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**Abstract**

This research was conducted to examine factors that may impact a student from choosing to pursue a career in the skilled trades after high school. Company XYZ’s projections show that 27.9% of the workforce will be eligible for retirement over the next five years and 41% over the next 10 years of which 47% of its workforce is skilled trades personnel. There is a substantial gap in the skilled trades workforce that needs to be filled. The research results demonstrated students lack both expose and education of the skilled trades as a career choice. Company XYZ can use these results to work with the K-12 education system and community to fill the gap in the skilled trades.
# Table of Contents

Abstract .................................................................................................................................................. 2  
List of Tables ......................................................................................................................................... 5  
Chapter I: Introduction .......................................................................................................................... 6  
  Statement of the Problem ................................................................................................................... 7  
  Purpose of the Study ............................................................................................................................ 7  
  Assumptions of the Study ................................................................................................................... 8  
  Definition of Terms ............................................................................................................................. 8  
  Limitations of the Study ..................................................................................................................... 9  
  Methodology ....................................................................................................................................... 9  
Chapter II: Literature Review ............................................................................................................... 10  
  Influences on a Student’s Career Choice ............................................................................................ 11  
  Parents or Family Influences ............................................................................................................. 12  
  Exposure to Careers in Education ..................................................................................................... 16  
  Conclusion .......................................................................................................................................... 19  
Chapter III: Methodology ..................................................................................................................... 20  
  Subject Selection and Description ....................................................................................................... 20  
  Instrumentation ................................................................................................................................... 20  
  Data Collection Procedures ............................................................................................................... 20  
  Data Analysis ..................................................................................................................................... 21  
  Limitations ......................................................................................................................................... 21  
  Summary .......................................................................................................................................... 21  
Chapter IV: Results ............................................................................................................................... 23  
  Demographics ................................................................................................................................. 23
Figure 1: Percentages per Gender ................................................................. 24

Item Analysis .................................................................................................. 25

Conclusion ...................................................................................................... 29

Chapter V: Discussion, Conclusion and Recommendation ................................. 31

Discussion .................................................................................................... 31

Recommendations ........................................................................................... 32

References .................................................................................................... 34

Appendix A: Survey Questions for Students in Grades Kindergarten through 8th Grade ........ 36

Appendix B: Survey Questions for Students in Grades 9th through 12th Grade .................. 40

Appendix C: Informational Lesson Plan on Union (Bargaining) Carpentry ................... 44

Appendix D: Letter to Local Area Schools ................................................................ 45
List of Tables

Table 1: Summary of Exploratory Factor Analysis Results for Family Influence Scale in U.S. Sample.........................................................................................................................14

Table 2: Summary of Exploratory Factor Analysis Results for Family Influence Scale in Indian Sample....................................................................................................................................15

Table 3: Grade Level with Gender Identified.................................................................................................................................24

Table 4: Student Awareness of Choices After High School.............................................................................................................25

Table 5: Students Awareness of Choice After High School vs Students Gender.................................................................26

Table 6: Highest Education Level Achieved by Father and Mother .................................................................27

Table 7: Required Classes in School ........................................................................................................................................27

Table 8: Optional/Self-Selected Classes Available .........................................................................................................................28

Table 9: Perception That a Student Will Pursue the Skilled Trades..........................................................................................29
Chapter I: Introduction

The population in the United States (U.S.) continues to grow, increasing the use of current infrastructure systems and requiring expansion of several infrastructure systems as well. One of the infrastructure systems is the electrical production system. In the simplest of illustrations, electricity is produced at an electrical generating station, transferred then to transmission power lines which feed distribution power lines connecting to buildings.

According to the U.S. Energy Information Administration, electrical consumption was roughly 30 quadrillion Btu’s in 1990, roughly 38 quadrillion Btu’s in 2017, with a projection of roughly 43 quadrillion Btu’s in the year 2050. The Annual Energy Outlook (AEO) report, written yearly by the EIA, projects a 31% increase in electrical production from 2017 until 2050 (U.S. EIA, 2018). With this projection the utility companies will need to not only maintain their current electric generating plants, but build new plants to meet the demand, and all the infrastructure. That means that the utility transmission lines, electrical substations utility distribution lines, will need to be maintained, upgraded, or expanded upon to meet the new demands of the consumers.

Utility Company XYZ, owns and operates many different types of electrical generating stations along with the associated infrastructure throughout multiple states, including Minnesota. The State of Minnesota’s Workforce Development Department produces an online tool for Minnesotans for career education called CAREERwise. According to CAREERwise Education, employment for electrical power-line installers and repairers is expected to grow 15.2% percent in Minnesota by the year 2020 (Dakota County Technical College (DCTC), 2018). CAREERwise stated there will be a need for about 1,350, new electrical power-line installers and repairers, which includes workers leaving the occupation or retirement as well as growth, to
meet market demands by 2020 (DCTC, 2018). Skilled labor consists of the following trades in addition to the electrical power-line installers and repairs: low-voltage electricians, high-voltage electricians, carpenters, auto mechanics, welders, pipefitters, gas worker, superintendent, and general foremen. This list captures the majority of the skilled labor employees at Company XYZ.

Company XYZ has a workforce that consists of 47% bargaining workforce. The bargaining workforce is the workforce made up of the skilled labor trades: electricians, carpenters, welders, and pipefitters to name a few. The Center for Energy Workforce Development has been conducting an energy workforce pipeline survey since 2006 (CEWD, 2017). The percentage of workers in the industry under the age of 32 is at 19%. Projections show that 27.9% of the workforce will be eligible for retirement over the next five years and 41% over the next 10 years. This leaves a significant amount of skilled labor positions, the gap, that needs to be filled by the younger generations.

Statement of the Problem

Company XYZ will experience a significant gap of skilled labor workers over the next 10 years due to retirements. If the gap cannot be filled, the electrical infrastructure required to be built and maintained to support the overall United States energy consumption, will not be able to be met, resulting in power supply shortages.

Purpose of the Study

Company XYZ wanted to understand how to attract students to pursue a career in a skilled trade. Company XYZ along with other utility companies throughout the world will rely on the upcoming generations to fill the skilled trades positions. In order to attract students, it needed to understand the factors that would stop a student from choosing a career in the skilled
trades. The purpose of this study was to investigate the impact a student’s family or school on their career choice after high school. Once it is understood why students choose or do not choose a career in the skilled trades, Company XYZ could partner with families and schools in the local communities to create the interest in the utility field at an early age.

**Assumptions of the Study**

The following are the assumptions of this study include that:

1. An interest for careers in the skilled trades can be formed if students are introduced to the career field at a young age.

2. Schools have an influence on the direction students pursue to go after high school graduation.

3. Parents and families have the ability to empower children about the skilled trades as a reputable career choice.

**Definition of Terms**

Throughout the research, a few unique terms will be used.

**Bargaining workforce.** A workforce that is part of a union.

**British thermal unit (Btu).** A traditional unit of heat, defined as the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit.

**Skilled trades.** A career/profession where a person is physically assembling, constructing or repairing something. Some examples are: carpenter, electrician, laborer, pipefitter, lineman, painter, welder, instrument technician, mechanic, or equipment operator.

**Union.** An organization of workers with an interest in protecting the wages, benefits, and working conditions for the overall organization. An agreement is formed between the union and employers to honor the rules at a minimum as set forth by the union.
Limitations of the Study

The research could not be limited to the two major school districts where Company XYZ is headquartered. No specific information for the school district on what classes may be offered, demographics of the school, or career counseling services available could be obtained. The survey was opened on a public platform with a limited reach to students.

Methodology

In order to fill the gap in the skilled trades, companies need to know the exposure of students to the options available to them. Students can be exposed to the skilled trades throughout their elementary and high school years. Research was conducted at all levels of education to obtain data to support if the exposure exists today. If students were exposed to careers in the skilled trades, were they exposed in school or through their family? There are several directions a student can choose to pursue after high school. Is the school or family informing students of all the options or limiting the information ultimately guiding a student away from the skilled trades? The survey collected data to get a small understanding on why or why not a student pursues a career in the skilled trades.
Chapter II: Literature Review

Skilled labor positions needed to be filled by the younger generations for Company XYZ. It is not the only company experiencing the gap in the skilled labor positions. Deppy Thompson (2018) wrote in a blog for Career Exploration that the median age of a construction worker right now is more than 40 years old. The generations after the current generation of construction workers are not pursuing the career creating the long-term problem (Thompson, 2018). By one estimate, for every skilled worker coming into the workforce, there are five who retire (Thompson, 2018).

There are many career options for students to consider. From a young age, children are asked, what would you like to be when you grow up? Many students have a rough idea when graduating from high school, yet very few know exactly the career they are passionate about and would like to pursue. What drives a student to a particular career choice? Is it based on the career the parents have chosen? Is it based on the direction of a high school counselor? Does the community where a student grows up contribute to the decision? Are students being introduced to all the possible career fields available to them after high school graduation? The list of questions could continue as the world continues to change at an escalated rate from just a couple of decades ago.

In order to understand and answer the questions above, Company XYZ needed to first understand the influences and/or motivations of students from elementary through high school. Furthermore, if students are not influenced or exposed to the skilled labor trades in the current education system, what are companies, similar to Company XYZ able to do to encourage students to pursue the skilled labor trades?
Influences on a Student’s Career Choice

Students are all uniquely raised. There are rural communities with small school, metropolitan communities with big schools, and those who choose to home-school. In each of those scenarios, how are students introduced to the different careers throughout their schooling? If a student comes from a single parent household, does that have any impact on the student’s career choice? What influences or motivates them to choose one career over the next? Kniveton (2004) was curious to identify the particular factors that influence or motivate a student to pursue one career over another. The research focused on 348 young people aged 14 to 18 years where they were asked to complete a questionnaire and an interview to help identify these factors (Kniveton, 2004). As a control, only families with two or three children living with both parents were used. This was done to gain a better understanding of the impact of birth order on a career choice.

There were five questions in Kniveton’s (2004) research. They were:

1. Who influences the student’s selection of career (Kniveton, 2004, p. 50)?
2. What sort of career lifestyle [does] the student want (Kniveton, 2004, p. 50)?
3. What is the student’s orientation to work (Kniveton, 2004, p. 52)?
4. How much say the student feels they have in their selection of the job (Kniveton, 2004 p. 52)?
5. What are the student’s reasons for selection of a particular job (Kniveton, 2004, p.53)?

The results indicated that parents followed by teachers had the most influence on a student (Kniveton, 2004). When birth order was considered, the eldest child is more influenced by the father, the youngest by the mother.
Question 2, the sort of career lifestyle was examined in relation to two other major aspects of life being further training/higher education and marriage (Kniveton, 2004). The majority wanted to pursue further training/higher education then marriage (Kniveton, 2004, p.50). There was an interesting gender difference in that males more than females want to get a job, but females more than males want to get married in addition to having a job, or further education (Kniveton, 2004).

The students felt they had control over the selection of their job (Kniveton, 2004). The two main reasons for selecting a particular job were first the money followed then by the enjoyment of the work itself (Kniveton, 2004). When the data was analyzed by gender, females ranked the enjoyment of work as the main reason for selecting a particular job while males ranked money as the main reason (Kniveton, 2004). Two of the major influences on a student’s career choice, as Kniveton found, is the parents and the student’s school.

Furthermore, Adya and Kaiser (2005) were interested in understanding further influences on not only what motivates students to choose a career path but to also understand the early determinates of women specifically in the industrial technology workforce. There are social influences, which are “biases that impact internal and external gender perceptions such as gender stereotyping, role models, peers, media, and parents” (Adya & Kaiser, 2005, p.4) and structural influences, which is support “such as teachers and counselors, access to technology, and same-sex versus coeducational schools” (Adya & Kaiser, 2005, p.4). The same two major influences can also be determinates on a student’s career choice.

Parents or Family Influences

“The Family Influence Scale (FIS) was developed by Fouad (2016) and her colleagues to identify the degree to which family members may influence career decision making and to assess
perceptions on how one’s family origin influences career and work choices” (Fouad, Kim, Ghosh, Chang, & Figueiredo, 2016, p.198). This scale was developed after Fouad conducted early research on the relationship between one’s family and career choice (Fouad et al., 2016). The FIS captures four distinct types of support from family, including financial, informational, and emotional support as well as the perceptions of familial expectations about career choices (Fouad et al., 2016). Fouad et al., (2016) conducted a study to examine the nomological network and construct validity of the FIS, and to examine differences in family influence between the United State and India, while investigating the relationships between family influence variables and sense of family obligation, work volition, work values, and sense of calling (Fouad et al., 2016).

Overall, 568 participants responded to the study and completed all the surveys, but only 136 from the United States and 377 from India were used in the study results (Fouad et al., 2016). The other 48 participants were from a variety of other countries (Fouad et al., 2016). The results of the study supported the hypothesized relationships between family obligation and family influence subscales for both groups of participants (Fouad et al., 2016). The results of the survey are shown below in Table 1 and Table 2.
### Table 1

*Summary of Exploratory Factor Analysis Results for Family Influence Scale in U.S. Sample*

<table>
<thead>
<tr>
<th>Item</th>
<th>Information Support</th>
<th>Family Expectation</th>
<th>Financial Support</th>
<th>Values and Beliefs</th>
</tr>
</thead>
<tbody>
<tr>
<td>My family shared information with me about how to obtain a job</td>
<td>0.74</td>
<td>0.16</td>
<td>0.09</td>
<td>0.17</td>
</tr>
<tr>
<td>My family discussed career issues with me at an early age</td>
<td>0.87</td>
<td>0.16</td>
<td>0.08</td>
<td>0.1</td>
</tr>
<tr>
<td>My family showed me how to be successful in choosing a career</td>
<td>0.86</td>
<td>0.21</td>
<td>0.16</td>
<td>0.18</td>
</tr>
<tr>
<td>My family showed me what was important in choosing a career</td>
<td>0.86</td>
<td>0.22</td>
<td>0.17</td>
<td>0.18</td>
</tr>
<tr>
<td>Watching my family work gave me confidence in my career</td>
<td>0.77</td>
<td>0.09</td>
<td>0.15</td>
<td>0.08</td>
</tr>
<tr>
<td>My family provided guidance on which careers would be best for me</td>
<td>0.83</td>
<td>0.18</td>
<td>0.17</td>
<td>0.14</td>
</tr>
<tr>
<td>My family has given me information about obtaining education/training</td>
<td>0.85</td>
<td>0.01</td>
<td>0.08</td>
<td>0.15</td>
</tr>
<tr>
<td>My family supported me asking career-related questions</td>
<td>0.87</td>
<td>0.01</td>
<td>0.06</td>
<td>0.08</td>
</tr>
<tr>
<td>My family expects me to select a career that has a certain status</td>
<td>0.19</td>
<td>0.71</td>
<td>0.09</td>
<td>0.17</td>
</tr>
<tr>
<td>My family expects me to make career decisions so that I do not shame them</td>
<td>0.08</td>
<td>0.81</td>
<td>0.09</td>
<td>0.27</td>
</tr>
<tr>
<td>My family is willing to support me financially if I choose a career of which they approve</td>
<td>0.09</td>
<td>0.83</td>
<td>0.0</td>
<td>0.06</td>
</tr>
<tr>
<td>My family expects that my choice of occupation will reflect their wishes</td>
<td>0.16</td>
<td>0.82</td>
<td>0.08</td>
<td>0.24</td>
</tr>
<tr>
<td>My family expects people from our culture to choose certain careers</td>
<td>0.22</td>
<td>0.81</td>
<td>0.04</td>
<td>0.11</td>
</tr>
<tr>
<td>My family's career expectations for me are based on my gender</td>
<td>0.01</td>
<td>0.69</td>
<td>-0.16</td>
<td>0.14</td>
</tr>
<tr>
<td>Because my family supports me financially, I can focus on my career development</td>
<td>0.42</td>
<td>0.41</td>
<td>0.55</td>
<td>0.15</td>
</tr>
<tr>
<td>If I wanted to get additional education after high school, my family would provide financial support</td>
<td>0.38</td>
<td>0.33</td>
<td>0.67</td>
<td>0</td>
</tr>
<tr>
<td>If I were to experience a difficult career situation, my family would support me financially</td>
<td>0.52</td>
<td>0.33</td>
<td>0.59</td>
<td>-0.06</td>
</tr>
<tr>
<td>My family expects that I will consider my religion/spirituality when making career decisions</td>
<td>0.23</td>
<td>0.27</td>
<td>-0.03</td>
<td>0.83</td>
</tr>
<tr>
<td>Item</td>
<td>Information Support</td>
<td>Family Expectation</td>
<td>Financial Support</td>
<td>Values and Beliefs</td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>---------------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>My family explained how our values and beliefs pertain to my career choices</td>
<td>0.36</td>
<td>0.42</td>
<td>0</td>
<td>0.74</td>
</tr>
<tr>
<td>My family expects my career to match our family's values/beliefs</td>
<td>0.27</td>
<td>0.51</td>
<td>-0.03</td>
<td>0.69</td>
</tr>
<tr>
<td>Values and Beliefs</td>
<td>6.53</td>
<td>4.77</td>
<td>2.43</td>
<td>2.1</td>
</tr>
<tr>
<td>% of variance</td>
<td>29.69</td>
<td>21.69</td>
<td>11.05</td>
<td>9.46</td>
</tr>
</tbody>
</table>

*Note: N = 136*

Table 2

*Summary of Exploratory Factor Analysis Results for Family Influence Scale in Indian Sample*

<table>
<thead>
<tr>
<th>Item</th>
<th>Information Support</th>
<th>Family Expectation</th>
<th>Financial Support</th>
<th>Values and Beliefs</th>
</tr>
</thead>
<tbody>
<tr>
<td>My family shared information with me about how to obtain a job</td>
<td>0.71</td>
<td>0.06</td>
<td>0.22</td>
<td>0.07</td>
</tr>
<tr>
<td>My family discussed career issues with me at an early age</td>
<td>0.76</td>
<td>0.23</td>
<td>0.09</td>
<td>0.08</td>
</tr>
<tr>
<td>My family showed me how to be successful in choosing a career</td>
<td>0.76</td>
<td>0.17</td>
<td>0.09</td>
<td>0.23</td>
</tr>
<tr>
<td>My family showed me what was important in choosing a career</td>
<td>0.81</td>
<td>0.14</td>
<td>0.05</td>
<td>0.15</td>
</tr>
<tr>
<td>Watching my family work gave me confidence in my career</td>
<td>0.65</td>
<td>0.06</td>
<td>0.18</td>
<td>0.23</td>
</tr>
<tr>
<td>My family provided guidance on which careers would be best for me</td>
<td>0.72</td>
<td>0.17</td>
<td>0.14</td>
<td>0.16</td>
</tr>
<tr>
<td>My family has given me information about obtaining education/training</td>
<td>0.72</td>
<td>0.03</td>
<td>0.18</td>
<td>0.26</td>
</tr>
<tr>
<td>My family supported me asking career-related questions</td>
<td>0.66</td>
<td>-0.04</td>
<td>0.22</td>
<td>0.25</td>
</tr>
<tr>
<td>My family is only willing to support me financially if I choose a career of which they approve</td>
<td>0.06</td>
<td>0.78</td>
<td>0.15</td>
<td>0.03</td>
</tr>
<tr>
<td>My family expects that my choice of occupation will reflect their wishes</td>
<td>0.15</td>
<td>0.56</td>
<td>0.46</td>
<td>-0.08</td>
</tr>
<tr>
<td>My family expects people from our culture to choose certain careers</td>
<td>0.12</td>
<td>0.7</td>
<td>0.29</td>
<td>0.08</td>
</tr>
<tr>
<td>My family's career expectations for me are based on my gender</td>
<td>0.15</td>
<td>0.67</td>
<td>0.22</td>
<td>0.09</td>
</tr>
<tr>
<td>My family expects me to make career decisions so that I do not shame them</td>
<td>0.12</td>
<td>0.15</td>
<td>0.76</td>
<td>0.18</td>
</tr>
<tr>
<td>My family explained how our values and beliefs</td>
<td>0.33</td>
<td>0.27</td>
<td>0.56</td>
<td>0.12</td>
</tr>
</tbody>
</table>
### Table

<table>
<thead>
<tr>
<th>Item</th>
<th>Information Support</th>
<th>Family Expectation</th>
<th>Financial Support</th>
<th>Values and Beliefs</th>
</tr>
</thead>
<tbody>
<tr>
<td>beliefs pertain to my career choices</td>
<td>0.09</td>
<td>0.47</td>
<td>0.49</td>
<td>0.05</td>
</tr>
<tr>
<td>My family expects that I will consider my religion/spirituality when making career decisions</td>
<td>0.23</td>
<td>0.53</td>
<td>0.5</td>
<td>-0.06</td>
</tr>
<tr>
<td>My family expects my career to match our family's values/beliefs</td>
<td>0.37</td>
<td>0.15</td>
<td>0.14</td>
<td>0.62</td>
</tr>
<tr>
<td>Because my family supports me financially, I can focus on my career development</td>
<td>0.27</td>
<td>-0.02</td>
<td>0.12</td>
<td>0.81</td>
</tr>
<tr>
<td>If I wanted to get additional education after high school, my family would provide financial support</td>
<td>0.4</td>
<td>0.03</td>
<td>0.15</td>
<td>0.71</td>
</tr>
<tr>
<td>If I were to experience a difficult career situation, my family would support me financially</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eigenvalues</td>
<td>4.95</td>
<td>3.58</td>
<td>2.55</td>
<td>1.97</td>
</tr>
<tr>
<td>% of variance</td>
<td>22.49</td>
<td>16.29</td>
<td>11.61</td>
<td>8.93</td>
</tr>
</tbody>
</table>

*Note: N = 315*

The data validated the following for both groups: involvement in work-related decisions was more strongly related to family influence subscales than curiosity; intrinsic values were more strongly related to family influence subscales than extrinsic values; and family influence was related to the construct of calling (Fouad et al., 2016, p.208-209). In the final discussion of the study, Fouad et al. (2016) states, “Family influence is a key factor in career-related decisions and therefore of direct importance to researchers and clinicians development effective career interventions for a diverse population” (Fouad et al., 2016, p.209).

**Exposure to Careers in Education**

A student’s family, along with the community they were born into teaches the child to walk, talk, and take care of their basic needs like getting dressed and eating. Every child is as unique as the situation with no required assessment on these basic skills. Once a child enrolls in a school, whether it is public, private, or home-based, there are education requirements to be meet. In the United States the No Child Left Behind Act of 2001 gives every child the right to a
good education (Klien, 2015). There are assessments that every student is required to take, measuring their knowledge in reading and math.

Each student is required to take these assessment exams once a year starting in third grade going through eighth grade at which point, they are only required to take the exam one other time from grade nine through 12 (Klien, 2015). There is no requirement for the student to be evaluated for a career focus. Adya and Kaiser (2005) state that counselors devote a very small percentage of their time on career counseling specifically. Tunji-Olayeni et al. (2017) state “the major strategies for attracting females in construction related programs include: adequate career counseling, a gender inclusive learning environment, exposure to female role models and personal motivation from the student” (p. 428). In order for schools to expose or educate students about the skilled trades as a career option, it must be understood what the need are of the schools in order to offer this expose and education of the skilled trades. This may require additional research and partnership with the state and schools.

The recession of 2007 to 2009, also known as the Great Recession, had a negative effect on the federal and state funding provided to K-12 education. Leachman and Mai (2014) stated, “States are providing less per-pupil funding for kindergarten through 12th grade than they did seven years ago – often far less” (Leachman & Mai, 2014, p.1). Their research shows that our nation still needs to make it a top priority to restore school funding (Leachman & Mai, 2014).

Each state provides funding to their schools differently. Many states took large budget cuts, which impact the schools. State funding accounts for some 46% percent of the total education funding in the United States (Leachman & Mai, 2014). Without the funding schools are required to scale back. With cuts starting in 2008, by 2012 local schools had cut about
330,000 jobs. The economy has started to recover and add jobs back, but still are down 260,000 jobs compared with 2008 (Leachman & Mai, 2014).

It has been difficult for school districts to recover the loss in funding at the local level. To recover the loss of funding the district is required to increase property taxes. It is not recommended to increase property taxes at a time when families are struggling. During the recession the property values fell, making it more difficult for the entire community to recover.

These state cuts also limit education reform efforts. Leachman and Mai (2014) state that the following reforms are endangered by these cuts:

- Recruiting better teachers. Research suggests that teacher quality is the most important school-based determinant of student success. So recruiting, developing, and retaining high-quality teachers are essential to improving student achievement (Leachman & Mai, 2014, p.7-8).

- Trimming class size. Evidence suggest that smaller class sizes can boost achievement, especially in the early grades and for low-income students. Yet, small class sizes are difficult to sustain when schools are cutting spending and enrollments are increasing (Leachman & Mai, 2014, p.8).

- Expanding learning time. Many education policy experts believe that more student learning time can improve achievement. Budget cuts make it more difficult to extend instructional opportunities, because extending learning time generally adds costs (Leachman & Mai, 2014, p.8).

- Providing high-quality early education. A number of studies conclude that pre-kindergarten or pre-school programs can improve cognitive skills, especially for
disadvantaged children, but most states cut funding for those programs after the recession hit (Leachman & Mai, 2014, p.8).

The states will further need to understand the impact of these budget cuts not only on the current generations but also on the future generations of students.

**Conclusion**

It has been found that students are influenced strongly by one’s family and school. Research demonstrates schools require students to be able to succeed in reading and math with no requirement such as the No Child Left Behind Act to require schools to educate students about any career options. A student’s family has a big influence on the student’s career choice, yet families may not realize that influence. Company XYZ will need to bridge this gap in exposure and education in order to fill their gap in the skilled trades workforce.
Chapter III: Methodology

With the majority of Company XYZ’s skilled labor force at or within five years of retirement, how is the skilled labor gap going to be filled? Company XYZ’s 2018 Corporate Responsibility Report stated that their projections showed that 27.9% of their workforce will be eligible for retirement over the next five years and 41% over the next 10 years. However, they do not expect all employees to retire once they become eligible.

Subject Selection and Description

The subjects selected for this research were in grades kindergarten through 12th. There was no requirement for age, gender, ethnicity, residential location, school district, or type of school instruction.

Instrumentation

All surveys were conducted anonymously through Qualtrics software online. The survey did not ask for name, birthdate, family background, location of residency, school district, family structure, or their birth order. The survey did ask for their grade, age, gender, and ethnicity. The complete survey, a total of 15 questions, for students in grades kindergarten through eighth, along with the survey for students in grades 9 through 12, can be found in appendix A and B, respectively.

Data Collection Procedures

The survey was conducted publicly. A post was made on both LinkedIn and Facebook public sites requesting any parent with a student in grades kindergarten through twelfth to participate via the embedded link. An email was also sent out to family, friends, and co-workers, with the same embedded link to the online survey.
The parents were asked to fill out the survey on the student’s behalf if they were not in high school. The high school students were asked to complete the survey on their own. An implied consent form was the first question of the survey once an individual clicked on the embedded link. The implied consent asked for permission of the individual to participate in the survey, understanding most of, if not all, the students would be under the age of 18.

The number of students from each grade varied. Questions were fill in the blank, multiple choice, and Likert scale based. The surveys were not available for review prior to the taking the survey. The survey was not timed but was expected to take no more than 30 minutes. The results were collected through the Qualtrics software.

Data Analysis

The data was analyzed to understand what factors have an impact on a student choice to pursue or not pursue a career in the skilled trades. The data was used to support Company XYZ partnering with families and schools in the local communities to create the interest in the skilled trades specifically in utility field at an earlier age.

Limitations

No specific school district can be analyzed as a result of this survey as it was conducted through a public platform. This limits the ability to research a specific school district on its core class offerings and how the results could expose a potential gap. All ethnicities or grade levels were not equally represented. The survey was limited to individuals who have a connection to the public post on LinkedIn and Facebook or are a co-worker, family, or friend.

Summary

An online survey was conducted publicly through Qualtrics software. Students in kindergarten through twelfth grade were asked to participate. Students answered a total of 15
questions. The analysis of the data was qualitative. The survey results will provide insight on factors impacting a student’s career choice after high school. Company XYZ will be able to work in partnership with the local community and schools to influence or simply expose students to a career in the skilled trades.
Chapter IV: Results

Within the next five years, Company XYZ, would have a gap in the skilled trades positions, as projections show that 27.9% of their workforce were eligible for retirement. What factors impact a student from pursuing a career in the skilled trades? The results of 100 surveys were captured through Qualtrics software. The surveys were completed by parents of the younger children in grades kindergarten through 8th grade, while the students in 9th through 12th grade were asked to complete the survey on their own. Of the 100 surveys, 12 chose to not sign the implied consent to continue with the survey which resulted in leaving only 88 who did choose to sign the implied consent to continue with the survey. Seven of the remaining 88 participants, choose to answer only the first seven to nine questions, which were the base demographic questions. These additional seven were discarded from the results. The remaining 81 participants answers were merged together for further analysis.

Demographics

The survey asked for age, grade, gender, and ethnicity. The survey did not ask for the city or state of residency, therefore no conclusions can be made on residency location or school district. The majority of the participants were of Caucasian ethnicity. No conclusions could be made in regard to ethnicity being a factor of impact.

A strong representation by both genders was present. Figure 1 shows the response rate by gender. This strong representation allowed gender to be further analyzed with other results.
There was at least one participant in each of the 13 grade levels as shown in Table 3. All grades levels were represented fairly evenly with the exception of the seventh grade only representing 2%.

Table 3

*Grade Level with Gender Identified*

<table>
<thead>
<tr>
<th>Grade</th>
<th>Female</th>
<th>Male</th>
<th>Unidentified</th>
<th>% of overall participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>4</td>
<td>4</td>
<td>-</td>
<td>10%</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>2</td>
<td>-</td>
<td>7%</td>
</tr>
<tr>
<td>2</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>6%</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>5</td>
<td>-</td>
<td>7%</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>6</td>
<td>-</td>
<td>14%</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>-</td>
<td>9%</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>4%</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>11%</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>4</td>
<td>-</td>
<td>9%</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
<td>2</td>
<td>-</td>
<td>9%</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>4</td>
<td>-</td>
<td>7%</td>
</tr>
<tr>
<td>12</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>4%</td>
</tr>
<tr>
<td>Totals</td>
<td>36</td>
<td>43</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
Item Analysis

The survey had a total of 15 questions. The first nine questions were simple demographic questions while the other six were questions on the class offerings at the school, impact of family and school on their career choice, knowledge of options after high school, and perceptions on why an individual would pursue a career in the skilled trades. There were opportunities for additional comments to be entered. The questions were worded slightly different if the parent was answering them on behalf of the student versus the student answering them on their own. The exact survey questions can be found in Appendix A and Appendix B.

Many of the parents have or plan to make their student aware of the possible directions they may pursue after high school graduation as shown in Table 4. Many students are aware they can pursue additional education through a technical college, with the capability to study the skilled trades, yet the gap in the skilled trades still exists. There is a lack of awareness that a student can pursue a full-time job, which may be in the skilled trades, potentially assisting in the creation of the skilled trades gap.

Table 4

*Student Awareness of Choices After High School*

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enroll in the military</td>
<td>27</td>
<td>18</td>
</tr>
<tr>
<td>Pursue the skilled trades through working for a company or joining a local union</td>
<td>37</td>
<td>8</td>
</tr>
<tr>
<td>Enroll in education at a technical college</td>
<td>40</td>
<td>5</td>
</tr>
<tr>
<td>Enroll in a 4-year college</td>
<td>44</td>
<td>1</td>
</tr>
<tr>
<td>Pursue a full-time job</td>
<td>31</td>
<td>14</td>
</tr>
</tbody>
</table>
The awareness a student had on the different choices after high school was further impacted by their gender. Male students were aware of all choices in Table 5 at a 75% agreement rate or more. Female students were aware of the option to enroll in a 4-year school at a 100% rate, yet only about 70% of those same female students were made aware they could pursue the skilled trades and only 57% aware of the option to pursue a full-time job after high school.

Table 5

*Students Awareness of Choice After High School vs Students Gender*

<table>
<thead>
<tr>
<th>Choice</th>
<th>Yes</th>
<th>Yes</th>
<th>No</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male (Female)</td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Enroll in the military</td>
<td>14</td>
<td>12</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Pursue the skilled trades through working for a company or joining a local union</td>
<td>21</td>
<td>15</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Enroll in education at a technical college</td>
<td>21</td>
<td>18</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Enroll in a 4-year college</td>
<td>22</td>
<td>21</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Pursue a full-time job</td>
<td>18</td>
<td>12</td>
<td>5</td>
<td>9</td>
</tr>
</tbody>
</table>

The parents of 17 of the students did not pursue any additional education after high school (Table 6). Fathers finished a 4-year college or a post-secondary school at the same rate. Mothers obtained more than a 4-year degree, supporting the female students’ awareness of enrolling in additional education at 100%.
Table 6

*Highest Education Level Achieved by Father and Mother*

<table>
<thead>
<tr>
<th>Question</th>
<th>Father</th>
<th>Mother</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finished college/post-secondary</td>
<td>37</td>
<td>26</td>
</tr>
<tr>
<td>High school</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>More than a 4-year degree</td>
<td>12</td>
<td>34</td>
</tr>
<tr>
<td>Some college/post-secondary</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>Some high school</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Students responded stating that it was required to take art, photography, and robotics/automation through their general studies at a rate 3 times more than any of the skilled trades (Table 7). With the skilled trades not being a required class in school, Company XYZ can work with the schools to demonstrate the impact this lack of exposure is having.

Table 7

*Required Classes in School*

<table>
<thead>
<tr>
<th>Required Classes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art</td>
</tr>
<tr>
<td>Music: Band Choir</td>
</tr>
<tr>
<td>Computers: Programming/Coding</td>
</tr>
<tr>
<td>Cooking</td>
</tr>
<tr>
<td>Robotics/Automation</td>
</tr>
<tr>
<td>Engineering</td>
</tr>
<tr>
<td>Sewing</td>
</tr>
<tr>
<td>Photography</td>
</tr>
<tr>
<td>Architecture/Design</td>
</tr>
<tr>
<td>Electricity</td>
</tr>
<tr>
<td>Mechanics</td>
</tr>
<tr>
<td>Carpentry</td>
</tr>
<tr>
<td>Welding</td>
</tr>
<tr>
<td>Plumbing</td>
</tr>
<tr>
<td>HVAC</td>
</tr>
<tr>
<td>Masonry</td>
</tr>
</tbody>
</table>

Asking a similar question on if the school offers the same list of classes as optional or self-selected, the results followed the same thread (Table 8). The same seven courses that
expose students to the skilled trades are offered at a very low rate. The rate female students choose to enroll in the skilled trades classes, was at a 50% rate compared to the male students.

Table 8

Optional/Self-Selected Classes Available

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music: Band Choir</td>
<td>49</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>Art</td>
<td>43</td>
<td>25</td>
<td>18</td>
</tr>
<tr>
<td>Computers: Programming/Coding</td>
<td>36</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Robotics/Automation</td>
<td>30</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Cooking</td>
<td>26</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Engineering</td>
<td>22</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Photography</td>
<td>22</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Sewing</td>
<td>20</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Mechanics</td>
<td>19</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Carpentry</td>
<td>12</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Architecture/Design</td>
<td>11</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Welding</td>
<td>10</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Electricity</td>
<td>7</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Masonry</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Plumbing</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Landscaping</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>HVAC</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

There are many career choices for students to choose from. The students that pursue a career in the skilled trades may be perceived differently. A student, who enjoys hands on activities, is perceived to pursue the skilled trades at a rate of ninety-three percent more than a student who does not enjoy hands on activities (Table 9). It is perceived at a rate of 54% that a student will pursue the skilled trades if one of their parents works in the skilled trades.
Table 9

*Perception That a Student Will Pursue the Skilled Trades*

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student enjoys hands on activities</td>
<td>62</td>
<td>5</td>
</tr>
<tr>
<td>Student has an interest in the skilled trades</td>
<td>54</td>
<td>13</td>
</tr>
<tr>
<td>Student does not have the academic ability for college</td>
<td>17</td>
<td>50</td>
</tr>
<tr>
<td>Students parent has a career in the skilled trades</td>
<td>36</td>
<td>31</td>
</tr>
</tbody>
</table>

Outside of the school exposing the students to these skills, a question was asked if any of the parents, of the students, work in a skilled trade. From the survey results, 23 responded with a yes and 19 of the 33 responded to the additional sub-question with the following trades: fabricator, electrician, mechanics, project specialist, utility, carpentry, general contractor, steamfitter, woodworking, and flooring installer. Not all 23 responses answered with a skilled trade as defined for this research, among those, a veterinarian, service manager, and system administrator were noted. Overall the survey results demonstrate a low percentage of students are being exposed or even made aware of the career opportunity in the skilled trades. The results demonstrated female students have limited exposure and awareness of pursuing anything but additional education after high school.

**Conclusion**

The survey results collected was from 81 participants within a small footprint of the United States. The results had a good ratio for gender comparisons but lacked overall ethnic diversity for comparisons. The results demonstrated, at a surface level, that students are not exposed or educated about the skilled trades as a career option to pursue either through the school system or through families. The results also demonstrated a strong gender bias that
female students shall pursue an additional 4-year degree after high school in order to have a successful career. This survey captured results stating the family and schools are a factor on students pursuing the skilled trades as a career.
Chapter V: Discussion, Conclusion and Recommendation

Within the next five years, Company XYZ, will have a gap in the skilled trades positions, as projections show that 27.9% of their workforce will be eligible for retirement. For Company XYZ to attract students, they need to understand what factors impact a student to choose a career in the skilled trades. The purpose of this study was to start to understand the impact a student’s family or school had on their career choice after high school. The data collected gives Company XYZ the opportunity to partner with families and schools in the local communities to create the interest in the utility field at an early age, since exposure may be limited by families and schools.

Discussion

The results of the survey demonstrated a lack of exposure and awareness of a career choice in the skilled trades. Students, both male and female, were all exposed to art, music, computers, even robotics/automation at a very high percentage rate, while very few to none were exposed to carpentry, mechanics, electrical, plumbing, or heating, plumbing, ventilation, air conditioning (HVAC). Twice the number of female students lacked awareness and expose, limiting them, to all the possible choices after high school, when compared to the male students. Mothers of these female students voluntary or involuntary were demonstrating to their student that continuing their education after high school may be the only option for success as a female, as thirty-four of the mothers had more than a 4-year degree. If students are not exposed to the skilled trades in school or through family, the gap in the skilled trades will continue.

If the opportunity presents itself to conduct another survey, there would be additional questions specifically asked to the parents and school. The survey lacked data to support if parent’s voluntary did not expose their students to the skilled trades. Were parents themselves aware of all the possibilities after high school or was their exposure and awareness limited,
therefore unwillingly limiting the students as well? How are the skilled trades perceived by parents, the community, and the school? Being able to understand the knowledge both parents and the school has on the skilled trades will allow Company XYZ to focus their partnership with them to expand knowledge.

**Recommendations**

Company XYZ can work with their current platform where teachers are able to request literature or informational lesson plans about utility safety. A one-page informational lesson plan on each of the main skilled trades can be loaded onto the platform for teachers to use at their disposal. An example of the informational lesson plan for carpentry is available in Appendix C. Prior to the lesson plans being made available on the platform, a letter, found in Appendix D, will first be mailed out to all schools in the local community. This letter will introduce them to the skilled trades gap and where materials will be made available to them at no cost.

Along with the letter and lesson plans, Company XYZ, can strengthen their current partnership with the middle and high schools in the area by creating an education trailer. The education trailer would be built out on the interior with several different labs. There would be a lab on carpentry, electrical, welders and pipefitters. As the traveling education trailer takes hold in the community as a tool to raise awareness, additional education trailers could be built filled with other skilled trades. The trailers can also be parked as an exhibit at weekend festivals to educate the community.

The last recommendation is for Company XYZ to hold a one-day skilled trades focused educational day for career counselors, teachers, teacher’s assistance, and school administrative staff to make them aware of the additional opportunities for the students to pursue. The combination of these three recommendations can start to raise the awareness for the gap in the
skilled trades. Along with raising the awareness, the tools are educating not only the students and school facility about these reputable careers, but it is also creating the awareness in the community in which Company XYZ is headquartered in.
References


https://doi.org/10.1108/09593840510615860


Appendix A: Survey Questions for Students in Grades Kindergarten through 8th Grade

It is understood that the parent(s) of a student in Kindergarten through 4th grade will be completing this survey on behalf of the student. The parent(s) and student in grades 5 – 8 will be able to complete the survey together.

For the purpose of this survey, the definition of a Skilled Trade is a career/profession where a person is physically assembling, constructing or repairing something. Some examples are: carpenter, electrician, laborer, pipefitter, lineman, painter, welder, instrument technician, mechanic, or equipment operator.

Please fill out all the questions in the survey to the best of your ability. If you would like to add any comments, please do so under the last question.

1. Gender of student: Male or Female
2. Age of student: ______________
3. Grade of student: ______________
4. Race or ethnicity of you most identify with (student):
   a. African American
   b. American Indian or Alaskan Native
   c. White
   d. Hispanic or Latino
   e. Asian
   f. Multiracial (please identify): ________________________________
5. Student is living with (Daily Guardians):
   a. Both Parents
   b. Mother
   c. Father
   d. Grandparent(s)
   e. Other (please identify): ________________________________
6. Highest education level achieved by students Father:
   a. Some high school
   b. High school
   c. Some college/post-secondary
   d. Finished college/post-secondary
   e. More than a 4-year degree
7. Highest education level achieved by students Mother:
   a. Some high school
   b. High school
   c. Some college/post-secondary
   d. Finished college/post-secondary
   e. More than a 4-year degree
8. If I, student, had to choose a career choice today, it would be: ______________
9. One of my parents/guardians have a career in the skilled trades: Yes or No
   a. If yes, please identify gender and skilled trade (example: Female and Carpenter): ________________________________

10. In school, I have been exposed to the following through general **required** class: (select all that apply)
    a. Art
    b. Music: Band/Choir
    c. Sewing
    d. Cooking
    e. Mechanics
    f. Welding
    g. Computers: Programming/Coding
    h. Engineering
    i. Carpentry
    j. Electricity
    k. Masonry
    l. Plumbing
    m. Heating Ventilation Air Conditioning
    n. Landscaping
    o. Architecture/Design
    p. Robotics/Automation
    q. Photography

11. In school, I have/had the opportunity to **select** these classes: (select all that apply)
    a. Art
    b. Music: Band/Choir
    c. Sewing
    d. Cooking
    e. Mechanics
    f. Welding
    g. Computers: Programming/Coding
    h. Engineering
    i. Carpentry
    j. Electricity
    k. Masonry
    l. Plumbing
    m. Heating Ventilation Air Conditioning
    n. Landscaping
    o. Architecture/Design
    p. Robotics/Automation
    q. Photography
12. On a scale of one to four, please check the ONE answer that best describes your response.
   1: Strongly Disagree  2: Disagree  3: Agree  4: Strongly Agree

<table>
<thead>
<tr>
<th>Questions</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>My student has a preference for a career choice for after high school graduation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My student currently has no idea about a career choice after high school graduation</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>I, parent(s), believe I have/will have the greatest influence in my student’s career choice</td>
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</tr>
<tr>
<td>I, Parent(s), believe my students Teachers/School professionals have/will have a major influence in their career choice</td>
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</tr>
<tr>
<td>I, Parent(s), believe my students friends have/will have a major influence in their career choice</td>
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</tr>
<tr>
<td>I, Parent(s), believe my student’s career choice will be based on the potential salary (monetary) value</td>
<td></td>
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</tr>
<tr>
<td>I, Parent(s) or family, will discourage (i.e. parents/family/friends do not fully support) my student from selecting a technical college instead of a four-year college</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
  Why will you discourage? |
| I, Parent(s) or family, will encourage (i.e. parents/family/friends do not fully support) my student to pursue additional education |   |   |   |   |
  Why will you encourage? |

13. For the following question, answer yes or no.

| I, Parent(s), believe it is perceived that a student will pursue the skilled trades because: |
| Student enjoys hands on activities | Yes | No |
| Student has an interest in the skilled trades | Yes | No |
| Student does not have the academic ability for college | Yes | No |
| Students parent has a career in the skilled trades | Yes | No |
14. For the following question, answer yes or no.

<table>
<thead>
<tr>
<th>Plan after high school</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enroll in the military</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pursue the skilled trades through working for a company or joining a local union</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enroll in education at a technical college</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enroll in a 4-year college</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pursue a full-time job</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you answered no to any of the questions above, please provide a reason:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

15. Any other comments you’d like to provide for this research?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Appendix B: Survey Questions for Students in Grades 9th through 12th Grade

It is understood that the student will be completing this survey without the help or guidance of a parent(s).

For the purpose of this survey, the definition of a Skilled Trade is a career/profession where a person is physically assembling, constructing or repairing something. Some examples are: carpenter, electrician, laborer, pipefitter, lineman, painter, welder, instrument technician, mechanic, or equipment operator.

Please fill out all the questions in the survey to the best of your ability. If you would like to add any comments, please do so under the last question.

1. Gender: Male or Female
2. Age: ____________
3. Grade: ____________
4. Race or Ethnicity you most identify with:
   a. African American
   b. American Indian or Alaskan Native
   c. White
   d. Hispanic or Latino
   e. Asian
   f. Multiracial (please identify): ________________________________
5. Student is living with (Daily Guardians):
   a. Both Parents
   b. Mother
   c. Father
   d. Grandparent(s)
   e. Other (please identify): ______________________________________
6. Highest education level achieved by students Father:
   a. Some high school
   b. High school
   c. Some college/post-secondary
   d. Finished college/post-secondary
   e. More than a 4-year degree
7. Highest education level achieved by students Mother:
   a. Some high school
   b. High school
   c. Some college/post-secondary
   d. Finished college/post-secondary
   e. More than a 4-year degree
8. If I, student, had to choose a career choice today, it would be: ______________
9. One of my parents/guardians have a career in the skilled trades: Yes or No
a. If yes, please identify gender and skilled trade (example: Female and Carpenter): ________________

10. In school, I have been exposed to the following through general required class: (select all that apply)

a. Art
b. Music: Band/Choir
c. Sewing
d. Cooking
e. Mechanics
f. Welding
g. Computers: Programming/Coding
h. Engineering
i. Carpentry
j. Electricity
k. Masonry
l. Plumbing
m. Heating Ventilation Air Conditioning
n. Landscaping
o. Architecture/Design
p. Robotics/Automation
q. Photography

11. In school, I have/had the opportunity to select these classes: (select all that apply)

a. Art
b. Music: Band/Choir
c. Sewing
d. Cooking
e. Mechanics
f. Welding
g. Computers: Programming/Coding
h. Engineering
i. Carpentry
j. Electricity
k. Masonry
l. Plumbing
m. Heating Ventilation Air Conditioning
n. Landscaping
o. Architecture/Design
p. Robotics/Automation
q. Photography
12. On a scale of one to four, please check the **ONE** answer that best describes your response.
   1: Strongly Disagree  2: Disagree  3: Agree  4: Strongly Agree

<table>
<thead>
<tr>
<th>Questions</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have a preference for a career choice for after high school graduation</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>I currently have no idea about a career choice after high school graduation</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My parents have/will have the greatest influence in my career choice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My Teachers/School professionals have/will have a major influence in my career choice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My friends have/will have a major influence in my career choice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My career choice will be based on the potential salary (monetary) value</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>My parent(s) or family, will discourage (i.e. parents/family/friends do not fully support) me from selecting a technical college instead of a four-year college</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Why will you be discouraged?</strong></td>
<td></td>
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</tr>
<tr>
<td>My parent(s) or family, will encourage (i.e. parents/family/friends do not fully support) me to pursue additional education</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Why will you be encouraged?</strong></td>
<td></td>
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</tr>
</tbody>
</table>

13. For the following question, answer yes or no.

<table>
<thead>
<tr>
<th>I believe it is perceived that a student will pursue the skilled trades because:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student enjoys hands on activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student has an interest in the skilled trades</td>
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</tr>
<tr>
<td>Student does not have the academic ability for college</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students parent has a career in the skilled trades</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
14. For the following question, answer yes or no.

<table>
<thead>
<tr>
<th>Choice</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have been made aware of the choices after high school:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enroll in the military</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pursue the skilled trades through working for a company or joining a local union</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enroll in education at a technical college</td>
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<td></td>
</tr>
<tr>
<td>Enroll in a 4-year college</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pursue a full-time job</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you answered no to any of the questions above, please provide a reason: 
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

15. Any other comments you’d like to provide for this research?
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
# Appendix C: Informational Lesson Plan on Union (Bargaining) Carpentry

## Lesson Plan on Union (Bargaining) Carpentry

<table>
<thead>
<tr>
<th>Learning Objective:</th>
<th>To create awareness about what a career choice as a carpenter is and what it means to be a Union Carpenter.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
<td>60-90 minutes</td>
</tr>
</tbody>
</table>

### Key Concepts / Big Ideas:

- **Unions are:**
  - a group of workers who band together for mutual benefit
  - united by a desire to earn fair wages and work in a safe environment
  - a way to secure fair wages that include benefits
  - do not discriminate

- **Carpenters Local Union 322 Facts:**
  - Member of the United Brotherhood of Carpenters
  - Established in 2011
  - Has more than 5500 members
  - Represents the Twin Cities

- **Carpenter Facts:**
  - Work on the following type of sites:
    - New construction and Remodels
    - Single-Family or Multi-Family Homes
    - Commercial buildings
    - Stadiums/Arenas
    - Hospitals and Educational Facilities
  - Tasks include (not all inclusive):
    - Framing walls, roofs, floors, stairs
    - Suspended ceilings and soffits
    - Install interior doors, windows, trim-work, cabinets
    - Exterior siding, asphalt shingles, exterior doors
    - Interior hardware

### Expectations:

- Understand what a union is
- Able to define a carpenter
- Awareness that one can be a carpenter directly out of high school; no requirement to obtain 4-year college degree
- This career field is open to everyone
- Carpenters are paid a living wage with benefits

### Materials:

Materials may be used but are not required. The following is a list of items a carpenter may wear on any given day; simply display or have a student dress in the items: hard hat, gloves, tool belt, safety glasses, and ear plugs
Appendix D: Letter to Local Area Schools

Company XYZ
City, State 99999

RE: Additional Skilled Trades Career Lesson Plans Now Available

Local School Faculty,

Company XYZ has a workforce that consists of 47% bargaining workforce. The bargaining workforce is the workforce made up of the skilled labor trades: electricians, carpenters, welders, and pipefitters to name a few. Projections show that 27.9% of the workforce will be eligible for retirement over the next five years and 41% over the next 10 years. This leaves a significant amount of skilled labor positions that need to be filled by the younger generations.

Through research conducted, it is understood that schools have a large influence on the career students choose second to the influence of their parents and/or family. We understand that not all teachers or career counselors have been exposed or informed about the skilled trades. With this understanding, in order to expose and educate the current generation of students in school, additional materials have been made available for use in the classroom through Company XYZ School Portal. The materials are available through the current portal set up and does not require any additional subscription. Lesson plans for the different skilled labor trades (carpentry, electrical, welder, and pipefitter) are available now. Additional materials will continue to be made available.

Company XYZ appreciates your continued partnership to enhance the students learning environment. Our goal is to create the awareness that we have a very specific need in our immediate future with your students. If there is any additional way, we can expose your school, students, and community to these rewarding career paths, please give us a call at 612-999-9999.

Regards,

Chief Education Liaison
Company XYZ