt to the venue that meets the consumer of education.

Future Research

1. Industry specific research on small business is needed to understand the small business owner and be able to direct information that will meet the needs specific of a specific industry. The study of small businesses without understanding the needs of each specific industry does not provide clarity of knowledge about the needs in an industry.
2. Knowing there are industry specific needs of small business owners, a study of a larger population of a specific industry, such as small manufacturing, will allow for generalization to the industry and will identify specific resources used by each industry.
3. A longitudinal study of a small manufacturer over a ten year period of time would identify how the resources of information change over time for the owner. The longitudinal study would clarify what changes in resources are used by the owner from the start up of the company to the resources used later.

4. With the use of personal contacts used more often among college prepared owners, a study that identifies how the personal contacts were identified whether from college or networking with other business managers would provide insight into the person networks of small manufacturing owners.
5. A study of the use of educational offerings among small manufacturing owners with the addition of web casts, video conferencing would indicate if educational institutions and providers of adult learning are meeting the needs of the small manufacturer.

The most important use of this data is to begin to have a better understanding of small businesses by industry. Each industry has specific challenges and opportunities, and attempting to look at all small businesses as essentially the same does not allow for the unique differences revealed in this study. The individual differences by industry must be understood in order to clarify what the resources are essential for each industry. The best way to reach small business owners is to understand what they use for information and to provide a mechanism to reach them through that resource.

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Appendix A

Date
Individual Name
Company
Address
City, State, Zip

Dear (owner):

Manufacturing business owners are being asked to participate in a study of information resources used in managing a manufacturing business. This research is being conducted as part of a doctoral dissertation in Adult and Continuing Education at Kansas State University, Manhattan, Kansas.

If you choose to participate, your involvement would take about an hour for an interview at your place of business. The interview would consist of answering questions about the resources of information you use in your business and the level of usefulness and importance those resources have to your business. A follow-up interview will be scheduled after the interview for you to review your information and make any changes or clarify any information you provide.

No personal harm is anticipated from participating in this study. All interviews are tape recorded and transcribed, but names are held in confidence. All data will be reported as grouped data and the researcher guarantees confidentiality of your response. If you do participate, you are free to withdraw your consent and to discontinue participation at any time. This study does not provide financial compensation to subjects.

I will be calling you in the next two weeks to see if you are interested in participating in this study. The interview will then be scheduled at the convenience of both you and the interviewer. If you decide to participate, please sign and date the consent attached. The consent will be collected at the initial interview.

If you have additional questions about your rights as a subject or the manner in which this research is being conducted, please contact my major professor, Dr. Frank Spikes in the College of Adult Education, Kansas State University, at 785-532-5873 or contact me at 316-516-2175 (cell).

Thank you for your consideration and willingness to expand the base of knowledge about small manufacturers in Kansas.

Sincerely,

Elaine Hanna

Appendix B Informed Consent for Participation in Kansas State University Research

Project Title: Information Resources Used by Small Manufacturers in Sedgwick County, Kansas

Principal Investigator: Dr. Frank Spikes, (785) 532-5873

Co-Investigator: Elaine W. Hanna, (316) 516-2175

Kansas Sate IRB Chair: Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 1 Fairchild Hall, Kansas State University, Manhattan, KS, 66506, (785) 532-3224.

Purpose of the Research: To identify the information resources used and their importance to small manufacturers in managing their businesses.

Procedures to be used: One-on-one interviews of small manufacturing owners to gain information on the kinds of information resources used, and the importance of the resources in managing the business. All interviews was tape-recorded. The interviewee was provided a copy of the interview to review. All participants was asked to volunteer demographic data.

Alternative procedures or treatments that might be advantageous to subject: None

Length of Study: One to two hours

Risks anticipated: None

Benefits anticipated: Information obtained could lead to better, more useful resources of information to manufacturing owners.

Extent of confidentiality: Interviews was held confidential. Only dates and initials will identify all participants. All information published was anonymous. No individual data was published.

Terms of Participation: I understand this project is research, and that my participation is completely voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty or loss of benefits, or academic standing to which I may otherwise be entitled.

I verify that my signature below indicates that I have read and understand this consent form, and willingly agree to participate in this study under the terms described, and that my signature acknowledges that I have received a signed and dated copy of this consent form.

I recognize that a signed and dated copy of the consent form will also be kept by the primary investigator for a period of time not shorter than three years.

Participant Name (Print): _____

Participate Signature: _____ Date: _____

Witness to Signature: (Project Staff) _____ Date: _____

Appendix C

Interview Guide

Each interview begins with an explanation of the research study, clarification of the purpose and intended use of the findings. The following questions are intended as a guide for each interview while the exact wording and order of question may be different. Additional questions may be asked to probe areas or clarify information given.

Demographics:

Age _____ Highest Education Attained _____

Gender: M F

Length of time in current business _____ Number of Employees ____

How did you get into the business:_____

Resources

There are a number of potential resources of business information. Please tell me what resources you have used during your business career.

Use the following list to prompt for resources if needed:

Informal:

- Media (including TV, newspapers, and magazines, specific ones?)
- The Internet (which sites?)
- Outside private sector consultants (specifics)
- Other business managers (similar business? Competitors? Customers?)
- Friends/ social networks
- Your suppliers (examples)
- Customers

Formal:

- Banks or other financial institutions
- Colleges/trade schools
- Seminars/conference/workshops
- Trade shows
- Library

Nonformal:

- Industry or trade associations (give me specifics)
- Local government (Chamber, etc.)
- Government (Tax, internet sites, business, etc. - specific resources)
- SBDC, SBA, MEP
- Others :(Business books/tapes, self-taught by trial and error; learned from another individual, etc)

Can you tell me how you decided to use the resources you use?

What resources do you use for information on:

a. Financial/accounting
b. Management (general managing of business, day to day operations, strategic planning, etc.)
c. Business trends (new techniques and/or equipment)
d. Marketing/ Sales
e. Human resources/ personnel
f. Benchmarking/competitive intelligence
g. Other

How have the resources you have used varied over the length of time you have been in business? What did you use early in your business and what do you use now?

Helpful

How do the resources you identified differ in their helpfulness to you? (refer to list they identified)

Tell me how helpful each of the resources you have used are to you.

Which is the most helpful to you in managing your business?

How well do your resources meet your needs?

Does most of the information you receive apply to your situation? Or did you have to adapt it to make sense for your business?

Planning:

Did you have a plan of how you were going to find the resources to use?
How did you begin?

How did you find the resources you use? Did you find your resources by yourself or did someone suggest using a resource?

How much time do you spend seeking information resources for your business?

How confident do you feel in knowing where to find the resources you need?

How often do you use the ones you have identified? Daily, weekly, monthly, annually, as needed?

Do you do business over the Internet? Sell? Purchase? Look for business? Communicating (email) with customers/suppliers? How often?

Appendix D

Participant Demographic Information Summary

Participant	Age	Education Attained	Gender	Time in Business	Number of Employees
BL	46-50	Undergraduate degree	Male	25	28
DG	51-55	Undergraduate degree	Male	19	32
DK	46-50	Undergraduate degree	Male	6	36
DR	40-45	Some College	Male	14	26
KS	56-60	Advanced degree	Male	28	80
MJ	51-55	Advanced degree	Male	18	47
MR	51-55	Some College	Male	10	51
RN	46-50	Undergraduate degree	Male	15	100
SS	51-55	Some College	Male	28	65
TS	40-45	Some College	Male	11	57