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Impact of Communication Technologies on Small Business Success

Jennifer Johnson Jorgensen^{1 a}, Virginia Solis Zuiker^{2 b}, Linda Manikowske^{3 c}, Melody LeHew^{4 d}¹ Department of Textiles, Merchandising & Fashion Design, University of Nebraska-Lincoln, ² University of Minnesota, ³ North Dakota State University, ⁴ Kansas State University

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Owners of small businesses may struggle to utilize online communication technologies effectively. To understand this challenge, this study investigated communication technology contributions, the use of online communication technologies, and how those perceptions relate to small business success. Data from a small business values survey (Marshall & Wyatt, 2019) was used consisting of 511 business owners. An integrated model using the Diffusion of Innovation and the Technology Acceptance Model served as a theoretical foundation. Relationships between variables were tested using multiple regression and confirmed that small business owners perceive that easy-to-use communication technologies are not useful or contribute to business success. However, communication technologies that are perceived to be useful do contribute to business success. Business owners who are younger, located in urban areas, and in business for a shorter time are also more likely to use communication technologies. This study supports current literature, as it was unclear how small business owners perceive communication technologies for use in their businesses.

Small business owners often feel as if the future of their business is bright. In a survey of small business owners in the U.S., a majority indicated that their business is better than it was one year ago and that it will continue to improve in the future (National Retail Federation, 2018). While their optimism is high, only one in three small businesses will survive over ten years (U.S. Small Business Administration Office of Advocacy, 2018). Business failure can be due to a variety of factors, but small businesses typically have limited resources which can contribute to failure.

A business limitation can include an owner's lack of ability to utilize information technology, which can contribute to small business failure (Turner & Endres, 2017). In today's marketplace, it is essential to use online communication technologies, such as e-mail, company websites, and social media (Kraus et al., 2019). In recent years, small businesses have grown to understand the importance of such technologies, but few know how to consistently manage them (Choi & Hutchinson, 2014). A 2019 survey by the National Small Business Association found that 34% of small business owners maintain the company website themselves (Torek & McCracken, 2019). Constant and consistent online updates are difficult to achieve due to barriers, including a lack of time to disseminate online content and limited

knowledge on using, tracking, and educating oneself on social media (Kraus et al., 2019; Son et al., 2019).

Lack of time continues to be a main barrier to small business success, as small business owners have varied and competing roles. Overall, small businesses identify a shortage of time as to why they do not post regularly on social media. In addition, their time constraints hinder their ability to create rich content for social media platforms (Kraus et al., 2019). Small business owners are looking for new and creative strategies to accomplish tasks within the limitations of finances and time constraints. The use of social media platforms for marketing, advertising, and recruitment of employees as well as communications with customers, is becoming a necessity for the survival of small businesses (Schaupp & Bélanger, 2014). Some businesses can hire social media managers, but people in this role also claim that it is difficult to find enough time, resources, and content to do the job (Wiltshire, 2019). Despite the possible opportunity to hire a social media manager, many small business owners create and disseminate social media content themselves (Kraus et al., 2019).

Another barrier to small business success includes a lack of knowledge on how to disseminate rich content that will engage consumers. It has been found that few business

a Corresponding author:

205 Human Sciences Building, P.O. Box 830802, Lincoln, NE 68583-0802, USA, jbjorgensen@unl.edu

b 290 McNeal Hall, 1985 Buford Ave, St. Paul, MN 55108, USA, vzuiker@umn.edu

c E. Morrow Lebbedeuff 360, P.O. Box 6050, Fargo, ND 58108-6050, USA, linda.manikowske@ndsu.edu

d Justin Hall 213, 1324 Lovers Lane, Manhattan, KS 66506-1405, USA, lehew@ksu.edu

owners know how to utilize available metrics to understand online consumer behavior. In addition, this lack of engagement with the target consumer may be because the small business has not adequately identified information about to whom they are selling products (Kraus et al., 2019). Despite the lack of resources, small business owners were still found to have positive attitudes toward social media use within their business (Son et al., 2019).

The adoption of technologies may enable small businesses to become more resilient (Gomes, 2015). Resiliency can be defined as the business's adaptive ability when disruptions occur (Kativhu et al., 2018). To achieve resilience and assess vulnerabilities in small businesses, it is essential to understand "the interrelationships and interdependencies between the business processes, information, and the supporting technologies within the enterprises" (Gomes, 2015, p. 527). Concerns and time constraints regarding technology, including cybersecurity (Kativhu et al., 2018), have also challenged small businesses. Due to the extensive changes that happen digitally, a business' competitive advantage can be fleeting (El Sawy & Pereira, 2013). The external push of the COVID-19 pandemic has encouraged small businesses to identify areas where technology could enhance their business (Akpan et al., 2020). This may provide a competitive advantage for the business (Allas et al., 2021) and offer alternatives for survival by changing their existing business models to incorporate cutting-edge technologies and a mechanism for the small business to grow (Akpan et al., 2020).

To further measure the impact that online communication technologies have on small business success, an infused model developed by Niehm et al. (2010) was adapted for this study. The infused model stems from the contributions of the Diffusion of Innovation Theory and the Technology Acceptance Model (TAM). Since the development of Niehm et al.'s model in 2010, technologies and the methods utilized by both consumers and small businesses have dramatically changed. Many small businesses are still unsure how to utilize online communication technologies, despite the growing use of these technologies among businesses and consumers (Kraus et al., 2019). To this end, there is limited literature on how communication technologies directly impact business success for small businesses. Thus, the purpose of this study is to use the infused model to determine the importance of online communication technologies on business success, including the impact of business longevity and owner demographics. Since businesses exist in a constantly changing world, small businesses that can proactively adapt are likely to be more resilient to changes over time and are more successful (Gomes, 2015).

Literature Review

The theoretical foundation of this study is based on Niehm et al.'s (2010) integrated model, which melded the Diffusion of Innovation and TAM theories. Both theories build on one another and present opportunities to investigate the use of technologies in businesses of various sizes (Niehm et al., 2010). First, the Diffusion of Innovation serves as the foundation of the integrated model, while the TAM supports how technology is used within the business.

Diffusion of Innovation

The Diffusion of Innovation posits the adoption of technology among specific markets over time. In particular, this theory identifies the rate of adoption, as well as how and why the market chooses to adopt the innovation (Rogers, 2017). The adoption rate can be influenced by relative advantage, compatibility, complexity, trialability, and visibility (Agag & El-Masry, 2016). This process can take time to disseminate across the market to users that find the innovation applicable (Rogers, 2017). The applicability of the innovation is of particular importance to businesses, as not all technologies would be of immediate benefit to the industry due primarily to increased costs and lack of training (Pantano et al., 2017). Thus, technology must be accepted for the innovation to be used in society.

Technology Acceptance Model

The TAM has been a widely supported model focusing on how people accept new technologies (Venkatesh, 2000). Two main variables, perceived ease of use and perceived usefulness, outline the core relationships sought within this model (Davis, 1989) and are also the primary focus of this study. Previous literature supports the continued use of TAM's main constructs of perceived ease of use and perceived usefulness, as the variables have adequately explained consumers' technology acceptance (Davis, 1989; Davis et al., 1992; Yang, 2012). Perceived usefulness has been found to have a strong relationship with behavioral intention across TAM-related studies (Davis, 1989; Lee et al., 2006). TAM has also been utilized to determine the acceptance of different technologies and diverse populations (Venkatesh, 2000). In this study, small businesses that use communication technologies were investigated.

The use of TAM to explain various communication technologies is also apparent. People have been drawn to websites based on the perceived ease of use and perceived usefulness of the site (Lederer et al., 2000). Regarding shopping online via computer or mobile phone, the use of retail websites was also impacted by the perceived ease of use and perceived usefulness of the site or app (Lee et al., 2006; Yang, 2012). Thus, this study utilized an integrated model created by Niehm et al. (2010) to highlight the complexities of using communication technologies in small businesses.

Integrated Model

Niehm et al. (2010) introduced an integrated model that highlighted components of TAM and the Diffusion of Innovation. The integrated model outlined both the use and acceptance of technology for small, family-owned businesses. Both models (TAM and Diffusion of Innovation) work together to explain a more holistic view of technology adoption (Niehm et al., 2010). The model has been further adapted for this study and is in [Figure 1](#).

This adapted model outlines how the use of technology can contribute to business success, and how owner demographics and business characteristics impact the use of technology.

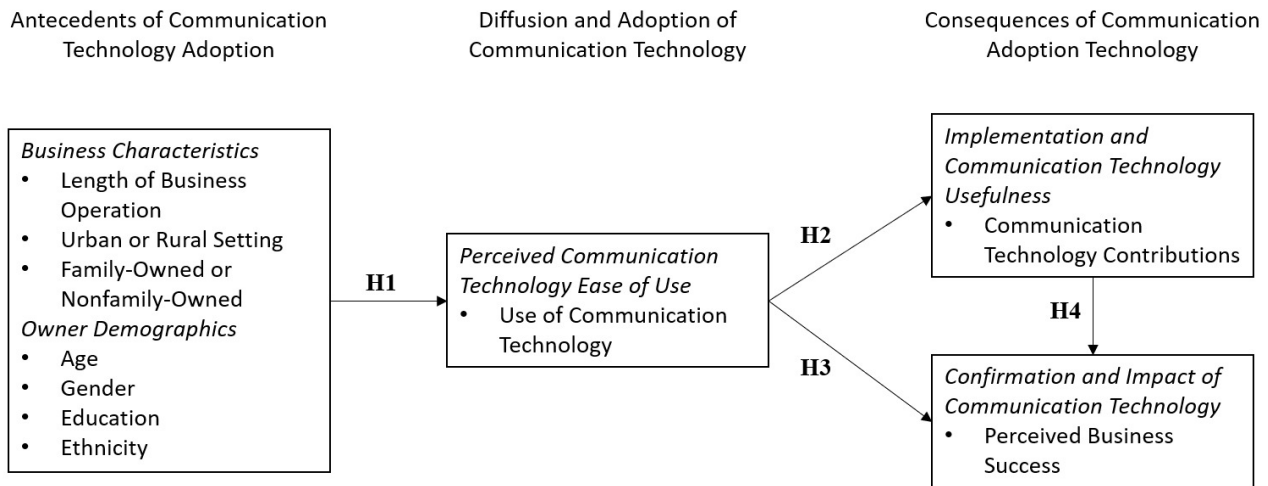


Figure 1. Integrated Model Utilizing TAM and the Diffusion of Innovation

Owner Demographics

The demographics of focus for this study include age, gender, education, and ethnicity. As found in previous literature, age can influence various business decisions. In particular, businesses with owners older than 55 years of age are more likely to survive than businesses with younger owners (Farrell et al., 2019). However, businesses with owners younger than 35 comprise over one-third of new business growth (Farrell et al., 2019), but these younger individuals are still less likely to own a business than older generations (U.S. Small Business Administration Office of Advocacy, 2018). While businesses with younger owners have a greater chance of decline, businesses with older owners are less dynamic and tend to refrain from hiring more employees (Farrell et al., 2019).

The demographic characteristics of business owners in the United States continue to shift. In 2012, 36.3% of all firms were female-owned (U.S. Small Business Administration Office of Advocacy, 2019b) as compared to approximately 30% in 2017 (Farrell et al., 2019). About one-third (29.3%) of U.S. firms were minority-owned in 2012. Of these minority-owned businesses, Hispanic-owned businesses represented 12%, Black or African American-owned were 9.5%, Asian-owned were 7.1%, followed by American Indian and Alaska Native (1.0%), and Native Hawaiian and Other Pacific Islander (0.2%) (U.S. Small Business Administration Office of Advocacy, 2019b). Approximately 41% of these business owners and operators had a four-year bachelor's degree, while about 30% had a two-year associate's degree or had taken some college classes (Bacon & Schneider, 2019).

Business Characteristics

Small businesses are woven into the fabric of American communities and their economies (Kobe & Schwinn, 2018). The U.S. Small Business Administration Office of Advocacy (2019b) defines small businesses as having fewer than 500 employees. In 2016, 30.7 million small businesses were in existence, comprising 99.9% of all U.S. businesses. Busi-

nesses having no employees comprised 81% of these businesses, while 19% had paid employees (U.S. Small Business Administration Office of Advocacy, 2019b). These businesses employed 59.9 million employees, which is 47.3% of the private workforce (U.S. Small Business Administration Office of Advocacy, 2019a). However, in rural areas, there has been a decline in those who are self-employed when compared to urban areas (Wilmoth, 2017).

From 2000 to 2018, small businesses accounted for 64.9% of net new job creation (U.S. Small Business Administration Office of Advocacy, 2019b). In 2014, small firms generated \$5.9 trillion of the United States' \$13.6 trillion private non-farm U.S. economy (Kobe & Schwinn, 2018). However, from 1998 to 2014, small businesses' share of the Gross Domestic Product (GDP) declined from 48% to 43.5%. This decline was attributed to the faster growth of large businesses' GDP (Kobe & Schwinn, 2018).

The one-year survival rate for new small businesses starting in 2017 to 2018 was 79.4%. This one-year survival rate was consistent with data from 2008 to 2018, which reported 78.1% (U.S. Small Business Administration Office of Advocacy, 2019b). The United States Small Business Administration Office of Advocacy (2019b) also stated that half of all businesses will survive five years or longer and that one-third of all businesses will survive at least ten years or more.

Family-owned businesses comprise 19.3% of firms, and businesses that are classified as home-based are about 50% of all firms (U.S. Small Business Administration Office of Advocacy, 2019b). Almost half of all small employers (48.9%) are legally organized as an S-corporation, whereas a majority of nonemployer businesses (86.6%) are legally organized as sole proprietorships (U.S. Small Business Administration Office of Advocacy, 2019b). Based on the literature on business and owner demographics, the following hypothesis was developed:

Hypothesis 1: There is a relationship between owner demographics and business characteristics, and the use of communication technologies.

Communication Technologies

Over the last thirty years, the business environment has seen significant technological changes. Information technology, including the use of the internet, has become a powerful tool that enables small firms to compete with larger firms. Electronic commerce (e-commerce) is defined as “the process of buying, selling, transferring, or exchanging products, services, and/or information via computer networks, including the Internet” (Turban et al., 2008, p. 4). Many companies use email, the internet, and e-commerce in their business (Gunasekaran et al., 2011).

The use of e-commerce can enhance small business performance by improving efficiency and competitive position in the marketplace (Celuch et al., 2014). However, many small businesses prefer traditional ways of doing business and have a limited ability to implement e-commerce practices, both of which are barriers to their adoption of e-commerce (MacGregor & Vrazalic, 2006). Small firms need to recognize that many of the competitive strategies needed to survive in today’s business environment require technology support (Swiercze et al., 2005).

The increasing number of consumers using internet technology creates opportunities for businesses to use websites and social media to reach more people (Jung et al., 2013). Small businesses can use online social networks to observe consumer trends and needs that will benefit marketing efforts (Chung & Buhalis, 2008). The use of technology is essential to small businesses that might lack the resources to market their products in other ways. Using technology also provides opportunities for small businesses to reach out to customers in a cost-effective manner (Barnes et al., 2012).

Social Media

In the small business environment, social media plays a key role in the future of marketing, increasing customers’ engagement and brand awareness. It has become an online platform for businesses to manage customer relationships and market products and services (He et al., 2017). Grewel and Levy (2013) define social media as “content distributed through social interactions” (p. 82). Social media allows businesses to communicate with and learn from their customers in new ways, making it an important marketing tool. Marketers can distribute information to many customers at the same time and build effective social relationships with social media users (Boyd & Ellison, 2007; Hudson et al., 2015).

Social media adoption by small businesses varies considerably from that of large firms. Today as more small businesses incorporate social media into their marketing mix, the attention on social media adoption and its effectiveness is increasing (Fang et al., 2013; He & Chen, 2014). Small businesses are feeling pressured to use social media because of its perceived usefulness to the business (Kwon et al., 2021). Just as large retailers are struggling to survive in today’s market, we find that numbers of small, independent retailers are rising.

Having a social media presence has several benefits to a small business. Social media is used by small businesses to

build trust and brand recognition and has a direct impact on consumer attitudes and decision-making. It is used to engage customers and break through the clutter of digital marketing (Block, 2011). Ainin et al. (2015) reported that Facebook usage by small businesses has a positive influence on financial performance and non-financial performance, such as improved customer relations and marketing cost reduction. Jones et al. (2015) found the benefits of using social media and websites included an increase in awareness and inquiries of the business, an increase in the number of new customers, and improved relationships with customers on a global scale. Similarly, Son and Niehm (2021) found that the use of social media among small businesses helps to attract new customers, build loyalty, and develop mutually beneficial relationships with stakeholders. However, it is important to note that small businesses lack the knowledge of policies, metrics, and time to utilize social media effectively (Son & Niehm, 2021).

A study by Parveen et al. (2016) found that social media usage has a strong positive impact on a business’s performance, including cost reduction, improved customer relations, and enhanced information accessibility. A study by Peltier and Naidu (2012) indicated that social networks for small businesses change as firms move beyond the startup phase. Personal networks were most important at the beginning, and other social networks grew in importance over time. Overall, technologies that are easier to use tend to be more useful to the organization (Venkatesh, 2000). Based on previous literature, the following hypothesis was developed:

Hypothesis 2: Use of communication technologies will positively impact communication technologies’ contributions.

The acceptance of technology within an organization typically encompasses two main components—perceived usefulness and perceived ease of use (Venkatesh, 2000). Perceived usefulness and perceived ease of use of technology have been found to impact the intention to use that technology (Bagozzi, 2007). When using online technologies, perceived usefulness tends to have a more significant impact on the intention to use the technology than perceived ease of use (Lederer et al., 2000). For company use of digital marketing technologies, ease of use and perceived usefulness were found to significantly impact the intention and actual use of the technology (Ritz et al., 2019). Based on this literature, the following hypothesis was developed:

Hypothesis 3: Use of communication technologies will have a positive impact on perceived business success.

Perceived Business Success

A common theme emerges when attempting to define business success. It has been found to be difficult to define success (Beaver, 2003; Simpson et al., 2004) due to small firms not being a “homogenous entity” (Beaver, 2003, p. 115). Beaver (2003) also stated that categorizing small firms as being the same was not good practice, nor was it helpful, since each firm was different, and each brought its own agendas, issues, and qualities to the mix which added to its complexity. Simpson et al. (2004) further expanded on

the fact that there were both internal and external factors that impacted small firms' perceptions of business success, including: "industry structure and competition, entrepreneurial decisions, employee relations, entrepreneurial objectives, organizational culture, education, training, and prior experience and various subcategories within these areas" (p. 481).

Walker and Brown's (2004) study found that small business owners measured their business success based on both financial and non-financial factors, such as "personal satisfaction, independence and flexibility" (p. 588). They further stated that for the 290 small business owners they studied, the non-financial lifestyle factors were often more important. Gyimah and Lussier (2021) examined business success in rural emerging markets. Their study found that entrepreneurs who had adequate capital, industry experience, quality staffing, and who possessed marketing skills before starting their business were more likely to be successful.

For many small business owners, "success can be measured in their capacity to sustain a lifestyle business that has been established to provide a measure of independence with an acceptable income at a 'comfort-level' of activity" (Beaver, 2003, p. 115). Thus, one might interpret this to mean that many small firm owners considered their businesses as a lifestyle choice. For the entrepreneurial business, their perception of success may be different due to their agenda, which could include "...business growth, attention to cost reduction and maximizing profitability, increasing sales revenue and market share, management development, innovation in the product-service mix and so on" (Beaver, 2003, p. 116). Based on extant literature on business success, the following hypothesis was developed:

Hypothesis 4: Communication technology contributions have a positive impact on perceived business success.

Methods

Study Design

The study design used a small business values survey (Marshall & Wiatt, 2019) for data on small firms in 2019. Respondents were business owners in the United States, located using a database owned by LightSpeed Research (now Kantar). To qualify to participate in the survey, respondents had to own their own business. The initial sample yielded 953 respondents; however, it was gradually drawn down as 43 businesses were uncooperative or abandoned participation. The cooperative sample size became 910 businesses; however, 35 were not eligible because they were not business owners, which left a sample of 875 qualified respondents. To enhance the quality of the collected data, two "attention check" questions were included in the survey. These questions determined whether respondents were paying attention to the questions and included a statement like "If you are paying attention, choose 'slightly' for your response here." The first attention check question dropped 312 respondents, and the second question dropped 52 respondents. The final sample consisted of 511 complete surveys to use for this analysis (Marshall & Wiatt, 2019).

The 20-minute online survey was built in Qualtrics and sent to business owners through Kantar (Marshall & Wiatt,

2019). The full launch of the survey took place in April of 2019. The survey closed six days later when defined quotas were met (35% female and 20% minority). A response rate of 58.40% is based on the number of completed surveys divided by the total number of people who started the survey, minus the number of uncooperative/abandoned and ineligible cases. Therefore, a total of 511 small business owners' responses to the survey were utilized in this study. Business owners were paid for completing the survey, however, the amount they were paid is unknown due to LightSpeed's proprietary database (Marshall & Wiatt, 2019).

Variable Measures

The online survey consisted of quantitative questions to better understand the success of small businesses and the characteristics that make small businesses more successful. These questions covered the following topics: business and owner demographics, copreneurial activity, technology and social media, socioemotional wealth, family and business functioning, adjustment strategies, work/family balance, disaster and crisis events, and exit strategies and financial information (Marshall & Wiatt, 2019). This survey possesses content, construct, and face validity due to the survey items' usage in studies from a previous dataset (Niehm et al., 2016).

For this study, we utilized survey questions that pertained to technology and social media usage along with business characteristics and owner demographics. [Table 1](#) displays the variables used in the analyses and their definitions as presented to respondents. Overall, communication technologies for this study include survey items on social media, use of the internet for business purposes, and other online-related communications.

Hypothesis Testing

In our analysis, each of the four hypotheses employed a different dependent variable. Hypothesis 1's dependent variable was *use of communication technologies*, and owner demographics and business characteristics served as the independent variables. Hypothesis 2 tested the relationship between the use of communication technologies on the dependent variable of *communication technology contributions*. For Hypotheses 3 and 4, the dependent variable was *perceived business success*, while the independent variables were *use of communication technologies* and *communication technology contributions*, respectively. Below details how each were operationalized.

Use of communication technologies included a summation of two survey questions. One question asked: "To what extent is building/maintaining your company's online presence a problem?" and was measured as a continuous variable. The second question asked: "What types of social media does your business use?" and business owners had six options to choose from. *Communication technology contributions* included a summation of two survey questions. Business owners were asked "To what extent is your company's online activity important to the success of your business?" In addition, a second survey question asked "To what extent is your company's use of social media important to the success of your business?" *Perceived business success* was

Table 1. Definitions of Variables

Variables and Survey Items	Definition
<i>Use of Communication Technologies</i>	
To what extent is building/maintaining your company's online presence a problem?	1= N/A-Don't do anything online 2= Not a problem at all 3= Somewhat of a problem 4= Major problem
What types of social media does your business use?	1=N/A – Do not use social media 2= Facebook 3= Instagram 4= Twitter 5= Pinterest 6= Other social media
<i>Communication Technology Contributions</i>	
To what extent is your company's online activity important to the success of your business?	1= N/A-No online activities 2= Not at all important 3= Little importance 4= Average importance 5= Very important 6= Absolutely essential
To what extent is your company's use of social media important to the success of your business?	1= Not at all important 2= Little importance 3= Average importance 4= Very important 5= Absolutely essential
<i>Perceived Business Success</i>	
How successful do you consider your business?	1= Very unsuccessful 2= Somewhat unsuccessful 3= Neither successful or unsuccessful 4= Somewhat successful 5= Very successful
<i>Business Characteristics</i>	
Length of Business Operation	Range from 0 to 83 years (continuous)
Rural or Urban	1= Rural 2= Urban
Family-owned or Nonfamily-owned	1= Nonfamily-owned 2= Family-owned
<i>Owner Demographics</i>	
Age	Owner age in 2019 (continuous)
Gender	1= Male 2= Female
Education Level	1= Never attended school or only attended kindergarten 2= Elementary school 3= Some high school 4= High school graduate 5= Some college or technical school 6= Four-year college graduate 7= Graduate degree
Ethnicity	1= Asian 2= Black or African American 3= Native Hawaiian or Pacific Islander 4= American Indian or Alaskan Native 5= White 6= Biracial 7= Hispanic or Latino

a single survey question. Business owners were asked to respond to “How successful do you consider your business?”

Most of the *business characteristics* and *owner demographics* survey items were classified as categorical, excluding two survey items (age, length of business operation) which were classified as continuous. Variables forming *business*

characteristics included the length of business operation, rural or urban, and family-owned or nonfamily-owned. *Business owner demographics* variables included age, gender, education-level, and race and ethnicity.

Data Analysis

To determine *perceived business success*, the hypotheses were tested based on the relationships identified in [Figure 1](#) using multiple regression analysis in SPSS. Hypotheses 1 measured the *owner's demographics* and *business characteristics*. The owner's demographics included age, gender, education, and ethnicity. The *business characteristics* included the length of business operation, if the business was in an urban or rural setting, and if the business was family-owned or nonfamily-owned. Relationships between these variables were determined using multiple regression analysis. Hypotheses 2, 3, and 4 measured relationships between the *use of communication technologies* and the *communication technology contributions*, and the outcome behavior of *perceived business success* using multiple regression analyses. Multicollinearity was not found in this study, and a correlation matrix is available in [Table 2](#).

Profile of Small Business Owners and Their Operations

More than half of the business owners in this study were between the ages of 31 and 50 years old (53.9%) with a mean age of 43.5 years and 53.0% self-identified as female business owners (See [Table 3](#)). A majority of the business owners self-identified as White (76.1%) followed by Black or African American (15.9%), Hispanic or Latino (13.5%), Asian (3.7%), Biracial (2.7%), American Indian or Alaska Native (0.7%), and Native Hawaiian or Pacific Islander

(0.4%). Over half of these business owners had a college degree (55.5%) and over one-fourth had some college (28.4%).

A majority of the businesses in this sample were non-family businesses (60.3%), while the remaining identified as family businesses (39.7%). Business types in this study were varied, including manufacturing, retail, health care, agriculture, mining, construction, education, entertainment, food services, and professional services.

The longevity of these businesses ranged from less than five years to over 41 years. One-fourth of these businesses had been in operation for less than five years (25.2%), 23.9% of the businesses had been in existence for 6 to 10 years, followed by 11 to 20 years (29.9%) with a mean of 13.3 years. Over half of these businesses (55.2%) were in cities with populations over 10,001 residents.

Overall, 317 (74.2%) of 427 completed responses felt that the internet had extremely or very much affected their business, and 412 (80.7%) felt that it had an extremely positive or somewhat positive impact. Approximately 64% of the overall sample also felt that online activities were absolutely essential or very important for the business's success. A majority of business owners (66.5%) also felt that building or maintaining their business's online presence was not a problem.

Over 18% of the sample indicated that they don't use social media in their business. However, Facebook (71.6%), Instagram (49.7%), and Twitter (40.3%) were also used by the respondents in this sample. Other social media sites were also mentioned, including Pinterest (22.1%), LinkedIn (2.3%), YouTube (0.9%), and Snapchat (0.9%).

Table 2. Correlation Matrix Between Variables

Variables	1	2	3	4a	4b	4c	4d	5a	5b	5c
1. <i>Perceived Business Success</i>	1.000									
2. <i>Communication Technology Contributions</i>	.278	1.000								
3. <i>Use of Communication Technology</i>	-.094	.135	1.000							
4. <i>Owner Demographics</i>										
a. Age	.174	.245	.105	1.000						
b. Gender	.144	.136	.053	.037	1.000					
c. Education	.245	.112	.180	.084	-.073	1.000				
d. Ethnicity	-.083	-.099	-.048	-.198	.058	-.079	1.000			
5. <i>Business Characteristics</i>										
a. Length	-.063	.207	.194	.345	.120	.058	-.081	1.000		
b. Urban or Rural	.114	.104	-.008	-.076	-.086	.172	-.123	.147	1.000	
c. Family-Owned or Nonfamily-Owned	-.040	.067	-.227	.009	-.029	-.157	-.005	-.208	-.148	1.000

Note. N=502

Table 3. Demographic Characteristics of the Sample

	Frequency	Percentage of Sample
Owner Demographics		
<i>Gender</i>		
Male	239	46.8%
Female	271	53.0%
<i>Ethnicity</i>		
White	389	76.1%
Black or African American	81	15.9%
Hispanic or Latino	69	13.5%
Asian	19	3.7%
Biracial	14	2.7%
American Indian or Alaska Native	4	0.7%
Native Hawaiian or Pacific Islander	2	0.4%
<i>Age</i>		
< 30	87	17.3%
31-40	164	32.6%
41-50	107	21.3%
51-60	68	13.5%
61-70	54	10.7%
71+	23	4.6%
<i>Education</i>		
Did Not Complete High School	13	2.6%
High School	68	13.3%
Some College	145	28.4%
College Degree	284	55.5%
Business Characteristics		
<i>Familial Aspect of Business</i>		
Family Business	203	39.7%
Non-Family Business	308	60.3%
<i>Business Type</i>		
Agriculture, Forestry, Natural Resources	20	3.9%
Mining, Oil and Gas Extraction	5	1.0%
Construction	70	13.7%
Manufacturing	22	4.3%
Wholesale Trade Retail	16	3.1%
Trade Professional Services	71	13.9%
Education	78	15.3%
Health Care	16	3.1%
Entertainment	26	5.1%
Food Services	25	4.9%
Other	160	31.3%
<i>Business Longevity</i>		
Less than five years	129	25.2%
6-10 years	122	23.9%
11-20 years	153	29.9%
21-30 years	58	11.4%
31-40 years	29	5.7%
41 + years	20	3.9%
<i>Location</i>		

	Frequency	Percentage of Sample
Rural (less than 2,5000)	96	18.8%
Town (2,5001-10,000)	87	17.0%
City (10,001+)	328	55.2%
<i>Role of Technology</i>		
Internet has extremely impacted business	317	74.2%
Internet has had a positive impact on business	412	80.7%
Online activities important for business success	327	64.0%
Maintaining online presence is not a problem	340	66.5%
<i>Social Media Used</i>		
Facebook	367	71.6%
Instagram	250	49.7%
Twitter	201	40.3%
Pinterest	109	22.1%
LinkedIn	11	2.3%
YouTube	6	0.9%
Snapchat	6	0.9%

Note. N=511; Respondents were able to select all ethnicities with which they identify, leading to a total percentage that is higher than 100%.

Table 4. Hypothesis 1 Regression Statistics

Model	B	Std. Error	Beta	t	Sig.
(Constant)	-13.606	2.183		-6.233	
Family Business	.034	.024	.062	1.431	.153
Length of Business	.003	.001	.121	2.647	.008*
Location of Business	.015	.007	.098	2.244	.025*
Age	.005	.001	.259	5.655	.000*
Gender	-.030	.023	-.056	-1.295	.196
Education	.012	.011	.047	1.076	.282
Ethnicity	-.008	.009	-.041	-.951	.342

Note. * $p < .05$, Dependent Variable: Use of Communication Technologies

Results

Hypothesis 1 investigated the relationship between the independent variables of *business characteristics* and *owner demographics* with the dependent variable of *use of communication technologies* ($R^2=.132$, $F(7,494)=10.768$, $p<0.001$). Using a regression analysis, results for Hypothesis 1 indicate that small businesses that have been around for a shorter period of time ($\beta=.121$, $p<0.01$), located in urban areas ($\beta=.098$, $p<0.05$), and owned or managed by people younger in age ($\beta=.259$, $p<0.01$) are more likely to use communication technologies. The regression statistics for Hypothesis 1 can be found in [Table 4](#).

Hypothesis 2 examined the relationship between the *use of communication technologies* and the *communication technology contributions* ($R^2=.013$, $F(1,416)=5.287$, $p<0.05$). Results of the regression analysis showed that the use of communication technologies negatively impacts the usefulness of the technology ($\beta=-.112$, $p<0.05$). Thus, business owners who believed the communication technologies were easy to

use didn't find the technology useful. The regression statistics for Hypothesis 2 can be found in [Table 5](#).

Hypothesis 3 tested the relationship between the *use of communication technologies* and *perceived business success* ($R^2=.001$, $F(1,509)=.470$, $p>0.05$). Results of the regression analysis indicated that the use of communication technologies ($\beta=.030$, $p>0.05$) does not relate to perceived business success. Therefore, this result indicates that owners of small businesses don't believe that the use of communication technologies impacts their overall business success. The regression statistics for Hypothesis 3 can be found in [Table 6](#).

Hypothesis 4 investigated the relationship between *communication technology contributions* and *perceived business success* ($R^2=.065$, $F(1,416)=29.155$, $p<0.001$). The regression analysis suggested that the communication technology contributions impacted perceived business success ($\beta=.256$, $p<0.01$). Thus, the more owners found the communication technologies useful, the higher the perceived level of business success. The regression statistics for Hypothesis 4 can be found in [Table 7](#).

Table 5. Hypothesis 2 Regression Statistics

Model	B	Std. Error	Beta	t	Sig.
(Constant)	7.688	1.231		6.247	.000
Use of Communication Technologies	-1.422	.618	-.112	-2.299	.022*

Note. *p<.05, Dependent Variable: Communication Technology Contributions

Table 6. Hypothesis 3 Regression Statistics

Model	B	Std. Error	Beta	t	Sig.
(Constant)	3.510	.362		9.695	.000
Communication Technology Contributions	.131	.191	.030	.685	.493

Note. *p<.05, Dependent Variable: Perceived Business Success

Table 7. Hypothesis 4 Regression Statistics

Model	B	Std. Error	Beta	t	Sig.
(Constant)	2.181	.301		7.246	.000
Communication Technology Contributions	.329	.061	.256	5.400	.000*

Note. *p<.05, Dependent Variable: Perceived Business Success

The results of this study highlight the importance that communication technology plays in small business operations. The technologies that are found to be useful for owners are recognized as contributing the most to perceived business success. However, the simple use of communication technologies was not deemed by owners to be directly linked to the success of the business.

Discussion

Resiliency among small businesses is needed to survive changes in consumer behavior, community shifts, and global disasters. To be resilient, businesses must be responsive to change, adaptable, and competitive. Businesses must also be sustainable and engage in ways to ensure succession planning and engagement with global markets. One of the ways to succeed globally includes the effective use of communication technologies (Gunasekaran et al., 2011).

Small businesses that have been around for a shorter period of time, located in urban areas and owned by younger people, were found to be more likely to use communication technologies. Many technologies are not adopted due to a lack of support from management and a lack of funding to pay for the new technology. Some people are also concerned that the new technology will not work and do not want to take the risk (Gunasekaran et al., 2012). Overall, the use of online communication technologies has been found to create more opportunities for small businesses (Jung et al., 2013).

While communication technologies may be easy to use, our respondents did not find the technology to contribute to their business. In a past study, many small business owners indicated that they did not know how to use the metrics collected by social media and online platforms (Kraus et al., 2019), which may be why such technologies are not valued.

However, previous research indicates that online communication technologies allow businesses to reach more consumers (Barnes et al., 2012). Social media, in particular, allows small businesses to observe consumer trends, behavior, and preferences (Chung & Buhalis, 2008; He et al., 2017).

Small business owners in this study indicated that they didn't feel as if the use of communication technologies impacted their overall business success. This result contradicts previous research that suggests that small business owners had positive attitudes toward social media use in their business (Son et al., 2019). It has also been found that effective generation and dissemination of rich content online stimulates consumers to engage with the business (Kraus et al., 2019).

Word-of-mouth has been found to be an effective method in complex business situations, but it doesn't necessarily determine business success (Mason, 2008). However, some small businesses may not deem online communication technologies to be necessary due to their strong word-of-mouth within the community. As found in previous literature, traditional methods of doing business and a lack of knowledge of online technologies may prevent business owners from engaging with such technologies (MacGregor & Vrazalic, 2006). However, small business owners should acknowledge that marketing on social media can help build or strengthen relationships with prospective or current customers (Boyd & Ellison, 2007; Hudson et al., 2015). It has been found that personal social networks are more critical for new startup businesses, but an increase in social network ties is needed over time (Peltier & Naidu, 2012).

When online communication technologies were found to be useful to the business, however, the owners believed that the use of such technologies impacted business success. This result aligns with previous literature, which found that

online technologies enhance the efficiency and competitiveness of a small business (Celuch et al., 2014). In particular, social media has been found to have a positive impact on financial and non-financial performance (Ainin et al., 2015; Jones et al., 2015), and has also been found to help small businesses build loyalty and attract new customers (Son & Niehm, 2021). Overall, small retailers that have received external pressure to use social media paired with an internal culture of openness have been found to increase social media usage intention (Kwon et al., 2021).

Implications

This study determined that the use of communication technologies is tied to communication technology contributions over other considerations. Thus, the results of this study can inform business owners and managers to assist in managing their business' time and resources. Determining technology usage within the business and eliminating extraneous technology expenses will help to utilize resources more effectively. Similarly, extension educators and community leaders may find the information helpful in teaching and supporting new and existing business owners in creating efficiencies within businesses.

Additionally, during the writing of this paper, the COVID-19 pandemic was impacting the operations of small businesses throughout the world. This reveals the need for small businesses to adapt and be resilient so that when disruptions happen, some aspects of the business can be sustained. For many retailers during this time, online communication technologies were vital to the survival of the business. Dua et al. (2020) speculate that many small businesses will have to make changes to survive and some of the changes they suggested include “. . . protecting the health and safety of employees and customers, adapting business models, investing in talent and technology, and adjusting staffing models and labor practices” (p. 3). These small businesses will need to ascertain new ways to recover and survive, which might include new business models and technology solutions along with finding the resources to incorporate these necessary changes to “. . . restore demand, and improve small businesses' capability and resilience” (Dua et al., 2020, p. 8).

Limitations

There are a few limitations of this study that must be highlighted. First, respondents in this study defined business success on their own terms, which may not be consistent across all business owners surveyed. In addition, respondents classified themselves as to whether their businesses were deemed to be a small business. Business success can also be defined differently, with either financial, emotional, or functional meanings. However, as Beaver et al. (2003) point out, it is hazardous to strictly define success. We must also highlight that sample selection bias may be present, as some business owners are more comfortable with technologies and selected to participate in this study since the survey was disseminated online. Thus, business owners that may have limited technology access or skills

may not have selected to participate in this study. Data for this study was also collected before the COVID-19 pandemic, and it is important to note that the use of communication technologies and perceived business success may have changed due to the shift in consumer behavior, store operating hours, lack of customer foot traffic, and supply chain challenges.

Future Research

Due to the COVID-19 pandemic, former strategies for business success may not continue to be beneficial for small businesses. Thus, this research study serves as a foundation for future inquiry into the topic of technology's role in small business success. Spurred by our results, additional questions regarding the antecedent variables of entrepreneur age and business longevity emerged, as owners and their businesses may be in adapting mode or maintenance mode when thinking about new technologies. After this study concluded, an additional forward multiple regression analysis was run to determine the relationships between antecedent variables and perceived usefulness and perceived ease of use. The results further highlighted how communication technology contributions play a large role in business success over other variables. As the pandemic subsides, further investigation into the relationship between antecedent variables and *communication technology contributions* and *use of communication technologies* would further support knowledge on this topic.

Conclusion

Our overall aim of the study was to determine the importance of online communication technologies on business success. Mixed results showed that on the one hand, small business owners did not feel that the use of online communication technologies had an impact on their overall business success. On the other hand, when online communication technologies were useful to the business, the use of these technologies impacted their business success. Future research is necessary on this topic, as it would be interesting to know if these small business owners would feel that using online communication technologies would be essential to keep in communication with their customer base during a disruption such as the COVID-19 pandemic. It would also be interesting to know how these small businesses have had to adjust to this “new normal” when operating their small business during these times.

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