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College Students' Attitudes toward the Textile Manufacturing Industry and Willingness to Work in the Industry

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College Students' Attitudes toward the Textile Manufacturing Industry and Willingness to Work in the Industry

Introduction

Textile manufacturing is the industry converting fiber to fabric used for various purposes including clothing, home furnishing, transportation, recreation, healthcare, and space exploration.¹ US textile-related products, such as yarn, fabric, and non-apparel sewn products, are especially well-positioned globally and the US textile industry is the second-largest exporter of those products in the world.² The recent market environments further provide a substantial opportunity for the industry to thrive. Since the Revitalize American Manufacturing and Innovation Act was passed in 2014, the US government and private companies have focused on consolidating the competitiveness of US textile manufacturing in the global market through advanced technologies and reshoring/nearshoring production.^{3,4} Manufacturing USA⁵ and Advanced Functional Fabrics of America (AFFOA)³ are the representative institutes committed to this effort. Additionally, the current global supply chain disruption under the COVID-19 pandemic is driving the need for supply chain resilience and operational risk management in the US textile industry. This should be expected to further boost US textile manufacturing reshoring/nearshoring and regional supply-chain development.⁶

However, the US textile manufacturing industry is struggling to recruit young employees, who are required to sustain the industry and replace the aging workforce.⁷ Among workforces, textile manufacturing factory employees recorded the second-highest median age (51.5 years

old) after those in the funeral industry (53.1 years old) in 2018; by way of comparison, the lowest such ages, recorded among shoe stores and restaurants, were 25.6 and 29 years old, respectively.⁷ Manufacturing professionals in general insist that the manufacturing industry issue of not appearing attractive to young people is attributed to the image or perception associated with the industry (e.g., as dirty and dangerous), so the industry needs rebranding to deliver its desired identity to the young audience.⁸ However, as no research on young people's perspectives on textile manufacturing has been undertaken, to my knowledge, it is hard to know which perspectives and attributes are associated with young people's unwillingness to work in textile manufacturing and thus the areas that need to be improved.

As such, this study aims to examine college students' perspectives (i.e., attitudes) on the textile manufacturing industry and the relationships with their willingness to work in textile manufacturing in order to understand the specific reasons for the industry issue with the age of its workforce. To this end, the Fishbein model is adopted to identify specific attributes that influence college students' willingness to work in textile manufacturing. The main research questions are:

1. What are the important attributes of college students' occupational decisions?
2. What perspectives (i.e., attitudes) do college students have toward the textile manufacturing industry?
3. What attributes establishing attitudes and demographics determine college students' willingness to work in this industry?

The findings of this research may be an essential resource in the rebranding of the textile manufacturing industry and the development of recruiting strategies for suitable replacements for

aging workers. These will be critical if the US textile industry is to adapt to market changes and take advantage of the opportunity.

Conceptual Framework

The Fishbein model, the most influential multi-attribute model, was used as a conceptual framework. The model states that a person's attitude toward an object is a function of the importance the person places on a particular attribute associated with an object and the beliefs the person might gain during the evaluation of the attitude object.⁹ Based on the Fishbein model, an attitudinal score toward the textile manufacturing industry was computed as below.

$$\text{Attitude} = \sum I_k B_k,$$

where k is an attribute of occupational decision (in this study, $k = 1, 2, \dots, 11$), I_k is the importance of the attribute k for occupational decisions, and B_k is the belief about the attribute k in the textile manufacturing industry. This model is useful for understanding the overall attitude toward an object and identifying relative strengths and weaknesses people perceive regarding the object.^{9,10}

Methods

An online survey was conducted for data collection in 2019, targeting college students at a university in the northeastern US. The convenience sampling method was used by requesting that the instructors and staff send the survey link to their students. Textile manufacturing firms are run with various divisions such as management, accounting, finance, product development, testing labs, and machine operation and recruit various majors for their various business functions. Thus, the survey target did not limit to specific majors and was sent across disciplines.

The questionnaire was comprised of four sections: 1) the importance of attributes for the occupational decision, 2) beliefs about the attributes regarding the textile manufacturing industry, 3) general questions regarding occupational selection, such as industries and work locations, and influencers of occupational decisions, and 4) demographics. Eleven attributes (i.e., salary level, career progress, job stability, benefits, supervisor capabilities, physical safety, company reputation, coworker capabilities, sharing opinions, work–life balance, and independent decision making) were determined to measure 1) and 2) based on occupational research conducted by practitioners.^{11,12}

Questions regarding the importance and belief of attributes and influencers of occupational decisions were developed with a 5-point Likert scale (e.g., 1: least important to 5: most important or 1: extremely difficult to 5: extremely easy). The measurement reliability was confirmed with the Cronbach's alpha of .850 for the importance of occupational decisions and .906 for the belief in the industry. The willingness to consider the textile manufacturing industry for their future workplace was measured using one question with an interval scale of 0 - 10 (0: not willing to consider at all to 10: highly willing to consider).

A total of 259 usable data was obtained after excluding 14 incomplete responses. The respondents consisted of 25.1% first-year students, 19.3% second-year, 21.6% third-year, and 33.9% fourth-year or beyond. The majority of the respondents were in business-related majors (68.3%), followed by textile-related majors (27.0 %). As existing literature confirms the effect of household income on children's various outcomes such as occupational choice¹³ and economic future¹⁴, this study included household income as a possible determinant of students' occupational decision. Of the respondents, 72.8% reported that their household income in 2018 was \$70,000 or higher. Compared to the US median household income in 2018 of \$ 61,937,¹⁵ the

majority of the respondents in this study had a relatively higher household income level. Caucasians accounted for 80.3% of the respondents, others for 6.5%, Asians for 5.4%, and African Americans for 3.5 %. Females accounted for 67.6%.

Results

Occupational importance and beliefs about the textile manufacturing industry

Regarding important attributes for the occupational decisions, the result shows that every attribute is considered important (i.e., all attributes' mean scores exceed 3 points), but the level of importance of each attribute varied, ranging from 3.95 to 4.58. The blue bar in Fig. 1 presents the most significant attribute on the left through the least significant attribute on the right. When the importance (e.g., how important is “having a job that provides steady employment” for occupational decision.) was compared the belief the respondents hold in the textile manufacturing industry regarding the attribute (e.g., how likely the textile manufacturing industry is to provide steady employment) is compared, every attribute show significant gaps between the two factors (see Fig. 1). Furthermore, the gaps tend to be larger for attributes with higher scores. For example, the discrepancy for salary (the most significant attribute) is larger than that of independent decision making (the least significant attribute). Such results show that college students think the working environment and conditions of the textile manufacturing industry are not likely to meet their expectations.

(Please insert Fig. 1 here.)

Regarding the influencers of the students' occupational decisions, industry professionals were found to be the most significant influencers (mean = 3.77), followed by mother, father, and professors (mean = 3.50, 3.33, and 3.17, respectively).

Attitude toward the industry

To answer the third research question, a regression model was set where the dependent variable was the respondent's willingness to consider having a job in the textile manufacturing industry, and the independent variables included the attitude toward the industry and demographic variables. As a result, the attitude toward the industry was found to have a significant positive effect on the willingness to consider a job in the textile industry ($\beta = 0.009$). This means that students with a favorable attitude toward the textile manufacturing industry are more willing to consider working in it. Regarding other factors, only majors and gender were found to affect the willingness, whereas there was no significant difference among school years, considering a job in or out of the state, in-state/out-of-state students, and income. Even though Textile-related majors' willingness to work in the textile manufacturing industry does not fall in the high level of willingness (mean = 6.31), it was significantly higher than other majors. Textile-related majors and female students were found to be more likely to consider a job in the industry than business-related and other majors and male students. Hence, further analyses were conducted to examine the differences in attitudes by majors and the level of the willingness to consider a job in the textile manufacturing industry. The gender difference was also associated with the major, reflecting 37.1% of female respondents and only 4.9% of male respondents being in textile-related majors.

(Please insert Table I here.)

Different determinants by majors

For further analyses, each major that was textile-related or business-related was categorized into three groups by high, moderate, and low levels of willingness to consider a job in the textile industry. Then, students' attitudes toward the textile manufacturing industry were examined. Figs. 2 and 3 present the results.

In textile-related majors, no significant difference was found in attitudes among the three groups except for one attribute. Only coworkers' capabilities were found to be significantly more considered in the lowest group than in the others. In contrast, a significantly different attitude toward the industry was found among business-related groups. On nine attributes (i.e., career progress, job stability, benefits, supervisor capabilities, physical safety, company reputation, sharing opinions, work–life balance, and independent decision making), the group with the highest willingness was likely to have a more positive attitude, suggesting that an evaluation of a specific attribute regarding the textile manufacturing industry determines students' willingness to consider a job in the industry.

(Please insert Fig. 2. & Fig. 3 here.)

Conclusion

This study reveals significant results regarding factors that influence college students' willingness to consider the textile manufacturing industry for their future workplace. First, overall, students see the textile manufacturing industry as unlikely to fulfill the attributes that

students consider important for their occupational decisions. On the attributes considered more important by students, the unfavorable perception of the industry tends to be stronger. These findings suggest the industry needs to improve students' overall attitude about the industry but focus more on some focal attributes (e.g., salary level, career progress, and job stability) in order to recruit them effectively. Indeed, national campaigns and public relations could be a relevant method to convey the industry's desirable identity. Another avenue the industry must consider is collaborations with universities. Industry professionals are the most significant influencers of students' occupational decisions. Various activities with universities (e.g., advisory board, guest speaking, in-class projects, and internships) could be one of the most effective ways to improve students' attitudes toward the industry. Lastly, the attributes related to the willingness to work in the textile manufacturing industry vary by major. When conveyed, the information on the industry must be tuned by major to meet different majors' expectations to attract future workforce for the industries' various divisions and duties. This study is based on data collected at a US university. Future research must include more diversified majors and universities for data collection for generalization of the findings and more insightful and specific results by majors and regions. Identifying college students' knowledge of the industry such as available jobs and associations with the industry in future research would more clearly specify the factors that cause negative attitudes and areas to improve.

Acknowledgment

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Table I. The effects of attitudes and demographics on the willingness to work in the industry

Category	Variable	B	S.E.	Beta
Intercept	Intercept	1.651 **	0.856	
Attitude	Attitude	0.009 *	0.004	0.132
School year	Second-year	-0.110	0.492	-0.015
	Third-year	0.098	0.481	0.014
	Fourth-year or beyond	0.132	0.443	0.022
Major	Textile-related	2.416 ***	0.408	0.376
	Others	0.741	0.785	0.055
Gender	Female	0.631 **	0.374	0.104
Work location	Considering a job in the state	-0.313	0.377	-0.051
In-state/out-of-state students	Out-of-state students	0.223	0.376	0.038
Income	Middle	0.628	0.631	0.079
	Upper middle	0.239	0.574	0.035
	High	-0.088	0.533	-0.015

* p < .05, ** p < .01, *** p < .001, R-square = .214, Adjusted R-square = .176

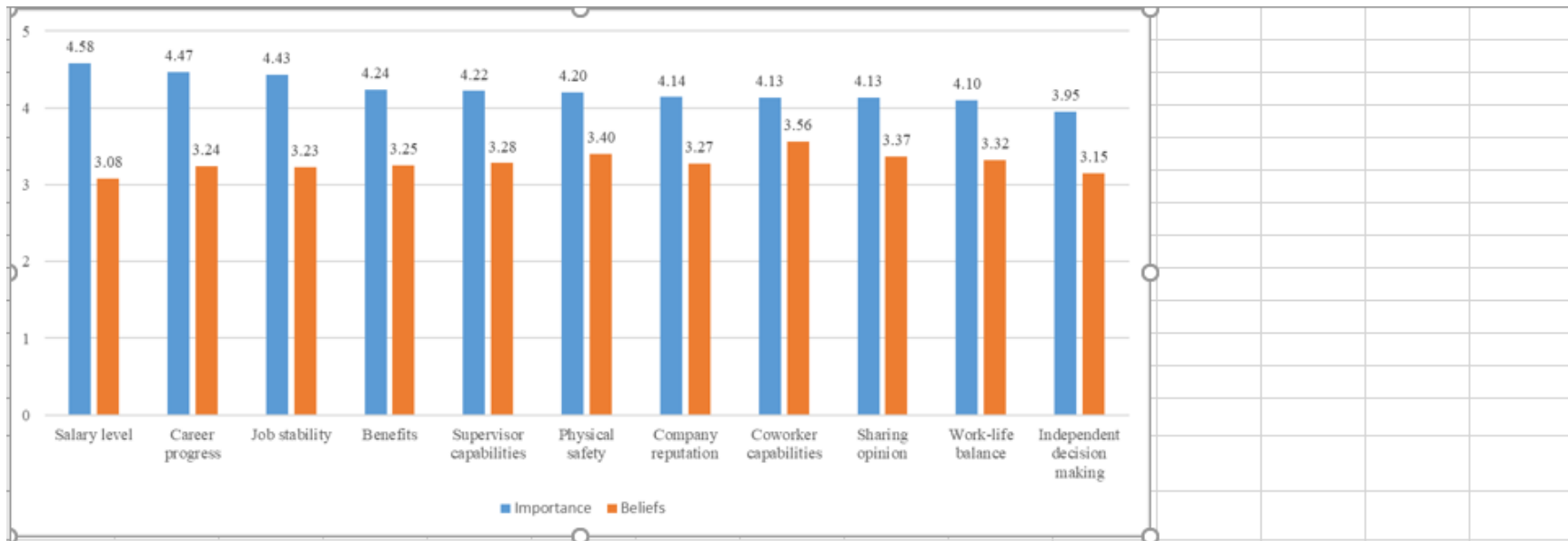
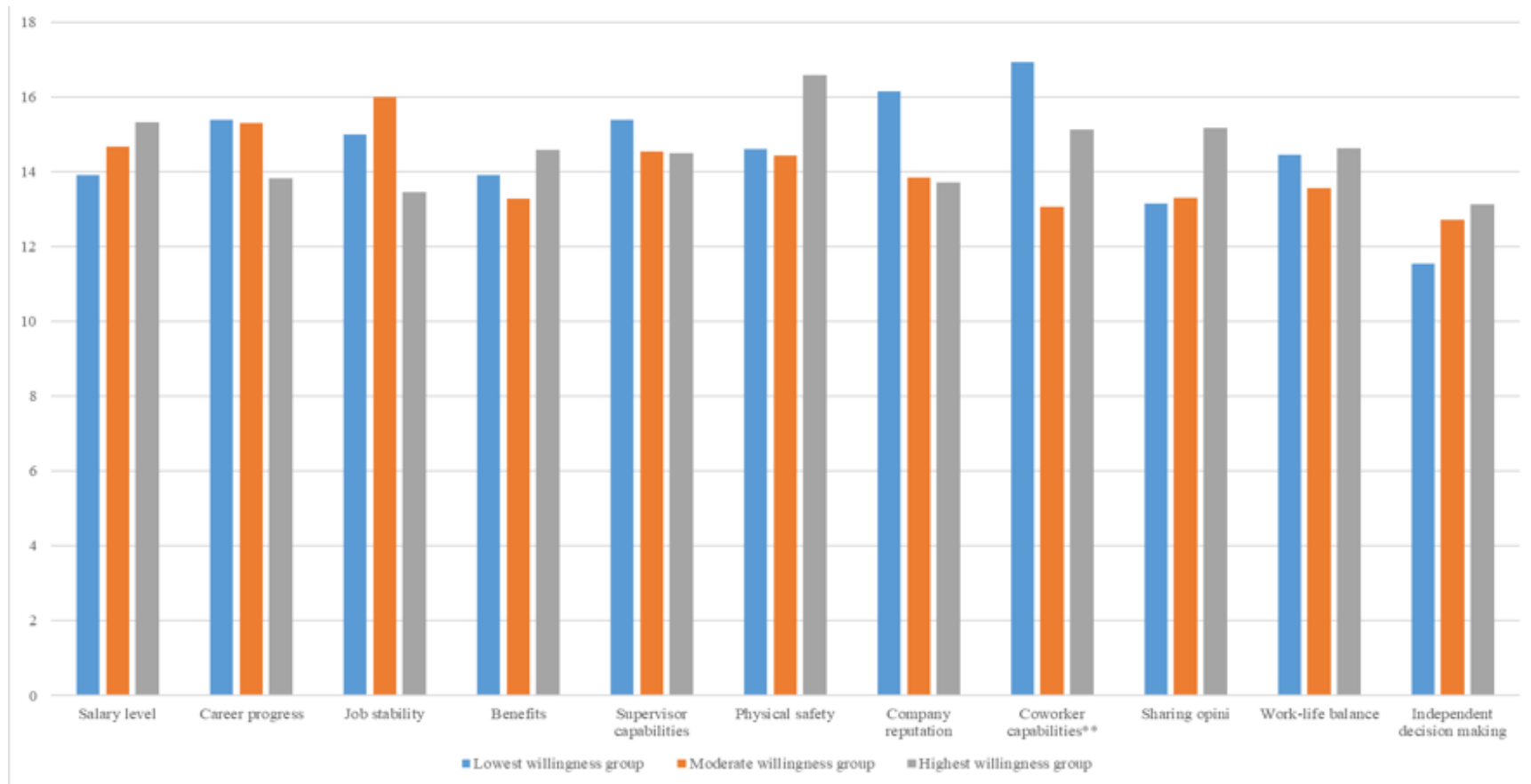


Fig. 1. Comparison of the importance of the attribute and the beliefs in the textile manufacturing industry

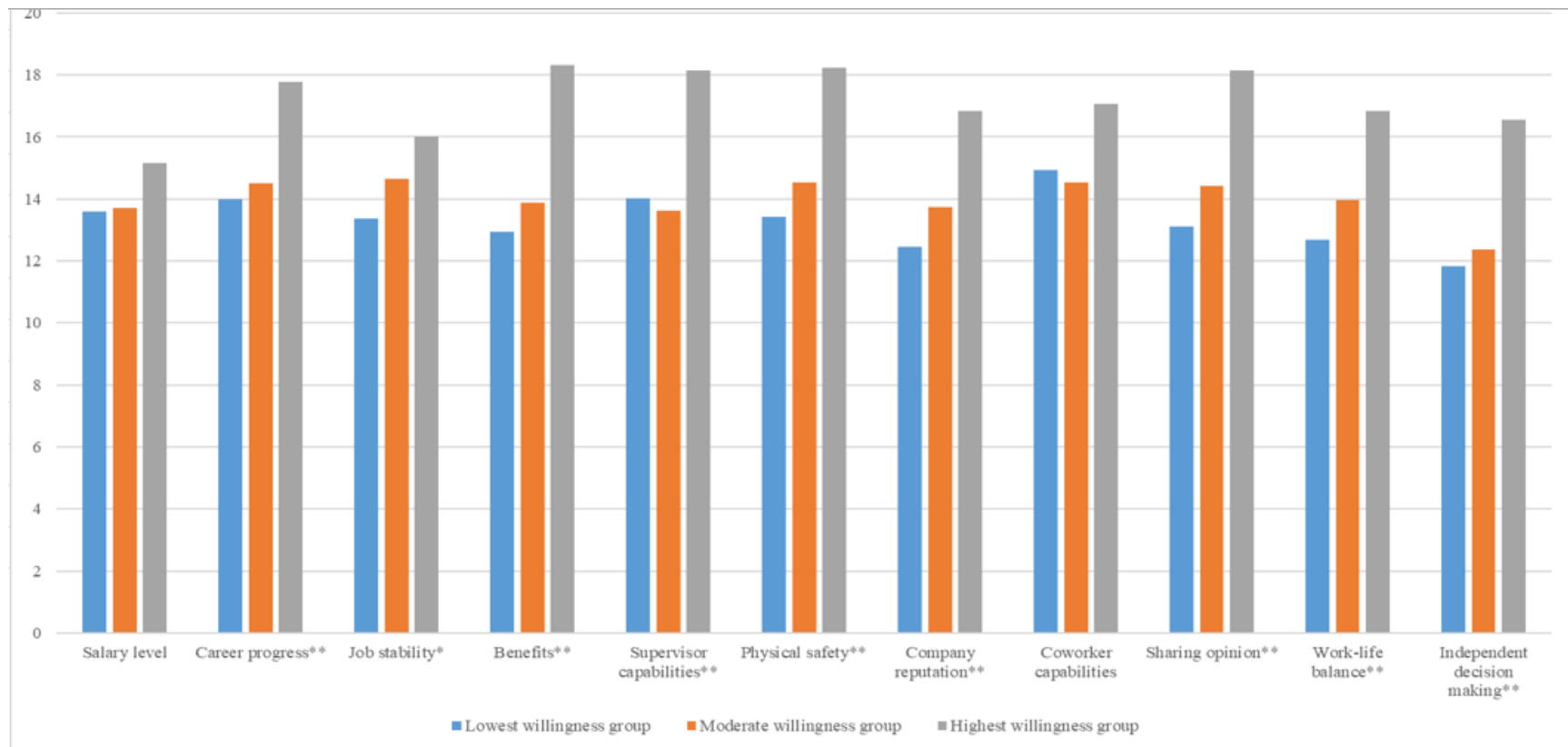
Note: The followings are the full statements of the eleven attributes.

- Salary level: Being paid at least enough to meet my needs and being paid fairly in comparison to others.
- Career progress: Being able to progress in my job or career and having the chance to advance in the company.
- Job stability: Having a job that provides steady employment.
- Benefits: Having benefits that meet my needs and compare well with those of others.
- Supervisor capabilities: Having an immediate supervisor who is competent, considerate, and fair.
- Physical safety: Having physical working conditions that are safe, not injurious to health, not stressful, and even comfortable.
- Company reputation: Working for a company that has a good reputation and that I can be proud of working for.
- Coworker capabilities: Having coworkers who are competent and congenial.
- Sharing opinions: Having a work environment that allows me to share my opinions and feelings openly.
- Work-life balance: Having working hours that allow me enough time with family and/or time to pursue other strong interests and live my preferred lifestyle.
- Independent decision making: Having the independence or freedom to make decisions about how I will do the job.



* $p < .05$, ** $p < .01$, *** $p < .001$

Fig. 2. Textile-related majors: Attitudes toward the textile manufacturing industry



* $p < .05$, ** $p < .01$, *** $p < .001$

Fig. 3. Business-related majors: Attitudes toward the textile manufacturing industry

