ABSTRACT

MIDDLETON, KAREN ALAINE. Using Behavioral Economics to Evaluate Perceptions between Modern Textile Manufacturers and American Workers, aged 20-35. (Under the direction of Dr. Helmut Hergeth).

Negative public perception of the textile manufacturing industry, stemming from a complex historical relationship with the American labor force, has left modern textile manufacturers struggling to recruit and retain the younger workforce, aged 20-35. The textile industry today is experiencing an occupational shift from low skill, traditional production jobs toward high skill, professional or managerial occupations (Saki, 2016, p. 2). However, even as the industry shifts in the United States from low skill to high skill occupations, negative stereotypes and perceptions of the industry persist in the public conscious.

The goals of this study are twofold: a) to establish a base understanding of the contributing historical factors to modern negative public perceptions of textile manufacturing, and b) to encourage textile manufacturers to explore the use of behavioral science techniques to engage in changing public perception from negative to positive. To begin understanding current perceptions by both textile manufacturers and workers, aged 20-35, an exploratory, mixed-method study was designed. Results indicate that the inherent biases of both workers, aged 20-35, and textile manufacturers are contributing to public misperception and subsequent struggles of modern textile manufacturing to retain a younger workforce.
Using Behavioral Economics to Evaluate Perceptions between Modern Textile Manufacturers and American Workers, aged 20-35

by
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DEDICATION

This paper is dedicated to my incredible family and amazing friends. Without all of you, I do not know how I would have made it. Thank you for your encouragement during this process.
BIOGRAPHY

Karen Alaine Middleton originally hails from Maryland’s Eastern Shore. She was born to Kevin and Carol Middleton in 1990. An avid observer of human behavior, she graduated from high school in 2008 and, after completing one year of college, enlisted in the US Army Reserves as a Human Intelligence Collector in 2009.

Trained as an interrogator, she served six years in the US Army Reserve with one combat deployment to Afghanistan in 2014. Karen completed her Bachelors of Art in Anthropology from the University of Maryland, College Park, in 2012. After receiving her undergraduate degree, Karen worked as a contract intelligence analyst for the Federal Bureau of Investigation until 2014, when Sergeant Middleton was deployed to Afghanistan. Upon her return to the United States, she moved North Carolina to pursue her Masters of Science in Textiles. Karen recently accepted a position with the Smithsonian Institution as a social science researcher. Her research interests currently include applied behavioral science, consumer experience, organizational research, generational studies, and socio-technical relationships.

She is happily married and spends most of her time laughing with her husband, cuddling with her couch potato of a dog, Titus, and serving her fuzzy overlord of a cat, Lucius.
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CHAPTER 1

Introduction and Historical Basis

1.1 Introduction

Negative public perception of the textile manufacturing industry, stemming from a complex historical relationship with the American labor force, has left modern textile manufacturers struggling to recruit and retain the younger workforce, aged 20-35. The textile industry today is experiencing an occupational shift from low skill, traditional production jobs toward high skill, professional or managerial occupations (Saki, 2016, p. 2). However, even as the industry shifts in the United States from low skill to high skill occupations, negative stereotypes and perceptions of the industry persist in the public conscious.

1.2 Research Aim and Objectives

Both the absence of knowledge about textile manufacturing and negative word associations are included in the use of the term “negative” in this study. The goals of this study are twofold: a) to establish a base understanding of the contributing historical factors to modern negative public perceptions of textile manufacturing, and b) to encourage textile manufacturers to explore the use of behavioral science techniques to engage in changing public perception from negative to positive. It is only through a change in thinking by academia and industry personnel, who make a concerted effort to rebrand their industry to appeal to the modern worker, that the cultural perception of manufacturing will also begin to shift from that of an unattractive, unstable, dying industry to an attractive, modern, innovative, and exciting industry.
To achieve the goals of this research, the following research aims and hypotheses were developed:

**Research Aim 1:** To establish a baseline for exploring where negative American public perceptions of textile manufacturing stem from.

**Research Aim 2:** To identify where negative public perceptions of textile manufacturing can be modified or changed using behavioral science techniques.

**Hypothesis 1:** Workers, aged 20-35, have either a negative view of textile manufacturing or no knowledge about textile manufacturing.

**Hypothesis 2:** Offshoring in modern history is the main driver of negative public perceptions today.

**Hypothesis 3:** The textile manufacturing industry mainly relies on outdated recruitment and retention techniques to attract young workers, aged 20-35.

While a thorough literature search was conducted on the use of behavioral science in manufacturing, very little research on this topic has been conducted thus far. This indicates a need for academic discourse. Through casual conversation and attendance of industry meetings and conferences, it was observed that textile manufacturers are debating, discussing, and asking for academic assistance regarding their ongoing struggle with recruiting and retain the younger workforce, aged 20-35, to replace the current aging workforce.

**1.3 Historical Introduction**

The tumultuous history between textile manufacturers and American workers provide ample context for addressing Research Aim 1, in establishing a baseline of where negative
perceptions of the industry stem from and which still pervade American workers’ psyche today, leaving modern textile manufacturers struggling to maintain their industrial worker base. “Our experience of the present very largely depends upon our knowledge of the past” (Connerton, 1989, p. 2). Historical recollection provides ample context and can illuminate possible anchoring points in worker consciousness which have contributed to the negative social perceptions of US textile manufacturing today. People tend enact their identities by drawing on a shared realm of values and meanings particular to their culture. These cultures are historically dependent on experienced, enduring values and meanings, inherent in the way people do things, as well as how people interact with each other (Silverstein, 2004, p. 621-622). History can provide a broad overview of the macro-forces which have established and influenced textile industry norms, as well as American work culture, today.

1.4 Building the Textile Industry in North Carolina, 1880-1919

The characteristics of the historical relationship between North Carolina’s textile manufacturers and the American worker - widespread poverty, low wage, labor-intensive production, as well as slowed social and technological development - result from a paternalistic and exploitative economic system (Wood, 1986, p. 3). Due to North Carolina’s history as a powerhouse in the textile industry, it makes the most sense to begin examining this complex historical relationship when the textile industry began to really take root in the South during the 1880-1890 depression.

Prior to this decade, cotton mill manufacturing had been viewed as a form of temporary relief by against fluctuations of food and commodity prices by struggling rural farmers (Glass, 1992, p. 30-31; Wood, 1986, p. 37). “Newspapers throughout the state,
especially in the piedmont, noisily and tirelessly exhorted the textile industry to fulfill its historical potential” (Glass, 1992, p. 31). By 1885, through a favorable publicity campaign involving newspapers, the pulpit, and politicians, textile manufacturing had become viewed as the driving force to rebuild North Carolina’s economy against Northern economic interests, which would lead to educational improvements, provide the basis of growth for towns and cities, and ensure the survival of the state’s agrarian sector through industrial diversification (Glass, 1992, p. 30-31; Wood, 1986, p. 39).

The people who worked in the mills were rural farm families who had fallen victim to the agrarian collapse between 1880 and 1890, and sought the basic security of cash wages, a company house, and the promise of education for their children (Glass, 1992, p. 45). However, without a steady supply of immigrants and the banning of black workers, early textile mills in the South became dependent on the family farm labor system. Wages from working in the mill barely covered basic living expenses, forcing children to take jobs in the mills, to help contribute to household income, often forgoing their education (Glass, 1992, p. 46-49).

Mill villages were built in rural, isolated areas in order to attract rural labor, avoid local property taxes and government jurisdiction, and to limit social interaction between the millworkers and the urban communities (Glass, 1992, p. 38; Wood, 1986, p. 39). Social isolation of the mill towns allowed textile manufacturing companies economic control of their labor force, challenging the promises of progress and upward social mobility made by the newspaper, preachers and politicians (Glass, 1992, p. 46). The building of mill towns ensured future political and social weakness of textile workers and allowed mill owners to
develop “a battery of devices” to disenfranchise textile workers and weaken unions in the future; to include evictions, lockouts, blacklists, strikebreakers, and racist economic fears (Wood, 1986, p. 58). The geographic isolation, functional illiteracy, and economic stagnation that came with working in the textile mill essentially ensured a family’s permanent placement within the labor class (Glass, 1992, p. 45).

1.5 The Rise and Fall of Unions in Southern Textile Manufacturing, 1920-1939

By the 1920’s, an entire generation of mill workers had grown up in mill towns, identifying very strongly with being working class, increased feelings of isolation and stagnation, and proved more likely to participate in labor disputes and strikes (Glass, 1992, p. 65). Post-World War I technological improvements and changes in labor management led to a decade of tension and violence in the textile manufacturing industry as manufacturers sought to increase production capacity and improve the quality of southern textile products (Glass, 1992, p. 58-59). To address intense competition, many textile manufacturers strategically reduced production costs by eliminating the number of workers needed and limiting the wages of the workers who remained. In addition, to increasing foreign competition, textile manufacturers also had to contend with changing labor systems, changing labor demographics, and the economic fallout of World War I (Salmond, 1995, p. 7; Wood, 1986, p. 66).

After World War I ended, textile manufacturers found themselves faced with overproduction, excess capacity, a massive labor surplus, and shrinking markets (Salmond, 1995, p. 8; Wood, 1986, p. 66). The “Better Equipment Campaign” incentivized manufacturers to improve textile technology to cut costs, utilize better equipment, and reduce
the number of human workers (Glass, 1992, p. 59). Workers were replaced by labor-saving machinery whenever possible and massive job reorganization led to changes in job classification. For example, previous wage work would be listed under piecework leading to subsequent wage reduction.

‘Stretch-outs’ were also introduced during this time. A ‘stretch-out’ is the intensification of production in which workers are required to operate and supervise more machines without corresponding wage increases (Wood, 1986, p. 67). A hard division of labor line, which had not really existed previously, was clearly drawn between management and workers during this time, as the industry suffered through economic instability and ever-increasing isolation of the mill workers. (Glass, 1992, p. 65). Consequently, wages failed to rise competitively with other industries during this time (Glass, 1992, p. 62).

New, more restrictive supervisory practices, the introduction of shift work, and wage stagnation against a massive labor surplus also allowed manufacturers to abandon mill villages. The abandonment of mill towns by textile manufacturers led to a steady deterioration in living standards, such as inadequate housing, an underdeveloped system of education, cheap and flimsy clothing, and increased occurrences of diseases, such as pellagra, resulting from a protein and vitamin deficient diet (Salmond, 1995, p. 8; Wood, 1986, p. 81).

The 1920’s also marked the beginning of major union activities and anti-union campaigns. The family labor system prior to World War I began to decline after the war. In combination with the total abolishment of child labor, the labor demographics post-war had also changed. More mill workers were adults living independently of families and an increasing percentage of mill workers during this time consisted of male veterans returning
from the war (Salmond, 1995, p. 7). From 1919 to 1920, mill workers increasingly joined the United Textile Workers’ Association (UTWA) to protect their income. Manufacturers, determined not to give into worker demands, organized anti-union campaigns distributing defaming messages that union organizers were trying to undercut and limit job expansion in the South and that organizers had misled and deserted southern union members (Wood, 1986, p. 71-73). In addition to the damming propaganda perpetuated by textile manufacturers, companies also utilized numerous intimidation and union-busting tactics against unionized workers. The most common tactics included firing union members, evictions, denial of company store credit, mobilization of police and state militias, the church, the press, and even the Klu Klux Klan (Wood, 1986, p. 92). Waves of strikes (most of which failed) racked the industry throughout the decade and were often accompanied by violence.

The Great Depression led to even more massive layoffs, wage cuts, and strikes. By 1931, most textile mills had either closed or operated only two or three days per week. Many of the smaller mills resorted to code “chiseling”, where maximum wages were equated to piecework productions, jobs were reclassified to avoid high wage categories, and ‘stretch outs’ were re-introduced to compensate for the decreased operational hours (Glass, 1992, p. 75; Wood, 1986, p. 90).

In 1934, the textile general strike, despite the organizational and size differences, followed the same pattern as the strikes of the 1920’s; 376,000 textile workers between July and September, from Alabama to North Carolina, walked out of the mills. Under no pressure to produce, mill owners simply closed their mills and waited for the strike to collapse. While waiting, mill owners imported labor spies and armed guards, engaged in coordinated efforts
to persuade local and state authorities to intervene on the millowners’ behalf, evicted workers from public housing and removed them from public relief, as well as intimidated strikers with local police and state militia (Wood, 1986, p. 91). The defeated workers returned to the mills, finding the work even more oppressive and harsher conditions implemented by mill owners.

The failure of such a massive strike combined with the numerous failure of the strikes of the 1920’s led to loss of faith in the unions and in government support (Glass, 1992, p. 75). “The pattern set by the cotton textile industry in the 1890s, 1920s, and 1930s - relocation of the most labor-intensive, technologically backward capital to escape high-wage labor market competition and to maximize opportunities for increasing the production surplus value - would be repeated on a number of occasions in the postwar period” (Wood, 1986, p. 93).

1.6 An Era of Consolidation, 1940-1959

While the late 1930’s saw the stirrings of corporate consolidation amongst textile manufacturers, the trend really took off during the 1940s, with the growth of corporate ownership, product diversification, emphasis on synthetics, steady improvements of technology and equipment, and changes in management practices (Glass, 1992, p. 82-83). Selling agents and industrial consumers of textile products began to acquire mills to control the supply of necessary textile products and textile mills began to expand production into finishing, selling, apparel, and distribution of textile-related products (Wood, 1986, p. 173). Additionally, the 1947 enactment of the Taft-Hartley Act gave states the power to enact right-to-work laws, effectively outlawing union security agreements (Wood, 1986, p. 201).
The rapid corporate consolidations during this period decisively altered the fractured and competitive landscape of mill ownership in North Carolina. Textile manufacturing was continuously ranked in the bottom 10 percent by every economic indicator, to include wages and value-added (Glass, 1992, p. 83). Most critically, public opinion and stigma against the industry had been ingrained in public perception by this time.

1.7 Integration and Health Improvement Policies, 1960-1979

The 1960’s saw another worker demographic change with government mandated integration and within a decade, nearly 20 percent of the textile manufacturing workforce in North Carolina were black (Glass, 1992, p. 94). Racial segregation and the use of racial fears to maintain a weak, divided workforce, and contribute to the anti-union campaigns continued after integration. Many of the large textile manufacturers of the time continued to deny basic rights to black workers, reserved supervisory positions for white workers, and harassed, even fired, workers who complained to the Equal Employment Opportunity Commission, or EEOC (Wood, 1986, p. 194).

The 1970’s saw the passing of the Occupational Safety and Health Act (OSHA), which addressed the environmental factors in textile mills, such as lighting, air quality, and ventilation, as well as health problems related to working in the mills. In 1972, byssinosis, or “brown-lung”, caused by exposure to excess levels of cotton dust, was ranked as one of the top five leading causes of workplace health hazards, and in 1977, textile manufacturers were ordered by the US Department of Labor to reduce the levels of cotton dust in the mills within four years (Glass, 1992, p. 94).
Union activity still continued from the 1920’s and 1930’s into the 1970’s. However, the power of manufacturers to bust unions and defeat strikes kept union membership low and union power weak in the South. The frequency of worker defeats during the past 50 years against textile manufacturers had “undoubtedly left its imprint on the collective consciousness of southern workers” and many textile mill workers were reluctant to join unions and engage in collective action, due to their past experiences of defeat and recognition of the social power and external forces which manufacturers wielded against them (Wood, 1986, p. 202-203). Nonetheless, in the 1960’s and 1970’s, unions persisted.

The Textile Workers Union of America (TWUA) between 1963 and 1975 conducted an intense campaign against the J.P. Stevens Company. However, the union was only able to win the right to collectively bargain and its struggles drew the attention of major media outlets, which created a sympathetic image of the workers efforts, inciting a wave of social criticism and protest (Glass, 1992, p. 95). “Nearly all of the publicity generated in the 1970’s by the Stevens campaign and the brown-lung campaign proved extremely damaging for the public image of the textile industry in general” (Glass, 1992, p. 96).


Textile industry employment peaked in the 1970s, as employment and the number of textile factories continued to increase in the South. By 1980, 1,412 textile factories were in North Carolina and Virginia, or over 20% of the total number of US textile factories (Kincade and Dull, 2017, p. 180). Textile manufacturers during the 1980’s and 1990’s experienced a period of rapid trade and policy changes, as well as increased foreign competition. “By the mid-80’s, imports accounted for nearly 43% of clothing sold in the
United States” and “the cheap labor of the South was no longer a match for the low-cost labor and government support in developing nations” (Kincade and Dull, 2017, p. 180; Glass, 1992, p. 96). Additionally, the industry began investing in automation during this time, spending approximately 1.9 billion on new equipment to reduce production costs in 1984 alone (Glass, 1992, p. 97).

Two major policy changes severely impacted textile manufacturers; the failure of the Textile and Apparel Enforcement Act to pass Congress and the Multifiber Agreement. In December 1985, the Textile and Apparel Enforcement Act proposed rolling back imports by roughly 30% and limiting import growth in the US to 1% per year. President Ronald Reagan, however, feeling that the Act was to protectionist, vetoed the bill and it died in Congress. The Multifiber Agreement in August 1986 established the basic framework for regulating the global textile and apparel trade (Glass, 1992, p. 96-97).

With macroeconomic forces working against the industry, textile manufacturers became less intent on survival and more future focused in the 1980’s. Textile manufacturers began to specialize in order to avoid import competition and turned to ‘quick response’ manufacturing (Glass, 1992, p. 97). Quick response manufacturing promoted the idea of tracking changing market trends in order to react to rapidly changing demands, and thereby reducing cost and total delivery time, increasing production of popular items, and holding a geographic advantage over foreign imports (Glass, 1992, p. 99). Emphasis on small scale, capital intensive facilities, as well as a highly skilled and better educated workforce, with training in automation and global awareness became a necessity for textile manufacturers (Glass, 1992, p. 104).
1.9 Globalization Incentivizes Textile Manufacturing Innovation, 1990-2005

Globalization refers to the free flow of products, services, workers, and capital across national boundaries. For textile manufacturers, globalization meant increased competition and relocation of production plants. “Factory growth in the South rapidly dropped for textile operations with offshore competition combined with the economic slowdown of the 2000s.” (Kincade and Dull, 2017, p. 181). By 2005, 300 out of 500 of the largest American manufacturing firms had offshored manufacturing operations to China (Blackford, 2010, p. 21).

Several factors contributed to the intense and rapid decline of the late 1990’s and early 2000’s. On January 1, 1998, the quota restrictions on textile and apparel imports into the US, established under the Multifiber Agreement, were phased out, resulting in a flood of cheaply produced textile and apparel products into US markets (Hodges and Karpova, 2008, p. 257). Tough retailer expectations, rising raw materials costs, and increasing levels of imports led to more pronounced layoffs and plant closings. Corporate strategies to cope with the new competitive landscape included shifting production overseas, employing innovative technologies in an effort to differentiate products, as well as reorganizing company structure and streamlining operations (Hodges and Karpova, 2008, p. 261). These strategies mostly failed, as by 2002, nearly all of North Carolina’s major textile manufacturers had declared bankruptcy (Hodges and Karpova, 2008, p. 264).

According to Hodges and Karpova (2008), the number of news media reports during the early 2000’s regarding employment loss “suggested that there were two perspectives - that of industry leaders and that of unemployed industry workers.” Industry leaders were
presented as optimistic about restructuring, consolidation, and shifting product focus, while workers were presented as victims left to cope with both unemployment and struggling to find, or adjust, to a new way of life; “The disappearance of a textile mill, wherein generations of families had been employed for more than a century, was reported to signal the end of an entire community” (Hodges and Karpova, 2008, p. 265-267).

Following the 1980’s trend of diversification from apparel into specialty and technical textiles, the late 1990’s and early 2000’s saw a resurgence in US based textile manufacturing with emphasis on engineered fibers production (Kincade and Dull, 2017, p. 181). However, this new focus in specialty fibers and technical textiles did very little to change cultural associations and perceptions of the textile industry. From 1998 to 2003, the textile industry lost nearly 65,000 jobs (Hodges and Karpova, 2008, p. 255). As this decline in employment became more rapid, news media increased the amount of coverage and this period is viewed by many as the beginning of the recent decline in textile manufacturing in the US.

1.10 The Enduring Legacy Today, 2006-2017

“The outlook on the future of textiles and apparel in the US could influence perceptions of potential job opportunities” (Hodges and Karpova, 2008, p. 270). The combination of both modern and historically negative media coverage, consistent ranking as one of the lowest paying industries in the US, and the late development of an entrepreneurial and innovation-driven spirit in the industry has kept textile manufacturing on the periphery of US economic development and undesirable for careers as more and more young Americans pursue higher education.
The historical social problems - underemployment, overwork, poverty, poor health, racism, and restricted social wages - are both components and consequences of a strategy of capital accumulation that depends on the production of an above average rate of surplus value (Wood, 1986, pg. 200). While many of these historical issues have largely vanished from modern US textile manufacturing, the globalization of society, through social media and other methods of rapid communication, and the rise of watchdog groups still find child labor and human rights violations in developing countries (Kunz, 2016, p. 206-209), which keep the raw historical wounds and negative associations readily available in the American worker’s social consciousness.
CHAPTER 2

Literature Review

2.1 Introduction

Behavioral economics is a rapidly emerging field which mixes human psychology with economic principles, creating a more thorough understanding of the human condition under risk and uncertainty. While behavioral economics has mostly been studied under laboratory conditions, the principles and themes of this field are making major impacts on government, business, and academia today. Table 2.1 illustrates some examples of studies conducted between 2007 and 2014. Taken from Samson’s (n.d.) An introduction to behavioral economics, of the 20 samples shown, only 6 of the studies were shown to have been applied to or conducted within industry and not one of the studies appeared to have been conducted in relation to general manufacturing, let alone textile manufacturing. This indicates that there is ample opportunity for academics interested in manufacturing studies to apply behavioral economics.

This research study attempts to introduce behavioral economics concepts to the textile manufacturing industry regarding changing perceptions of the industry for the average American worker, aged 20-35. Given the limited amount of academic literature regarding the incorporation of behavioral economics into manufacturing in general, let alone to influence public perception of an economically strategic industry, this review will also examine insights from both business and government publications.
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Date</th>
<th>Article Title</th>
<th>Journal Published in</th>
<th>Theoretical/ Lab Study</th>
<th>Field Study</th>
<th>Industry</th>
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<tbody>
<tr>
<td>Mitchell, G.</td>
<td>2012</td>
<td>Revisting truth or triviality: The external validity of research in the psychological laboratory</td>
<td>Perspectives on Psychological Science</td>
<td>X</td>
<td>X</td>
<td>Healthcare</td>
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<td>Samson, A., &amp; Voyer, B.</td>
<td>2012</td>
<td>Two minds, three ways: Dual system and process models in consumer psychology</td>
<td>Academy of Marketing Science Review</td>
<td>X</td>
<td>X</td>
<td>Energy</td>
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<td>Alldritt, H.</td>
<td>2011</td>
<td>Social norms and energy conservation</td>
<td>Journal of Public Economics</td>
<td>X</td>
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<td>Energy</td>
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<td>Lakshminarayanan, V., Chen, M. K., &amp; Santor, L. R.</td>
<td>2011</td>
<td>The evolution of decision-making under risk: Framing effects in monkey risk preferences</td>
<td>Journal of Experimental Social Psychology</td>
<td>X</td>
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<td>Economics</td>
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<td>Brown, D.</td>
<td>2009</td>
<td>The effects of option framing on consumer choices: Making decisions in rational vs. experiential processing modes</td>
<td>Journal of the European Economic Association</td>
<td>X</td>
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<td>Economics</td>
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<td>Shang, J., &amp; Cossen, R.</td>
<td>2009</td>
<td>Field experiments in charitable contribution: The impact of social influence on the voluntary provision of public goods</td>
<td>X</td>
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<td>An, S.</td>
<td>2008</td>
<td>Antidepressant direct-to-consumer advertising and social perception of the prevalence of depression: Application of the availability heuristic</td>
<td>Health Communication</td>
<td>X</td>
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<td>Healthcare</td>
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<td>Bohrnel, I., Greif, F., Herrmann, B., &amp; Zookhouser, H.</td>
<td>2008</td>
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<td>American Economic Journal</td>
<td>X</td>
<td>X</td>
<td>Healthcare</td>
</tr>
<tr>
<td>Chaudhry, T. L., Huber, J., Shih, B., &amp; Tanner, R.</td>
<td>2008</td>
<td>Nonconscious goals and consumer choice</td>
<td>Journal of Consumer Research</td>
<td>X</td>
<td>X</td>
<td>Retail</td>
</tr>
<tr>
<td>Moore, D. A., &amp; Hedo, P. J.</td>
<td>2008</td>
<td>The trouble with overconfidence</td>
<td>Psychological Review</td>
<td>X</td>
<td>X</td>
<td>Retail</td>
</tr>
<tr>
<td>Thaler, R. H.</td>
<td>2008</td>
<td>Mental accounting and consumer choice</td>
<td>Marketing Science</td>
<td>X</td>
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</tr>
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<td>Chandon, P., &amp; Warin, B.</td>
<td>2007</td>
<td>The boring health roles of fast-food restaurant health claims: Lower calorie estimates and higher side-dish consumption intentions</td>
<td>Journal of Consumer Research</td>
<td>X</td>
<td>X</td>
<td>Healthcare</td>
</tr>
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<td>Matzner, G., &amp; Vennwood, M.</td>
<td>2007</td>
<td>Hindsight bias, the misinformation effect, and false autobiographical memories</td>
<td>Social Cognition</td>
<td>X</td>
<td>X</td>
<td>Marketing Science</td>
</tr>
<tr>
<td>Shampander, K., Mazur, N., &amp; Andy D.</td>
<td>2007</td>
<td>Zero as a special price: The true value of free products</td>
<td>Marketing Science</td>
<td>X</td>
<td>X</td>
<td>Marketing Science</td>
</tr>
</tbody>
</table>

Table 2.2 - Sample of Academic Research using Behavioral Economics. From "An introduction to behavioral economics" (Samson, n.d).
2.2 Behavioral Economics vs Standard Economics

To understand how behavioral economics can be utilized to rebrand textile manufacturing, it is important to understand where behavioral economic deviates from standard economic theory. Standard economics theory is one of the most powerful and influential of the social sciences. Economics has been so influential because it is one of the few social sciences with a unified core theory, based on the belief that people make choices based on optimization, where the choices made are assumed to be rational and unbiased (Thaler, 2015, p. 5). According to Richard Thaler, a prominent economist and scholar of behavioral economics, there are three flaws to standard economic theory: the optimization problems that people face are often too difficult for individuals to solve; the beliefs upon which people make their decisions are actually rather biased; and many other factors (both relevant and non-relevant) tend to influence human behavior (Thaler, 2015, p. 7). Recognizing these flaws of standard economic theory, Thaler calls for an “enriched approach to doing economics research, one that acknowledges the existence and relevance of Humans.” (Thaler, 2015, p. 7). He does not advocate for the abandonment of conventional economics, but rather calls for more attention to the “supposedly irrelevant factors” (Thaler, 2015, p. 9).

Behavioral economics has its roots in psychology. Standard economic theory is typically used to serve both normative and descriptive purposes. However, standard economic theory often fails to accurately describe how humans will react. In 1979, Israeli psychologists, Daniel Kahneman and Amos Tversky, published their landmark paper, “Prospect Theory: An Analysis of Decision Under Risk”. Kahneman and Tversky argued
that expected utility theory was not an “adequate descriptive model” and proposed their alternative, Prospect Theory (Kahneman and Tversky, 1979, p. 263).

Prospect theory proposes that there are two separate cognitive systems that control judgement and choices (Kahneman and Tversky, 1979, p. 274; Thorgeirsson and Kawachi, 2013, p. 186). Tversky and Kahneman refer to these systems as System 1 (intuition) and System 2 (reasoning), where System 1 is intuitive, fast, automatic, and emotionally charged, and System 2 is reflective, slow, effortful, and deliberate (Thorgeirsson and Kawachi, 2013, p. 186). System 1 governs most of our thoughts and actions with some degree of monitoring by System 2. This proposed theory by Kahneman and Tversky laid the groundwork for a new school of thought commonly referred to as Behavioral Economics.

2.3 Academic Literature

Academic literature on behavioral economic theories, studies, and applications abound. However, the academic literature examining perceptions of manufacturing is quite limited. Therefore, this literature review will focus on academic studies of manufacturing which have referenced behavioral sciences implicit in the research.

Cappelli (2015) in his article, *Skill Gaps, Skill Shortages, and Skill Mismatches*, touches on perceptions between employers and future employees, and recognizes the lament from employer-associated organizations about a skill shortage or skill gap in the modern labor force. Cappelli argues that very little evidence is consistent with these complaints and suggests that they are not warranted. Rather, Cappelli concludes that overeducation is a persistent condition of the US labor force. Cappelli focuses more on changing educational trends as the reason for a perceived skills gap, but does not examine the root cause of
changing education trends and how these root causes are affecting the types of work people are opting to go into.

Shih (2014) argues in his article, *What It Takes to Reshore Manufacturing Successfully*, that while macroeconomic data on comparative labor and factor costs may be compelling, bringing assembly work back from abroad is difficult as the resources upon which a company draws, such as the supplier base and workforce, have atrophied in the United States. Reshoring refers to the act of repatriating production (Fratocchi, et. al., 2014). Shih is one of the few to begin examining how perceptions of manufacturing are affecting manufacturing. While he does this in the context of reshoring, Shih also identifies two major components which are pertinent to both domestic manufacturers and manufacturers interested in reshoring: the roles that modern worker understanding of a modern factory and manufacturing management play in retaining a capable workforce.

Using two case studies centered on General Electric’s Appliance Park in Louisville, KY and Flextronics International in Fort Worth, TX, Shih states that “worker perceptions of what manufacturing jobs entail have not kept pace” (Shih, 2014, p. 3). Here, he is referring to the advances made in manufacturing processes and technologies through the adoption of Lean production systems, use of information technology on the shop floor, and the use of advanced quality systems that have transformed frontline production and logistics positions. According to the management at these facilities, many of the workers from both case studies came with “inadequate preparation and an unrealistic view” (Shih, 2014, p. 3). Additionally, Shih states that another part of the problem in creating a stable workforce for modern manufacturing in the US is management’s ability to give workers a reason to stay. In both
case studies, Shih found that when management utilized a more creative, or clearer, skill and career path progression program, turnover rates among new employees tended to drop significantly. Shih concludes that manufacturers interested in reshoring will have to rebuild basic processes in addition to hiring a capable workforce.

Fender (2016) takes a different view of domestic manufacturing, concentrating on the strategies and initiatives undertaken by manufacturers who chose stay domestic, in her thesis titled, *Rethinking Domestic: The Efforts within the Apparel and Sewn Goods Industry*. She briefly discusses the issues regarding the “idea that the textile industry ceased to exist on American soil” as “everyone’s opinion”, especially when asked within the American South (Fender, 2016, p. 9).

Gino and Pisano (2008) in their paper, *Toward a Theory of Behavioral Operations*, are only a few academics who have begun to examine how to successfully incorporate behavioral economics into manufacturing operations. Gino and Pisano (2008) argue that operations management scholars should begin incorporating studies of irrationality into operations models and theories and examine the theoretical and practical implications of this academic maneuver. Because people are a significant part of operations management, Gino and Pisano (2008) suggest that it may be people who significantly influence how operations systems work, perform, and respond to management interference. Additionally, they suggest future avenues of research in “behavioral operations”, such as theory generating and testing studies, adaptation studies and operations management specific studies (Gino and Pisano, 2008, p. 676-689)
Hodges and Karpova (2008) attempt further to understand perceptions of manufacturing by focusing on how news media may influence an individual’s viewpoint. Hodges and Karpova (2008) conducted a qualitative study to explore, in depth, how the textile and apparel industry is presented to the public and how these images have influenced public perception of the industry. Examining newspapers over a six-year period, Hodges and Karpova (2008) identified the progression of word choice from hopeful to nervous then desolate and increasingly negative. They discovered that even after regular exposure to negative headlines about the textile and apparel industry, individuals who are not directly tied to the industry may perceive “a potential threat to their own financial well-being” (Hodges and Karpova, 2008, p. 270). Hodges and Karpova explicitly call for further research to understand the impact that media imagery might have on public perceptions for the future of the textile and apparel industries, arguing that this could influence “perceptions of potential job opportunities of prospective students” and that, if negative, this perception could drastically reduce the skill pipeline and jeopardize the future of the textile and apparel industry.

Fender explicitly states that “changing people’s perceptions is one of the major struggles domestic manufacturing faces today.” (Fender, 2016, p. 9). While her emphasis in making this statement is on consumer preference of domestic vs foreign manufacturing, the fact remains that textile manufacturing, in the US in general, struggles to recruit and retain workers, aged 20-35, due to negative perceptions of the industry. Hodges and Karpova state that “the kinds of jobs that are predicted to remain in the United States require college degrees” and call for additional research which could “provide a framework for effectively
communicating a positive message about the continued demand” for professionals with manufacturing related degrees, with emphasis in textile and apparel manufacturing (Hodges and Karpova, 2008, p. 270).

This research study seeks to build on previous academic literature and bring the issues and struggles with negative public perception of manufacturing and more specifically, textile manufacturing, to the forefront of the academic discussion.

2.4 Business, Trade, and Government Publications

Given the limited amount of research information in academia, and the increasing interest by business to address this issue of negative public perception, it makes sense to examine industry and government publications regarding this topic. While there are copious amounts of business, trade, and government publications relating to manufacturing and behavioral economics, many of these articles refer to each topic separately. While still indicative of the manufacturing industry’s call for the increased use of behavioral science to address public perception of domestic manufacturing, few publications have worked to illustrate how behavioral economics can be used to temper, modify, or even outright change negative stereotypes of manufacturing into a more positive association for the American public and American workers. For the purpose of this literature review, only business, trade, and government publications which focused on perceptions of manufacturing will be covered in this section. Additionally, as some of these publications are recurring, only the most recent issue of the publication will be reviewed.

In their 2014 article, An Anthropologist Walks into a Bar..., for the Harvard Business Review, Madsbjerg and Rasmussen argue that while big data and analytics can provide
incredibly detailed information about the market, this information is often incomplete and misleading, as quantitative data cannot tell a business ‘why’ consumers do or do not purchase a product. Rather, the human sciences can provide a more complete picture by examining the root cause of subtle and unconsciously driven behaviors which can then transform development, organizational culture, or even a corporation’s strategy (Madsbjerg and Rasmussen, 2014). The authors refer to this practice as sense making, which can be used to identify big unknowns or challenge assumptions in business. Manufacturing at its core is a business and the industry right now is at an inflection point, facing large unknowns and beginning to challenge previously held assumptions. By understanding how cognitive and behavioral sciences can help businesses in general, manufacturers can tap into a new resource to rebrand their industry and attract younger workers.

In 2015, the North Carolina Chamber of Commerce in collaboration with the Apollo Education Group published a report entitled, *Manufacturing Industry Talent Development Roundtable*. Using data collected from a series of three roundtables from June through August 2013 with industry executives, this report summarizes priorities and recommendations for attracting and developing a manufacturing industry workforce for North Carolina, including suggestions for education and training, and calls for deeper collaboration between industry and higher education, with the end goal of understanding and addressing talent development demands within North Carolina, to build strategies for acquiring and retaining a strong, sustainable workforce for the future (D’Amico, et. al., 2015, p. 3)
This report recognizes that 21st century technology and economic trends have changed workforce development trend for manufacturing and are moving away from simple skilled labor and engineering skill sets. Rather, project management, business, communication skills, etc., are rising in importance for future employees of manufacturing. Due to this recognition, the report calls for recruitment to go beyond its historical strategies “to ensure a qualified workforce and increase awareness of modern manufacturing as a sleek, technology driven industry with a rewarding career path” (D’Amico, et. al., 2015, p. 3).

Finally, Deloitte Consulting in partnership with the Manufacturing Institute has been tracking the changes in perception of manufacturing among the American public since 2009, via surveys, with the intention of better understanding US public perception of the manufacturing industry through identifying what Americans want, or don’t want, in a career and how they view the US manufacturing industry versus other industries, as well as their perception of the future of manufacturing. In the most recent 2017 report, Deloitte estimates that the US manufacturing industry will face an expected shortage of two million workers over the 2015–2025 period due to factors such as the availability of qualified workforce, changing dynamics of the skillsets needed for advanced manufacturing, and perceived attractiveness of the industry among the general public. “For US manufacturers to succeed in the long term, they will likely need to first work toward improving the perception of their companies, as well as the overall industry, and make manufacturing a preferred destination for the world’s top talent.” (Giffi, et. al., 2017, p. 4). By addressing this issue of perception, availability, and changing skillsets, manufacturers can better utilize the available tools to dispel misperceptions of their industry.
This research study seeks to enrich and enhance the textile manufacturing industry’s comprehension of US public perception about textile manufacturing and help develop a solid path of rebranding the industry going forward.

2.5 Conclusion of the Literature Review

This literature review provides evidence that negative public perception is more widespread against the broad range of manufacturing, yet there are indicators that American public perception of manufacturing is at an inflection point. For this research, textile manufacturing was emphasized due to its more extreme negative reputation and tumultuous history with the American worker.

Both industry and government recognized the necessity of identifying and understanding the roots of negative public perception. In academia, this research into the effect of perception on manufacturing still seems new and relatively unexplored. As demonstrated by Shih, without understanding the root causes of negative public perceptions, the reshoring trend will be slowed and as Fender has illustrated, consumers will continue to be less likely to purchase domestically made goods. Both are potentially damaging for the recent gains made in bringing American manufacturing into the 21st century. While the Deloitte study and the North Carolina roundtable report indicate hopeful directions and actions, there is still limited information on how to dispel misperceptions and radically change negative perceptions of the manufacturing industry in general. This is where a study of behavioral economics to understand root causes of negative perceptions can be helpful in tipping the inflection point into the manufacturing industry’s favor and provide a logical baseline for rebranding both the broader manufacturing industry and textile manufacturing.
CHAPTER 3
Methodology

3.1 Introduction

In 2013, documentary filmmaker, Robert Newton, examined the status of the textile industry in North Carolina. A common perception amongst the North Carolinians interviewed by Newton, was that the textile industry did not exist in North Carolina anymore (Newton, 2013). According to a Deloitte study in 2015, even though 90 percent of the respondents’ support manufacturing for job growth, young Americans (ages 19-33 by Deloitte) ranked manufacturing as last out of seven industries for potential career choices, citing concerns about stability and job security (Giffi, et. al., 2015). Many American workers, aged 20-35 in this study, today have a negative perception of textile manufacturing. Given the expansive amount of literature on both the reshoring and “Made in America” trends, it is astonishing how little academic exploration has examined the affect public perception has on these manufacturing macrotrends.

To begin understanding current perceptions by both textile manufacturers and workers, aged 20-35, an exploratory, mixed-method study was designed. “Beginning in the 1980’s and 1990’s, mixed methods research involves the explicit theorization of combining data types, analytic methods, and epistemological traditions” (Schrauf, 2016, p. 23). Both Buciuni, et. al (2013) and Schrauf (2016) agree that in attempting to answer research questions seeking to explore the complexity and patterns of socio-economic and cultural dynamics, qualitative methods enable researchers to capture participants’ perceptions, opinions, emotional framings, expectations, relationships and social interactions which are
typically neglected by quantitative methods (Buciuni et. al, 2013, p. 974; Schrauf, 2016, p. 4-5).

However, qualitative methodologies can also be just as limiting. Therefore, “where social and cultural contexts are key factors, an approach that captures the range of macro- and micro-influences on human behavior is unquestionably ideal.” (Schrauf, 2016, p. 7). The combination of surveys, or questionnaires, and interviews are the standard method of conducting mixed methodology research as surveys or questionnaires, allow researchers to examine discourse and trends at the broader societal level, while interviews allow researchers to capture deeper and narrower interpersonal interactions (Schrauf, 2016, p. ix-x).

Once Institutional Review Board (IRB #19911) was accepted through North Carolina State University, interviews with industry representatives were conducted and an online questionnaire for workers, aged 20-35, was published to collect primary data. Interview questions specific to textile manufacturing executives are listed in Appendix A. Questions specific to the online questionnaire for workers, aged 20-35, are listed in Appendix B. As the consent form to take the questionnaire was listed as the first question to this questionnaire, it was left off the list of questions in Appendix B. Data for both interviews and the questionnaire was collected during the summer of 2017. The questions for both textile manufacturers and workers, aged 20-35, were developed after a thorough review of Deloitte’s 2015 manufacturing perceptions survey, as the 2017 survey results had not yet been published, and the North Carolina Chamber of Commerce’s 2015 manufacturing roundtable report. While the Deloitte study provided detailed statistical analysis of public perception of manufacturing in 2015, the study did not appear to address the root causes of
where public perception stemmed from. The North Carolina Chamber of Commerce roundtable report provided a solid foundation of what manufacturing executives perceived as the 5 most critical areas for development: 1) The need for employees to have both soft and hard skills, 2) greater focus on internal training and mentoring, 3) working more closely with educational institutions, 4) changing perceptions about the manufacturing industry and 5) the sharing of best practices and available resources (D’Amico, 2015). When examining further into this roundtable, very little about how to address and change perceptions could be found, indicating a need for more research in this particular area.

3.2 Industry Interviews

Semi-structured, face-to-face interviews with industry representatives were selected to collect the primary data of industry perceptions. “Interviews provide a window into the participants’ actual experience, something of the feel of their lives, the way they see the world, the logic that underlies their problem solving, and the complexities of making decisions” (Schrauf, 2016, p. 12). The goal of conducting interviews for this research was to understand how the upper management and decision-makers of textile manufacturing companies view and engage a younger workforce, aged 20-35.

Because this study is exploratory, five interviews with anonymous personnel in textile manufacturing were conducted. Utilizing the law of small numbers to find extreme qualitative trends, the researcher opted to keep participants anonymous to protect both employee and company reputations. Companies located specifically in North Carolina were selected for convenience, as well as the historical association between the state and textile
manufacturing. Industry participants were initially approached through casual conversation and business card exchanges at industry meetings and conferences.

Once the first interview was done, the researcher then leveraged the textile manufacturer’s professional network to conduct additional interviews. To protect participants, interviews were not recorded using an electronic recording device and all notes were taken by hand and later transcribed into a word document for further analysis. The word document was then saved to a password protected laptop and secured in a locked office when not in use. All handwritten notes containing identifying information was subsequently destroyed and each participating company was coded as Company A, Company B, etc. All interviews were conducted at company offices and typically took no longer than 45 minutes.

### 3.3 Workforce Questionnaire

An online open-ended questionnaire was selected to collect the primary data of workforce perceptions. Questionnaires and surveys force participants to take stance after stance through a series of worded questions or statements, and these stances are then counted, summed, or correlated using statistical methods to map the distribution of thoughts, ideas, or beliefs across the group being studied (Schrauf, 2016, p. 17). The questionnaire for this research was administered using Qualtrics. Links to the questionnaire were sent to workers, aged 20-35, through social media platforms, such as Facebook, and personal email.

Because this study is exploratory, a convenience sample of 30 questionnaires completed by participants, ranging between the ages 20-35, were collected. While the questionnaire was open to all ages over 25, for the purposes of this study, any responses by individuals over the age of 35 were disregarded. Demographic information indicated that of
the responses considered, roughly 42% identified as male, 52% identified as female, and 6% did not specify their gender identity. Of the respondents considered, roughly 19% indicated that they had some college, 13% indicated that they had a 2 year or Associate’s degree, 36% indicated that they had a 4 year or Bachelor’s degree, and 32% indicated that they had 5+ years of post-undergraduate education. Again, using the law of small numbers to find extremes in trends, questionnaire respondents were asked for minimal demographic information and remained anonymous. The questionnaire was expected to take no longer than 15-20 minutes.
CHAPTER 4
Results and Analysis

4.1 Introduction

According to Schrauf (2016), social science research mixed-methods are quasi-experiments, since people cannot be placed into randomized groups and that the representativeness of a population is through a convenience sampling. Often in social science research, discourse becomes quantitative data in spreadsheets and qualitative in transcripts. Both methods of analysis were used to analyze the perceptions of both textile manufacturers and workers, aged 20-35, in this study.

First, the three “bounds” of behavioral economics offer a foundation for understanding the subsequent heuristics and biases identified below in both workers’, aged 20-35, and textile manufacturers’ perceptions of each other. A brief focus on heuristics further defines how biases are created and influence judgements and perceptions, followed by a through data analysis, which incorporates both quantitative information and qualitative examples from the data to develop a more holistic baseline.

4.2 Three “Bounds” of Behavioral Economics

The three bounds of irrationality were developed by Richard Thaler in the mid-1990’s. (Thaler, 2015, p. 257-258). Bounded rationality refers to the fact that many intuitive decisions - even ones made by experts - are predictably irrational, often relying on heuristics and biases, rather than relying on careful data analysis to make complex decisions. Bounded willpower refers to how distractions, both overt and meaningless, impact human judgement
and decision-making. Finally, bounded motivation refers to the fact that factors beyond economic self-interest also strongly affect human decision-making (Guszcza, 2016).

4.3 Heuristics

Heuristics are inherent, simple mental shortcuts, or “rules of thumb” used in attempt to make sense of complicated surroundings (Thaler, 2016, p. 22). According to Ariely, (2010, p. 171) heuristics are shaped by expectation and use stereotypes as a way of categorizing information to predict experiences. These “biased processes can influence how we experience other aspects of our world.” (Ariely, 2010, p. 171). When people make judgements, they compare whatever they are judging to some model in their minds and often the stories people tell themselves are biased by the availability of the material used to construct them (Lewis, 2017, p. 83-194). For example, Americans tend to assume that manufacturing naturally moves to low-cost areas and that the knowledge required for production processes is trivial and easily replicable (Bonvillian, 2016).

Past factors tend to influence, or distort, people’s experience of the present and warp their judgement of the future (Lewis, 2017, p. 194; Connerton, 1989, p. 2). The duality of social beliefs are that they are both collective traditions or recollections, but also ideas or conventions that result from a knowledge of the present (Halbwachs, 1941/1992, p. 188). Social beliefs influence and inform the heuristics inherently found in human judgement and decision making in the present. By better understanding the subtle nature, yet major effect of heuristics on human judgement and decision making, governments, companies, marketers, etc, can influence the perception of the public. This exploratory research uses the theoretical frameworks of the three bounds, heuristics and subsequent biases from behavioral economics
to analyze and examine perceptions between workers, aged 20-35, and textile manufacturers. The biases examined below are by no means the only inherent biases regarding textile manufacturing. However, due to the broad, exploratory nature of the study, these biases provide a starting point for future research. By identifying the major biases, companies can work to break down, modify, or change negative perceptions of their industry among this demographic.

4.4 Data Analysis

The use of grounded theory analysis to derive participant theories about the state of employment of the textile manufacturing industry was vital in understanding the underlying biases between textile manufacturers and workers, aged 20-35, stemming from negative, historically based, perceptions and to the development of theories on how to address these biases. Because two different methods of data collection were used, the analysis of each set of data was specific to that unique set. The researcher focused on themes and words common to participants of each individual data set in order to develop a broader understanding of both parties’ perceptions. Following each groups’ unique analysis, a cross examination of the data was made.

4.4.1 Textile Manufacturers’ Perceptions

The textile manufacturing companies interviewed represented diverse levels and types of companies. Only two companies (Company A and Company C) opted to conduct interviews with two high ranking employees in the room. The other three companies conducted interviews with only one high ranking employee. Company positions included Chief Operating Officers, Chief Executive Officers, and Company Department Directors.
Participating companies also represented various manufacturing business strategies, from small (employing less than 200 people) to large international conglomerates.

Of the five textile manufacturers interviewed, only Company C did not provide a turnover percentage rate for workers aged 20-35. Company B stated that their worker turnover rate for this age demographic was less than 10 percent. Three of the five companies stated that their worker, aged 20-35, turnover rates were estimated to be between 20 and 25 percent. With the exception of Company C (who did not provide a turnover percentage), all employee turnover percentage rates were self-reported.

Semi-structured interviews determined that three main themes were the focus of industry interviews: First, recruitment techniques, both traditional and modern; Second, retention incentives or efforts and; Finally, beliefs, ideas, and biases about workers, aged 20-35. Under each theme, phrases or terms used to describe company activities within that theme were listed. Using Excel spreadsheet technology, each term or phrase was weighted either a 1 or a 0. Terms and phrases that were similar in nature or used to describe similar activities were categorized together.

4.4.1.1 Recruitment Techniques

The first major theme of the interviews dealt with recruitment techniques being used by textile manufacturers to connect with prospective workers, aged 20-35. Traditional recruitment techniques refer to recruitment techniques and efforts which have not changed and are in continued use by the companies, such as college recruitment and attendance of career fairs. Modern recruitment techniques refer to new, never-before used techniques, such
as online applications, or techniques that were once used in the past, then stopped, and are now being revitalized, such as apprenticeship or mentoring programs.

All five companies interviewed stated explicitly that they continued to use the traditional recruitment techniques of attending career fairs and recruiting on campuses to connect with potential workers, aged 20-35 (Figure 4.2). Four of the five companies interviewed also mentioned the use of newspaper advertisements. However, Company A does not actively engage in this activity to recruit workers, aged 20-35 today, while Company B, Company D, and Company E still post signs, place notices in the newspaper, or use billboards to advertise hourly positions. These three companies also regularly use employment websites, such as Indeed.com or Monster.com, to also recruit workers, aged 20-35.

Companies D and E tended to rely on traditional recruitment techniques the most (Figure 4.1). Both companies also had the highest turnover rates; Company D at 25% and Company E at 22%. Company D stated explicitly about workers, aged 20-35, “they either like or they don’t”, while Company E stated that the company had to “work against the stigma of manufacturing.” While Company E uses few modern recruitment techniques, it was observed that Company D did not use any new or modern forms of recruitment, citing fear of intellectual property loss as the reason.
Both Company A and Company C use modern recruitment techniques the most (Figure 4.1). Company C did not provide turnover rate information, so it is undetermined whether Company C also experiences a turnover rate similar to Company A. Company C, however, stated that “the company used to measure the application process among the current (and older) workforce, but realized that the younger employees found that a paper application was archaic and contributed to the perception that manufacturing was archaic”, indicating that Company C is changing the way the company is recruiting workers, aged 20-35. The turnover rate for Company A was around 20%. Most interestingly, Company B claimed less than 10% turnover among workers, aged 20-35. Upon further inspection of the data, it was determined that Company B maintained the most balance between traditional and modern recruitment techniques (Figure 4.1).
Figure 4.2 - Traditional recruitment techniques

Figure 4.3 - Modern recruitment techniques
The companies using modern recruitment techniques favor connecting with families and the community (Figure 4.3). Company A stated that “many parents assume that the US is now a service economy, manufacturing is dead, and that manufacturing facilities are old-fashioned, beat up, dirty, etc.” Company B tries to connect with the community by sponsoring local sports teams, while Company C publishes online videos for families to learn about modern manufacturing. Company A, Company B, and Company C also host open houses or factory tours. Company E has attempted to connect with the community by hosting summer camps for kids to learn about modern textile manufacturing in the United States.

4.4.1.2 Retention Incentives or Efforts

Company A and Company B are most active in their retention efforts among the five companies interviewed. While Company C offers the most training opportunities, Company C seems to neglect other retention opportunities. Company A, Company B, and Company C are the only three out of the five companies interviewed that offer career progression advice, programs, or reviews for workers, aged 20-35. Company D and Company E did not offer or have emphasis on career progression for workers, aged 20-35. Interestingly, Company D, along with Company A and Company B, had awards and recognition efforts for workers, aged 20-35. Although, from the statement Company D made; “Managers need to be at the top of their game, meaning that the older generation has more self-recognition and that managers need to make a point of recognition of and for younger workers”, the rewards and recognitions in this company seem more out of a resigned necessity, rather than a genuine
effort. Overall, the most common method of retention used by textile manufacturing companies was training (Figure 4.4).

**Figure 4.4 - Retention techniques used by textile manufacturers**

### 4.4.1.3 Beliefs about Workers, aged 20-35

Company A, Company B, Company D, and Company E stated that they thought workers, aged 20-35, were less motivated by money than previous generations, but were more demanding of wanting flexible work hours (Figure 4.5). Three of the five companies interviewed (Company A, Company B, and Company C) agreed that workers, aged 20-35, were more concerned with social and environmental issues. Company A, Company B, and Company D thought that workers, aged 20-35, had poorer verbal communication skills than previous generations. Company A, Company C, and Company D agreed that workers, aged
20-35, were impatient in building careers and that these workers expected to be promoted quickly with little experience or training needed for advancement. Company E stated that there was “no difference in the work ethic of younger employees, rather, this generation invests more in themselves” in comparison to older generations. Company E also had the most extensive list of expectations and beliefs regarding workers aged, 20-35.

![Company perception of Workers, aged 20-35](image)

**Figure 4.5 - Company perception of Workers, aged 20-35**

### 4.4.2 Major Biases Inherent in Textile Manufacturer’s Perceptions of Workers, age 20-35

#### 4.4.2.1 Cognitive Dissonance

Cognitive Dissonance refers to the mental discomfort that result from the confrontation of current information which conflicts with existing beliefs (Festinger, 1962). According to Kahneman (2015, p. 216), people tend to ignore base-rate statistical
information when it clashes with their personal impressions from experience. “The inside view is so natural and accessible that it can influence judgements even of people who understand the concept.” (Thaler, 2016, p. 187)

Textile manufacturing companies interviewed showed signs of cognitive dissonance regarding their perceptions of workers, aged 20-35. For example, Company C just recently switched from a paper application to an online application, stating that the company “used to measure the application process among the current (and older) workforce, but realized that younger employees found that a paper application was ‘archaic’.” This is a fantastic example of identifying and correcting cognitive dissonance. Company C had become so used to measuring their application process by older, less technologically savvy workers that they had assumed that paper applications were preferred by all employees. However, upon talking with interns and new hires, Company C realized that the paper applications were perceived as ‘archaic’ by workers aged 20-35, which was contributing to the perception by this demographic that manufacturing was an ‘archaic’ industry.

4.4.2.2 Collective Conservation Bias

Conservation bias occurs when new information is inadequately incorporated into pre-existing views, causing individuals to overweight their initial beliefs and underreact to new information (Ritter, 2003). Collective conservatism refers to the tendency of groups to stick with established patterns, even as new needs arise (Thaler and Sunstein, 2008, p. 58). Collective conservation is prevalent amongst the companies interviewed. For example, the need for more internal training and a clear path progression has been identified as a critical issue for modern manufacturers to retain younger workers (D’Amico, et. al., 2015, p. 3).
Yet, several of the companies interviewed have failed to incorporate clear training and career progression paths for their younger employees. For example, Company B “engages in succession and career planning every year for salaried employees to identify needs and wants.” This indicates that while the company has attempted to create a career path progression, it only focuses on its salaried employees and fails to recognize opportunities for career progression and training for hourly employees. The company also does not appear to have a solid and regular internal training program for either salaried or hourly employees, as training only occurs on an “as needed” basis.

4.4.2.3 Status Quo Bias

Status quo bias refers to maintaining a previous decision when instead a change should be made (Kahneman, 1991). According to Thaler (2016, p. 154), people stick with what they have unless there is some good reason to switch or despite there being a good reason to switch and often the status quo becomes the reference point (Thaler, 2016, p. 131). Examples of status quo bias within the data are pervasive. Most explicitly, Company D relies still relies solely on traditional recruitment techniques and has not attempted to branch out into other, newer avenues for potential recruitment.

4.4.3 Workforce, aged 20-35, Perceptions

An online questionnaire, administered using Qualtrics survey technology, was distributed via social media channels and personal emails to persons between the ages of 20-35. The questionnaire sought to establish trends, common themes, or biases among workers, aged 20-35, about textile manufacturing and general employer expectations. Under these two themes, common or similar phrases and terms were noted and categorized together. Each
time a phrase or term appeared in each response, it was coded with a 1. After all responses were examined, the total number of times a specific phrase, term, or related synonym was used was calculated for its percentage of use among all questionnaire respondents.

4.4.3.1 Worker, aged 20-35, Perceptions of Textile Manufacturing

Of the 30 people surveyed, 33% though that manufacturing had moved overseas, 27% had little or no knowledge of the industry, and 20% only associated various social issues or social violations with the industry (Figure 4.6). When asked if they would be interested in a career within the textile manufacturing industry, 67% responded no. Figure 4.7 cites the reasons provided by workers, aged 20-35, including lack of job security (19%), just not interested (19%), labor intensive (15%), low pay (15%), and general lack of knowledge (12%).

![Figure 4.6 - Worker, aged 20-35, perceptions of textile manufacturing (*More than one perception was mentioned within as single response)](image-url)
Figure 4.7 - Reasons Workers, aged 20-35, stated why they would not consider textile manufacturing for a career

4.4.3.2 Worker, aged 20-35, Employer Expectations

According to Figure 4.8, workers, aged 20-35, expect primarily five things from their employers: Employee Support, Appropriate Pay or Compensation, Opportunities for Advancement, Work/Life Balance, and Benefits. Employee support was mentioned most frequently (37% of responses), followed by appropriate pay or compensation (30%), and advancement opportunities (23%). One respondent stated: “why would I take a job with worse hours, worse benefits, and worse living conditions far from anything for considerably less [pay]...work on bringing your industry on par with others.”
4.4.4 Major Biases Inherent in Worker, aged 20-35, Perceptions of Textile Manufacturing

4.4.4.1 Anchoring

Halbwachs (1941/1992, p. 5) states that “the mind reconstructs its memories under the pressure of society”. Anchors can be used to influence how someone will make a decision in a particular situation by subtly suggesting a starting point (no matter how irrelevant) for that thought process (Thaler and Sunstein, 2008, p. 24). This is clearly prevalent from the questionnaire data, as 19 of the 30 respondents, regarding how workers, aged 20-35 perceive textile manufacturing, made statements such as, “When I thought of the textile manufacturing industry, I would think of the portrayals on movies, books, and TV of an Industrial Revolution era manufacturing plant. My preconceived notions were that the
textile manufacturing industry was dirty conditions, with long hours, and people being paid very little.”

According to Thaler and Sunstein (2008, p. 24) anchors can influence how a person perceives their life. Anchoring refers to the tendency to rely too heavily on a past reference, on one trait, or piece of information when making decisions, usually resulting from a suggestion that occurs when someone or something causes individuals to see, hear, or feel a certain way merely by bringing it to mind. Recollection and memories become anchored from the various ways images and events become associated with people or places.

4.4.4.2 Availability

Statements from the questionnaire data such as: “[Textile manufacturing in the US] can’t compete with countries in Southeast Asia that can produce the same textiles for a fifth of the price. I guess the reason why I think this is from all the abandoned factories where I live that used to be textile factories” and “My ideas regarding the textile manufacturing industry largely come from my dad. His ideas likely come from documentaries or educational television shows” indicate the presence of Availability Bias. Availability bias refers to giving greater weight to easily recalled and recent information over information that is less recalled or harder to understand (Taylor, 1982).

According to Connerton (1989, p. 27), remembering is not a matter of reproduction but of construction of a schema, or coding, enabling people to distinguish and recall. Groups provide individuals with frameworks within which their memories are localized by a kind of mapping of mental spaces within a particular social group (Connerton, 1989, p. 37). Three types of events contribute to pervasiveness of availability bias: salient events, dramatic
events, and individual experiences (Kahneman, 2015, p. 30). Salient events refer to events that attract attention which can easily be retrieved from memory. Dramatic events refer to a temporary increase in recall through sudden and striking events. Finally, personal experience refers to the availability of incidences, from the self or others, through personal accounts, photographs, words, statistics, and other vivid examples, which contribute to easy recall (Kahneman, 2015, p. 130). According to Lewis, (2017, p. 215), people only see what they are trained to see. “People tend to assess the relative importance of issues by the ease with which they are retrieved from memory.” (Kahneman, 2015, p. 8).

4.4.4.3 Value Attribution

Value Attribution refers to the act of imbuing someone or something with certain qualities based on perceived value, rather than objective data (Brafman and Brafman, 2008, p. 17). This heuristic acts as a quick mental shortcut to determine what is worthy of an individual’s attention. “Once we attribute a certain value to something, it’s very difficult to view it in any other light.” (Brafman and Brafman, 2008, p. 56). In other words, when a person encounters a new object, person, or situation, the initial value assigned to it shapes that individual’s further perception of it.

For example, in the questionnaire, statements such as “I think the American textile industry is a dying industry. This is my opinion because of the continued outsourcing and automation utilized by many companies” and “I feel like there's not too much of a future for textile manufacturing, especially with growing automation” indicate that workers, aged 20-35 perceive textile manufacturing to be of lower value, due to its historical movement to lower-cost (most recently, overseas) locations and increases in automation. Compared to textile
manufacturing as a potential career, other industries that ranked much higher in career preference included government work, healthcare, and education.

4.5 Confirmation Bias for Textile Manufacturers and Workers, aged 20-35

Finally, confirmation bias occurs when individuals seek out, overvalue, or misinterpret information that confirms prior beliefs and ignores contradictory information (Nickerson, 1998). According to Thaler (2016, p. 172), “people have a natural tendency to search for confirming evidence rather than disconfirming evidence”. In other words, “previously held impressions can cloud [a person’s] point of view” (Ariely, 2010, p. 157).

Another factor that contributes to judgement error is people not knowing what they don’t know, but also that people do not bother to factor their ignorance into their judgements. “If you present people with situations in which the evidence they need to judge accurately [is] hard for them to retrieve from their memories, and misleading evidence [comes] easily to mind, [people] make mistakes.” (Thaler, 2016, p. 191-192)

One example of confirmation bias within the data for workers, aged 20-35, includes the perception that textile manufacturing is archaic and refuses to change. One respondent explicitly stated about textile manufacturing; “I think it is outdated and archaic, generally with poor conditions for employees and strenuous hours. I think this from touring more than one textile facility in North Carolina while deciding on employment,” and that even though they have a degree in textile engineering, this same person stated, “I want nothing to do with the industry because I often feel as though they are completely unwilling to change. The facilities are all located hours from anything and the pay is simply not enough to warrant my commuting. Furthermore, there’s still complex issues involved with carcinogens in textile
manufacturing and finishing, such as brown lung from cotton fibers. I'd rather not spend my life working around loud, outdated machinery and picking fibers out of my orifices.” Clearly, negative perceptions of textile manufacturing still persist even when the individual is familiar with the industry and by touring a textile manufacturing facility, rather than changing perspective, there is a risk of potentially reinforcing reserve biases.

Another example of confirmation bias can be seen in company beliefs about younger workers’, aged 20-35, lack of necessary skills. Company A stated that “the competition is gone because there are no trained people to draw from. The company has had to focus heavily on internal training” and that “there is work to be done with employees aged 20-35. Many employees have soft skills, but lack trade or hard skills…the high school system in the US does not offer enough training for trades or life skills.” This indicates that the company expects to hire untrained workers, aged 20-35, and has had to take steps to develop an apprenticeship program in order to provide the necessary skills to young employees, because they cannot find workers already trained.

4.6 Summary of Perception Results

The main objectives of this research were to establish a baseline for exploring where negative American public perceptions of textile manufacturing stem from and to identify where negative public perceptions of textile manufacturing can be modified or changed using behavioral science techniques. There were also three hypotheses associated with achieving these research objectives; First, workers, aged 20-35, have either a negative view of textile manufacturing or no knowledge about textile manufacturing. Second, offshoring in modern history is the main driver of negative public perceptions today. And, third, the textile
manufacturing industry mainly relies on outdated recruitment and retention techniques to attract young workers, aged 20-35.

The results from the data indicate that hypothesis one was accurate. Workers, age 20-35, stated on the questionnaire that they either knew nothing about the industry, knew about the industry in historical references, or associated the textile manufacturing industry with multiple social problems. The results for hypothesis two were a bit surprising. Only about a third of questionnaire respondents associated offshoring activity with the textile manufacturing industry. Finally, the data regarding hypothesis three about textile manufacturers’ efforts to recruit and retain workers, aged 20-35, was quite interesting and diverse.

In summary, some textile manufacturers are making strides to connect to and change workers’ perceptions of the industry. However, there is still much work to be done. Employer and employee expectations between textile manufacturers and workers, aged 20-35, are clearly conflicted. Of the respondents to the questionnaire, 37% of workers, aged 20-35, stated that they expected employer support of employees and 23% stated that they expected employers to provide advancement opportunities. Only three of the five companies interviewed provided various types of training opportunities and career progression programs to their employees. However, citing a lack of patience in career advancement was prominent for several companies in their beliefs about workers, aged 20-35. It is quite possible that this discrepancy in thought and action may contribute to the misperceptions between companies and workers, aged 20-35.
Additionally, textile manufacturers have clearly missed the mark with workers, aged 20-35, in their expectations and beliefs about this demographic. Fair pay or compensation ranked second (30%) as a top concern for workers, aged 20-35. According to textile manufacturers, this demographic is less motivated by money. However, one company went so far in their interview to mention that one of the reasons cited for their high turnover was due to pay. Combating an ingrained perception that textile manufacturing is low pay, combined with the idea that workers, aged 20-35, care less about money may also contribute to frustrating misperceptions between textile manufacturers and workers, aged 20-35.

While companies have started reaching out to their local communities, the alarming lack of knowledge (19%) about U.S. based textile manufacturing is startling and allows for negative historical perceptions of the industry to persist. This industry is not dead; different, but not dead. Yet, the perception of an old, dying, labor intensive, and socially unconcerned industry, which has moved completely overseas, persist. Clearly, textile manufacturing companies need to re-evaluate not only their interactions with workers, aged 20-35, outside of the local population, but also need to begin examining methods to re-brand their industry in the American consciousness as an innovative, creative, and exciting high-tech industry.
CHAPTER 5

Conclusion and Recommendations

5.1 How Can Behavioral Economics Help?

The rational choice theory of economics states that individuals always make logical decisions, which provide them with the greatest benefit or satisfaction, given the choices available, and are also in their self-interest (Investopedia, 2016). Expected utility is a theoretical account of how people should make decisions within rational choice theory and states that when faced with uncertainty, individuals will select the act with the highest expected utility (Briggs, 2014). Often used in classical economics as a descriptive or predictive theory, expected utility theory frequently makes faulty predictions about people’s real-life decision making in choice situations (Briggs, 2014).

With its beginnings in the 1970’s and 1980’s, behavioral economics is a relatively new disciple, characterized as “much less narrow, rigid, intolerant, mechanical, separate, and individualistic than mainstream economics” (Tomer, 2007, p. 478; Coughlin, 2008, p. 2557). The field of behavioral economics combines evidence from psychology and other social sciences with economics to investigate how individuals actually behave as opposed to traditional economics theories, which assume that individuals are fully rational and make decisions based on optimization (Camerer, 2014, p. R867; Thorgeirsson and Kawachi, 2013, p. 185). While behavioral economics agrees with standard economics that markets and incentives play a key role in people’s behavior, the disciple diverges from traditional economics in that behavioral economics accepts and recognizes that humans are more prone
to irrational behavior than many realize (Thorgeirsson and Kawachi, 2013, p. 185; Brafman and Brafman, 2008, p. 4).

“Understanding irrationality is important for our everyday actions and decisions, and for understanding how we design our environment and the choices it presents to us” (Ariely, 2010, p. xix). Prominent behavioral economist, Richard Thaler argues that “without the rational framework [of Economic Theory], there are no anomalies from which we can detect misbehavior” and that “the real point of behavioral economics is to highlight behaviors that conflict with the standard rational model” (Thaler, 2016, p. 251-261). Dan Ariely, another prominent behavioral economist, argues that mistakes are systematic and since these mistakes are continuously repeated, they are predictable (Ariely, 2010, p. xx). Kahneman and Tversky argue that people rely on a limited number of heuristic principles, or simple rules, to make decisions and that these heuristics, while quite useful in general, sometimes lead to systematic errors, by focusing on certain aspects of a decision and ignoring others, leading to a variety of psychological biases (Tversky and Kahneman, 1974, p. 1124).

5.2 Framing

Framing is the idea that choices are dependent on the way in which a problem is stated or how something is presented (Thaler and Sunstein, 2008, p. 36). “Framing works because people tend to be somewhat mindless, passive decision makers” (Thaler and Sunstein, 2008, p. 37). In other words, humans are easily influenced by the statements and deeds of others, and tend to follow persuasive leaders.

Reframing, by contrast takes effort. Most people tend to passively accept decision problems as they are presented, or “framed”, without taking time to examine whether
reframing the topic would produce a different answer (Kahneman, 2015, p. 367; Thaler and Sunstein, 2008, p. 53). By understanding how different frames evoke different feelings and memories (Kahneman, 2015, p. 389), companies can use behavioral economics to begin changing negative perceptions of textile manufacturing and rebrand the industry into a more positive, innovative, and inviting industry for workers, aged 20-35.

5.3 Recommendations for Industry

Understanding framing, heuristics, and biases is significant in trying to rebrand textile manufacturing. “To write a message people will believe in use cognitive ease in your favor and truth illusions to provide specific suggestions to help achieve goal” (Kahneman, 2015). By identifying heuristics and subsequent biases inherent in the perceptions of workers, aged 20-35, regarding textile manufacturing, the textile manufacturing industry can begin to make efforts to rebrand their industry and to shift the narrative from an old, dirty, declining industry to 21st century modern, innovative manufacturing.

5.3.1 Hire Social Scientists

First manufacturing companies, industrial associations or organizations, even HR departments and industry recruiters should consider hiring social scientists. According to Madsbjerg and Rasmussen (2014), social scientists can reframe business problems and shift perspectives, collect data through open-ended means, look for patterns or themes to uncover root causes, create key insights, and challenge assumptions. These abilities can impact business by transforming insights into initiatives and even change business strategies or organizational cultures. Even the governments of the United Kingdom and the United States have recognized the usefulness and impact of hiring social scientists. In 2010, the UK
government set up the ‘Behavioural Insights Team’ (BIT), a special unit dedicated to applying behavioral science to public policy and services and in 2013, it was announced that the US government was setting up a similar unit (Samson, n.d). Because behavioral economics is such a flexible field, it has been applied to various domains, including finance, health, energy, public policy, insurance, and marketing.

5.3.2 Extrinsic vs Intrinsic Rewards

Begin incorporating more intrinsic rewards into the business. Extrinsic incentives refer to external performance drivers to achieve an outcome, and intrinsic reward refer to motivation by a personal value, interest, or enjoyment of a task (Donde and Hart, 2012, p. 6). Several companies in this study had built reward programs around extrinsic incentives and recognized that workers, aged 20-35, were less motivated by money than previous generations. These companies seemed unsure how to reconcile these two diametrically opposed forces. Donde and Hart (2012), state that “financial incentives can result in a negative impact on overall performance” and that incentives change a worker’s focus to a rather narrow field of view, which is detrimental to motivation and often destroys creativity and broad problem solving (Donde and Hart, 2012, p. 7-9). However, intrinsic rewards, such as a thank you note to let someone know they are valued for their efforts, tend to increase employee engagement, productivity, and motivation (Donde and Hart, 2012, p. 7-9)

5.3.3 Experiment

Companies should begin testing and evaluating current recruitment and retention programs. For example, Guszcza, et. al., (2016), argue that most human resources (HR) departments are operating based on outdated idea of human psychology and organizational
design, and that HR practices are rarely tested or evaluated with vigor. By regularly experimenting and evaluating programs, companies can keep ahead of rapidly changing trends and ensure that recruitment and retention programs continually align with generational values.

5.3.4 Coordinated Media Campaigns

According to the latest 2017 Deloitte Perceptions of Manufacturing study, American perceptions of manufacturing are at a tipping point (Giffi, et. al, 2017). A targeted media campaign focused on dispelling false impressions of the manufacturing industry and generating awareness about advanced technology in manufacturing may help to develop positive associations about manufacturing in the American psyche. Additionally, increase company participation in Manufacturing Day and build partnerships with schools, college and universities. According to Giffi, et. al., (2017, p. 15), after participating in Manufacturing Day, 89% of students are more aware of manufacturing jobs in their communities, 84% are more convinced that manufacturing provides interesting and rewarding careers, and 64% were more motivated to pursue careers in manufacturing.

According to John Gottman, negativity trumps positivity; that “bad emotions, bad parents, and bad feedback have more impact than good ones, and bad information is processed more thoroughly than good...Bad impressions and bad stereotypes are quicker to form and more resistant to disconfirmation than good ones” (Kahneman, 2015, p. 302). However, repetition induces cognitive ease and breeds feelings of familiarity. Exposure can be effective even when observers are not aware. Regular exposure to modern manufacturing has shown to increase positive perceptions of manufacturing (Giffi, et. al, 2017). Modern
textile manufacturers will have to find ways to get workers, aged 20-35, to think about textile manufacturing in a way that is opposite to their inherent biases. Richard Thaler (2016) states it best; “If you want to encourage someone to change, make it easy by removing the barriers that are preventing people from changing, no matter how subtle those barriers may be” (Thaler, 2016, p. 337-338).

5.4 Recommendations for Future Research

The purpose of this exploratory study was to use behavioral economics and historical information to identify potential root causes of negative perceptions between workers, aged 20-35 and textile manufacturers. The possibilities for future research regarding this topic are nearly endless. Some ideas could include a comparison study of another sector of manufacturing. Intrepid scientists could also run experiments specific to biases identified in this study to find the most influential methods for rebranding the industry. Another recommendation for future research would include a close examination of how Americans discuss manufacturing at various social levels. Additionally, future research could examine the similarities and differences of textile manufacturing perceptions by ‘blue collar’ and ‘white collar’ workers. Each of these areas for future research would, ideally, yield more information about how to continue working to rebrand textile manufacturing in the psyche of American workers, aged 20-35.

5.5 Summary

The goals of this study were to a) to establish a base understanding of the contributing historical factors to modern negative public perceptions of textile manufacturing, and b) to encourage textile manufacturers to explore the use of behavioral science techniques to
engage in changing public perception from negative to positive. The historical trends have provided a baseline for understanding where negative perceptions of textile manufacturing stem from. The analysis of biases inherent in the perceptions of workers, aged 20-35, and in the perceptions of textile manufacturers have established a precedence for using behavioral economics to begin rebranding textile manufacturing in order to attract the younger demographic. Additionally, some recommendations for both industry and future research have been suggested.

5.6 Conclusion

“In the last thirty years American businesses have shifted their focus from the production of goods (now done elsewhere) to the projection of brands, that is, states of mind in the consumer, and this shift finds its correlate in the production of mentalities in workers” (Crawford, 2009, p. 127). In other words, businesses are beginning to realize that a deeper understanding of human behavior is just as important to running a successful business as operations management or understanding financial statements. “After all, humans run companies, and their employees and customers are also humans” (Thaler, 2016, p. 10). Human capital is becoming more and more of a core to running a successful business and understanding human behavior is essential to recruiting and retaining human capital.
REFERENCES


APPENDICES
Appendix A

Textile Manufacturing Interview Questions

1) What is your company’s annual turnover rate amongst 20-35 year olds? What is your company doing to address unanticipated worker turnover? How effective have these strategies been for your company?

2) In what ways does your company try to connect with prospective employees, aged 20-35? Are these methods more traditional or outside-the-box for your company?

3) Does your company engage the workforce, ages 20-35, differently than you engaged previous generations?

4) Are your expectations for employees, aged 20-35, different from employees of other generations?

5) What do you think workers, aged 20-35, expect in their employer as compared to previous generations?
### Online Questionnaire for Workers, aged 20-35

1) What is your age range?
   - 20-25
   - 26-30
   - 31-35
   - 36-40
   - 40+

2) How do you identify?
   - Male
   - Female
   - Other

3) What is your education level?
   - Some High School
   - High School/GED Equivalent
   - Some College
   - 2 Year/Associates Degree
   - 4 Year/Bachelor's Degree
   - 5+ Years of College

4) What do you think of the textile manufacturing industry? Why do you think this?

5) Would you consider textile manufacturing for a long term career as opposed to other industries? Why or why not?

6) What non-manufacturing industries would you consider for long-term career? Why or why not?

7) What are your expectations for your employer or prospective employer? Why or why not?
8) How do you engage with your employer or prospective employer? Why do you engage with your employer or prospective employer in this way?