

# **National Center for Intermodal Transportation for Economic Competitiveness**



## **Workforce Development, Recruitment and Retention, and Promotion of Women and Other Underrepresented Groups in the Intermodal Trucking Industry**

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October 2016

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## Abstract

The present investigation extended previous research on the factors that affect the pursuit of careers in transportation, with particular attention to the recruitment of female candidates. In this work, a sample of 162 high school students and college graduates who had some work experience were gathered from a large West Coast community. A questionnaire was developed based on theories of work values, organizational commitment, social support, and vocational interests. Results from descriptive statistics, comparisons of means, and hierarchical stepwise regression analyses provided data on the relative contribution of occupational values, social support, and self-efficacy as they affect career choice for jobs in transportation.

- Differences in perceived social support were found for the general sample. Those who were more interested in accepting a position in transportation were also more likely to have access to “mentorship and professional networks” in transportation. In addition, those respondents indicated that they had “role models,” “family,” “friends,” or “relatives” who were positive about the industry. Lastly, they indicated that their “family was supportive” and that a “mentor contributed to my success” in transportation. Female accepters had a “friend” or “family member” who made the difference by “recommending” or suggesting transportation as a career or profession.
- Differences in self-efficacy measures revealed that persons who had a high degree of self-confidence that their “skills” would be of value and that they would be “successful” in the transportation industry were more likely to accept a position. In addition, a belief that the “mission and values” were worth supporting was also a differentiator among accepters. Individuals who believed that they would find “friends” and people with “similar” interests or “supportive” people were also more likely to accept. Lastly, those who also noted that they would be able to engage in the “lifestyle” and “income” they sought were also more likely to lean towards accepting.
- Differences in occupational values were nonsignificant in differentiating persons in the general sample. Women who were less interested in flexible “work hours,” “significant financial rewards,” or good “labor management relations” but who did prefer a “competitive salary,” were more likely to accept a position in transportation.
- A model emerged with six predictor variables that accounted for 66% of the variance in acceptance of transportation jobs.

Practical implications of these findings revealed a profile and a set of screening items capable of differentiating persons willing to accept a position in transportation. The findings also indicate a candidate’s likely probability of acceptance by as much as 7 to 1, when answers to proposed interview questions are in the scorable direction. Similarly the probability of acceptance of position offers was nearly 2 to 1 when answers are in the scorable direction. The value of this research is that it enables transportation organizations to focus scarce and shrinking public funding for recruitment and retention on the admittedly small segment of the population that is willing to consider positions in transportation and to identify and focus on individuals more likely to pursue and accept those positions.

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## **Recruitment and Retention of Women and Other Underrepresented Groups in the Intermodal Trucking Industry**

### *Review of Literature*

Workforce planners have become increasingly concerned about the ability of the transportation industry to field an effective and diverse workforce over the next decade. Program growth, new technologies, budget constraints, scarcity of midlevel managers, and staffing shortages due to an aging workforce and lack of new recruitment fuel these challenges. It has been estimated that 40% to 50% of the existing transportation workforce is nearing retirement (Martin, 2015). Recruitment into the transportation industry and employee retention is crucial to maintaining the industry's success. To successfully recruit and retain employees, there is a need to cultivate an interest in young people. One needs to understand the factors that influence people's decisions to take jobs in transportation or to move into or out of the industry. Because it can cost upwards of \$100,000 to recruit, train and place a qualified candidate<sup>1</sup>, it is imperative that recruiters and managers have a clear picture of who is likely to succeed and stay working in the industry.

A review of the current literature found one research study that explored the gender inequality of women in the transportation industry. Specifically, Hanson and Murakami (2010) noted that gender inequality may be best explained in terms of lack of equal opportunity for men and women within the industry and women may not be attracted to the industry due to a gap in education or lack of role models. They also recognized the limited talent pool of women for the transportation industry, which may be due to the lack of recruitment of women, as well as advertising that characterizes transportation jobs as nontraditional roles for women. Educating women about the roles available to them in the transportation industry and modifying advertisements to highlight such roles could assist recruitment. The Women's Labor Bureau defines a job nontraditional for women if less than 25% of that labor force is made up of women (Women's Labor Bureau, 2009), a criterion that the transportation industry clearly meets. With regard to the underrepresentation of women in the transportation industry, Hanson and Murakami (2010) stated, "Not only does this gender imbalance limit women's opportunities for interesting and well-remunerated work, it deprives the transportation field of a vital source of talent."

Hanson and Murakami sought to understand the reasons behind women not being attracted to the industry. Their interviews with leaders in the field were geared towards uncovering recommendations for increasing gender equality. Several themes emerged in leaders' recommendations. Prominent suggestions included connecting with children and young people through schools and existing programs to advertise the roles of women in science and

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<sup>1</sup> Lindsey, A. Personal communication.

engineering, as well as building relationships through networking within the industry to connect women and create awareness about women looking for positions.

Transportation leaders also recommended that women already in transportation increase participation in industry organizations and take leadership positions in those organizations to show the proficiency and capability of women within the industry. A qualitative study examining factors that contributed to women's success in the transportation industry confirms that access to mentors and social networks helps contribute to overall career success (Hanson & Murakami, 2010). Participants reported that the limited number of women in the industry reduced the overall sense of social support and restricted access to available talent. Hanson & Murakami (2010) also recognized that the transportation industry needs to ensure flexibility in the workplace for female employees to accommodate family schedules and create part-time positions.

Although the study was insightful, it had some limitations. The researchers failed to interview both managerial- and non-managerial-level women within the industry. They also did not interview women within different roles and occupations of the industry to better understand the vast array of issues. The small sample of eight high-powered female executives most likely skewed results and overlooked additional essential explanations (Hanson & Murakami, 2010).

Mulholland (2014) reported that women who are self-sufficient, rational, scientifically minded and who enjoyed pursuing complicated goals were more likely to pursue or accept a job in the transportation industry. One criticism of these studies has been that they do not fully account for different levels in the managerial hierarchy. In other words, factors that affect women entering the transportation workforce at an entry level are different from those that affect women entering at the professional level. The leadership competencies needed for working as a senior-level manager and as first-line supervisors are also quite different.

According to the *Harvard Business Review*, women experience subtle gender biases in the workplace because qualities that are associated with leadership tend to be traditionally associated with men, which can make it challenging for women to develop an identity as a leader (Ibarra et al., 2013). Creating an identity as a leader typically occurs by modeling the behaviors of a role model until those behaviors develop into a personalized leadership style (Ibarra et al., 2013). The lack of female representation in the transportation industry, particularly at the leadership level, may also be a barrier that affects workforce recruitment and retention for females in transportation.

This investigation attempts to gather additional data from various organizations to identify barriers to workforce recruitment and retention, develop and employ a metric for estimating change in performance, and provide a model for these estimations in intermodal transportation organizations for others to use. The needed skills and competencies to be successful in the industry will also be examined.

## **Theoretical Background**

A number of theories have been proposed to explain and predict career decision-making and vocational choice. These theories offer a particular point of view, various assumptions, and hypotheses as to what influences vocational choice.

### *Trait Factor Theory*

Trait factor theory is based on the notion that characteristics of the individual can be matched with those of the job to create congruence. Persons who have a greater congruence with the job will be more likely to accept and remain on the job. Holland's (1973) theory predicts that those higher in congruence between their personal characteristics and the characteristics of the job are also more likely to have higher degrees of job satisfaction and job tenure as well as improved job performance and career satisfaction. Various measures and methods have been offered to attempt to measure vocational interests and subsequent congruence. Called the RIASEC Model, a vocational interest typology defined by Holland (1973) is predicated upon the assumption that individuals can be loosely grouped into six personality types and that these types are correlated with likes and dislikes which guide career selection. The RIASEC model looks at preference for work activities centering on:

1. Practical hands-on problems and solutions;
2. Ideas, thinking, and problem solving;
3. Artistic and creative use of forms, design, and patterns;
4. Helping, teaching, providing service, or working with people;
5. Leading people, directing projects, making decisions; and
6. Predictability, definite procedures, routine, data, details, and organization.

Interestingly, a recent meta-analysis revealed that vocational interests have demonstrated modest validity indices with such traditional personnel outcome variables as turnover and job performance. In an analysis of 74 studies, significant relationships emerged between vocational interests and job performance, training performance, intention to turnover and actual turnover. The authors concluded that "Finally, validity estimates were largest when studies used multiple interests for prediction, either by using a single job- or vocation-focused scale (which tends to tap multiple interests) or by using a regression-weighted composite of several RIASEC or basic interest scales." (Van Iddekinge, et. al, 2011). These findings provide compelling evidence for the role of vocational interests as a key predictor of acceptance of a position in transportation.

Occupational values were included as part of Super's work values theory. This theory was proposed as part of Super's larger developmental theory of career choice and development. The values component of his theory has also been used by trait factor theorists. Super developed Super's Work Values Inventory (Super, 1970), which included 12-values scales. Recent research has shown that the instrument is reliable and valid. It was also deemed reliable and valid in a sample of African Americans, as has been demonstrated within a predominantly Caucasian college student sample. Values of coefficient  $\alpha$  were similar to those found in white and



normative samples, with a median  $\alpha$  of .82 herein and medians of .82 and .84 in the normative and white college student samples.

Another values measure, the Minnesota Importance Questionnaire (Weiss, et. al. 1964), measures occupational values and includes an extensive system for determining occupational preference based on the assessment of occupational values. The Minnesota Importance Questionnaire (MIQ) is a measure of an individual's vocational needs and values, which are important aspects of the work personality. It is designed to measure six vocational values (and the 20 vocational needs from which the values derive): Achievement, Ability Utilization, Achievement, Altruism, Co-workers, Social Service, Moral Values, Comfort, Activity, Independence, Variety, Compensation, Security, Working Conditions, Safety, Company Policies and Practices, Supervision – Human Relations, Supervision –Technical, Status, Advancement, Recognition, Authority, Social Status, Autonomy, Creativity, and Responsibility. The MIQ enables the comparison of the vocational values of the individual to occupational reinforcers for 185 occupations representative of the major fields and levels of the world of work. By assessing the degree of congruence between the occupational reinforcers with an individual's needs or values, the instrument helps predict job satisfaction. The assessment of need-reinforcer correspondence in work complements the usual practice of measuring vocational abilities and comparing them with the ability requirements of occupations needed to predict job performance and potential longevity. An important advantage of the MIQ is that it is available for use in both research and clinical work free of charge as long as Vocational Psychology Research Lab, University of Minnesota, is acknowledged as the source of the material. (Lofquist, & Dawis, 1969; Dawis, Lofquist, & Weiss, 1968).

Social cognitive theory suggests that rather than having a relational focus, women's career development is influenced by career self-efficacy beliefs and behaviors that reflect these beliefs (Farmer, Wardop, Anderson, & Riesinger, 1995). Expansionist theories suggest that workplace distress is related to underutilization of skills, perception of limited opportunities, and heavy job demands in both men and women (Barnett & Hyde, 2001; Sullivan & Mainiero, 2006). Expansionist theory also explains differences in entry and retention of women in male-dominated fields as a byproduct of differences in evaluation of opportunities for success in the field. It is unclear if these perceptions are accurate given the climate of the transportation industry, or if they are a result of lack of information or understanding about the opportunities available.

Demographic factors have been shown to influence women's entry and persistence in male-dominated career fields. Other factors include the presence of a role model (Quimby & Desantis, 2006), career self-efficacy (Farmer et al., 1995), perception of barriers (Rivera et al, 2004), demographic factors (Rosen & Korabik, 1990), work-life balance (Whitmarsh, et al., 2007), and workplace factors (Crozier, et al. 1998).

Previous research shows that individuals tend to change to careers more congruent with their personality types (Donohue, 2005). The literature reveals that job satisfaction, ability to maintain a suitable lifestyle, geographic location, and family commitments are indicators of career persistence (Alexander, Lichtenstein, Joo Oh, & Ullman, 1998; Smart, & Peterson, 1994;

Donohue, 2005). Variable and long work hours make it difficult for employees in the transportation industry to attain an adequate work-life balance. Smith & Canger (2004) found that high levels of supervisor agreeableness, emotional stability, extroversion, kindness and trust are related to employee job satisfaction and commitment. Philbrick and Sherry (2004) found that high school and college students most interested in pursuing a transportation career are those who have conventional interests and who value employee assistance programs, labor/management relations, career stability, travel opportunities, and opportunities for career advancement and leadership. The transportation industry needs to identify factors specific to the industry that predict career choice and change in job seekers and current transportation professionals in order to adequately recruit and retain employees.

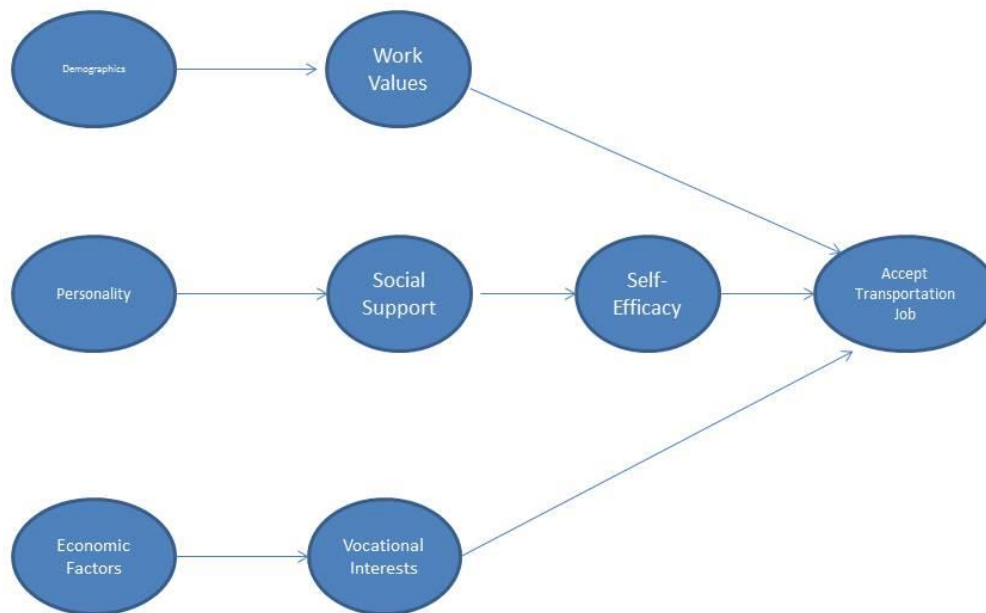


Figure 1. Model of Vocational Choice in Transportation

The model in Figure 1 shows that the external factors of demographics and economic conditions indirectly influence choice and that the effects of personality demographics and economics are also mediated through work values, social support, and vocational interests. These factors combine to influence self-efficacy, which then directly influences degree of acceptance of a position in transportation. Social support directly influences self-efficacy in that the impact of relationships with family, friends, and mentors alters the beliefs held about

effectiveness and success in a particular work environment. When a friend or relative says “You can do it. I know. I did,” this exerts a powerful influence on the job candidate.

The present study sought to improve recruiters’ and managers’ ability to identify characteristics of persons likely to pursue or accept a job in the transportation industry. Results of a number of questionnaires designed to measure occupational interests, values and attitudes and administered to a sample of women in the general population and also those employed in transportation were analyzed. Results of these analyses provided a descriptive profile of persons likely to pursue, accept and remain working in the transportation industry.

## Method

### *Procedure*

Surveys were distributed to a sample of professionals and nonprofessionals in a large West Coast city. Participants from a group of high school students and professionals attending seminars at a large Western University were invited to complete a survey on their career intentions and aspirations. Participants were given information and a small incentive (a Starbucks gift card) to complete an online survey.

### *Measures*

The items in the seven sections listed below were all responded to on a five-point Likert type scale ranging from one (to a little or no degree) to five (to a very great degree).

**Occupational values.** Work values were measured using a series of 18 items based on Super's (1970) work value inventory. Respondents were asked to what degree certain values such as Career Stability, Potential for Financial Reward, Travel Opportunities, Competitive Fringe Benefits, Geographic Location of the Company, Social Environment, Challenge, Creativity, Flexible Work Hours, Achievement, Altruism, Autonomy, Job Security, Safety, Status, Financial Assistance, Employee Assistance, Labor Management Relations, Career Advancement, Competitive Salary, Competitive Benefits, and a Clear Path for Advancement would influence their decision to take a job in the transportation industry.

**Organizational commitment.** The extent to which respondents felt that the mission and objectives of the organization were consistent with their own or that they felt committed to the mission and values of the organization was measured using the six continuance commitment items from Meyer & Allen's (1997) organizational commitment questionnaire. Sample items include "Your personal values are in line with values found in transportation organizations" and "the values and mission of a transportation job are worth supporting."

**Vocational Interests.** Vocational interests and preference for certain vocational activities were measured with an abbreviated set of six items designed to measure general interest in the six main occupational types assessed by the Holland's (1973) vocational theory. These six types include: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional (RIASEC) work environments and occupational activities.

**Self-Efficacy.** The importance of self-efficacy as a predictor of occupational choice and vocational interest has received increasing attention over the past decade. In the present study, a set of items were designed to assess respondents' beliefs in their ability to contribute and perform successfully in the transportation field. Sample items included "I think that I am a good fit with the transportation industry," "I am confident that I will be successful working in the transportation industry," "I have skills that are valuable to the transportation industry," "I will be

as good, or better, at my job as other people who hold the same position,” “I am confident that I can handle any gender issues that might arise while working in transportation,” and “I am confident that I will be an effective employee in the transportation industry.”

**Social Support.** Satisfaction with supervision was measured using a modified version of the House and Wells (1978) supervisor support questionnaire. Sample items included “I expect to be friends with my coworkers,” “I expect there will be lots of people with similar interests working in transportation,” “I expect the transportation industry to be supportive of workers of my gender,” and “I am confident that I can handle any gender issues that might arise while working in transportation.”

**Job satisfaction.** Job satisfaction was measured by asking participants general questions about their satisfaction with their current job (e.g. to what degree do you feel very satisfied with this job?). Items include “I expect most people on this job to be very satisfied with the job,” “I expect to be satisfied with the kind of work I do in this job,” and “I expect to be satisfied with my job including the hours and amount of work.”

**Intention to Pursue or Accept.** Respondents’ overall intent to pursue a career in transportation was assessed using single-item measures that said: “I want to work in transportation,” “Even if I had a job offer in another industry I would still like to work in the transportation industry,” and “I expect to work in transportation but would take another job, for better pay, if offered.”

### Analysis

To determine what factors were related to persons considering career change or choice, a predictive model was used based on stepwise regression analysis of occupational values, organizational commitment, supervision, RIASEC typology, and job satisfaction. The models developed showed the effect of progressively adding a significant predictor from each of the sets of variables (after determining what was not significant).

## Results

### *Participants*

There were 162 respondents to the survey, consisting of 41 females, 106 males, and 15 who chose not to report gender. Respondents’ ages ranged from 13 to 63 years of age. The ethnic breakdown was: 16 white (10.9%), 33 Latino (22.4%), 6 African American (4.1%), 79 Asian (48.8%), 13 Pacific Islander (8.8%), and 15 unanswered. The education level of respondents

ranged from some high school to completion of a doctoral degree. A total of 136 or 92.55% of the sample described themselves as students at various levels: high school, undergraduate, or working professionals seeking additional training. Results of the descriptive analysis indicate that members of the sample overall had some interest in accepting or pursuing a job in transportation (see Figures 2 and 3).

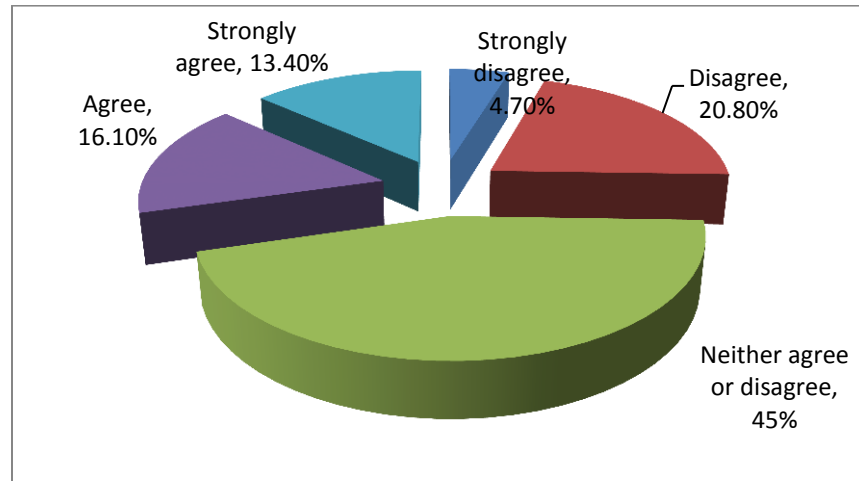


Figure 2. Percent Likely to *Pursue* a Position in Transportation

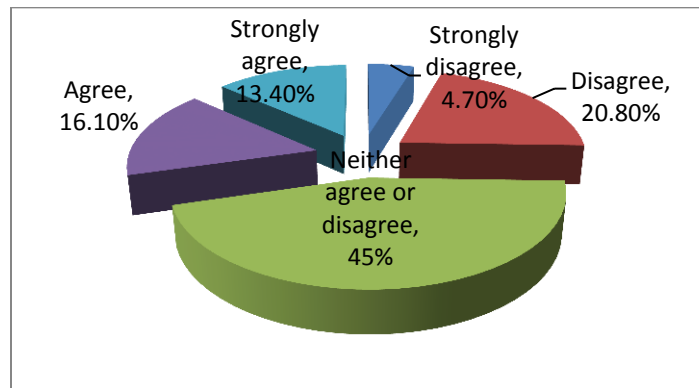


Figure 3. Percent Likely to *Accept* a Position in Transportation – Even with Another Offer

The results indicate that for persons not currently employed in a transportation job there was a moderate likelihood of pursuing (23.5%) or accepting (29.5%) a job in transportation. On several measures, the results for wanting to accept a job were very similar to the results for wanting to pursue a job in transportation.

### Occupational Values

The first set of variables that was investigated for an influence on pursuing or accepting a position in transportation was “occupational values.” No significant preferences were found for “occupational values” between those who would likely accept versus not accept a job in transportation (see Table 1). This is not unexpected, as there are few people who are interested in transportation jobs generally.

Table 1. Comparison of Occupational Values for Accepters of a Position in Transportation

	<b>Not Accept (N=38)</b>	<b>Accept (N=44)</b>	<b>Std. Dev.</b>	<b>t</b>	<b>Sig. (2- tailed)</b>
Career stability, security, & clear career path?	3.53	3.68	1.20	-0.59	0.56
Potential for significant financial reward?	3.74	3.48	0.83	1.13	0.26
Travel opportunities?	3.63	3.64	1.05	-0.02	0.99
Competitive fringe benefits (health, tuition)?	3.63	3.64	1.08	-0.02	0.98
Geographic location of company?	3.29	3.45	1.09	-0.66	0.51
A social environment while at work?	3.45	3.64	1.08	-0.78	0.44
Challenges (solving important problems)?	3.58	3.61	1.00	-0.13	0.90
Creativity (thinking outside the box & innovation)?	3.95	3.98	1.01	-0.13	0.90
Flexible hours/work schedules?	3.87	3.61	0.99	1.04	0.30
Achievement (feeling of accomplishment)?	3.95	4.05	0.98	-0.41	0.68
Altruism (help others & work in a friendly job)?	3.71	3.95	0.84	-1.10	0.27
Autonomy (work independently, make decisions)?	3.32	3.50	1.07	-0.73	0.47
Comfort (job security & good working conditions)?	4.05	3.82	0.93	1.00	0.32
Safety (supportive, predictable, stable work )?	4.03	3.73	0.82	1.43	0.16
Status (Leadership & prestige)?	3.47	3.27	1.03	0.79	0.43
Financial assistance for education?	3.29	3.43	1.01	-0.56	0.58
Employee assistance, wellness, & fitness programs?	3.26	3.34	0.98	-0.32	0.75
Labor/management relations?	3.37	3.16	0.97	0.86	0.39
Opportunity for career advancement and leadership?	3.68	3.68	1.14	0.01	0.99
Competitive salary?	3.63	3.86	1.02	-1.01	0.32
Competitive fringe benefits?	3.47	3.43	1.03	0.17	0.87
A clear path to a higher management position?	3.89	3.66	0.92	1.02	0.31
<i>Df=80 *** p&lt;.001 ** p&gt;.01 *p&lt;.05</i>					

Investigating gender-specific variation in occupational values between men and women revealed a few significant differences. Specifically, women preferred career stability, competitive fringe benefits, and status and prestige.

Table 2. Gender Differences on Occupational Values

	Male (N=106)	Female (N=41)	Standard Deviation	t	Sig. (2- tailed)
Career stability, security	3.44	3.80	1.14	-1.71	0.089
Competitive fringe benefits*	3.46	3.95	1.06	-2.60	0.010**
Status & prestige*	3.08	3.56	1.12	-2.32	0.022*
Df= 145 *** $p < .001$ ** $p > .01$ * $p < .05$					

Differences among women only (see Table 3) indicated that women were *more likely to accept* a job in transportation if there was “potential for significant financial reward” and “flexible work hours.” Having good “labor management relations” was less important to them. A competitive salary was important for them to be willing to accept a position in transportation. However, the only statistically significant difference between the two groups was on the “flexible hours” item. The other items, “financial reward” “labor management relations,” and “competitive salary,” only approached significance at  $p < .10$ .



Table 3. Comparison of Occupational Values for Female Accepters

	Not accept. (N=9)	Accept. (N=18)	Std. Dev.	T	p<
Career stability, security, & clear career path?	3.56	4.000	1.42	-1.03	ns
Potential for significant financial reward?	4.00	3.440	0.71	1.68	0.09
Travel opportunities?	4.00	3.778	0.71	0.49	ns
Competitive fringe benefits (health, tuition)?	4.22	3.944	0.67	0.84	ns
Geographic location of company?	3.00	3.500	0.87	-1.35	ns
A social environment while at work?	3.33	3.833	1.12	-1.29	ns
Challenges (Solving important problems)?	3.56	3.833	0.88	-0.75	ns
Creativity (thinking outside the box & innovation)?	4.00	4.222	1.12	-0.57	ns
Flexible hours/work schedules?	4.33	3.500	0.71	1.85	0.04*
Achievement (feeling of accomplishment)?	4.00	4.389	0.87	-1.18	ns
Altruism (help others & work in a friendly job)?	3.78	4.111	0.44	-1.12	ns
Autonomy (work independently, make decisions)?	3.33	3.500	1.41	-0.35	ns
Comfort (job security & good working conditions)?	4.00	3.889	1.00	0.29	ns
Safety (supportive, predictable, stable work )?	4.22	3.833	0.83	1.19	ns
Status (leadership & prestige)?	3.67	3.611	0.71	0.14	ns
Financial assistance for education?	3.78	3.444	0.97	0.75	ns
Employee assistance, wellness, & fitness programs?	3.56	3.000	0.73	1.16	ns
Labor/management relations?	3.56	2.94	0.73	1.49	0.10
Opportunity for career advancement and leadership?	3.89	3.778	0.78	0.30	0.76
Competitive salary?	3.33	3.94	1.00	-1.82	0.08
Competitive fringe benefits?	3.44	3.500	0.73	-0.16	ns
A clear path to a higher management position?	3.89	3.667	0.93	0.57	ns
df=25 *** $p < .001$ ** $p > .01$ * $p < .05$					

In summary, few occupational values were identified as differentiating persons in the general sample who would accept a position in transportation from those who would not. There were some differences in occupational values among those women who would accept versus not accept positions in transportation. Women who were less interested in “flexible work hours,” “significant financial rewards,” or good “labor management relations” but who did prefer a “competitive salary” were more likely to accept a position in transportation.

### Vocational Interests

Comparing preferences for vocational interests, there was no difference between those willing to accept a job in transportation and those who were not willing to accept. (see Table 4).

Table 4. Vocational Interest Preferences for Accepters of Transportation Positions

	<b>Not Accept (N=38)</b>	<b>Accept (N=44)</b>	<b>Std. Dev.</b>	<b>t</b>	<b>P&lt;</b>
Practical hands-on problems and solutions?	4.08	3.84	0.88	1.06	0.29
Ideas, thinking, and problem solving?	4.16	4.18	0.89	-0.12	0.91
Artistic, creative use of forms and patterns?	3.97	3.89	1.03	0.37	0.71
Helping, teaching, or working with people?	3.63	3.91	0.91	-1.27	0.21
Leading people, directing, making decisions?	3.76	3.98	0.94	-1.04	0.30
Predictability, data, details, & organization?	3.89	3.70	0.86	0.89	0.38
df=82 *** $p<.001$ ** $p>.01$ * $p<.05$					

Investigating the gender differences in vocational interests between men and women revealed few significant differences (see Table 5). Specifically, women preferred more practical activities as well as helping others and leadership roles.

Table 5. Gender Differences in Vocational Interest Preferences

	<b>Male (N=106)</b>	<b>Female (N=41)</b>	<b>Std. Dev.</b>	<b>t</b>	<b>Sig. (2- tailed)</b>
Practical hands-on problems and solutions	3.61	3.93	1.07	-1.67	0.098
Helping, teaching, providing service*	3.58	3.93	1.00	-1.93	0.056
Leading people, directing, making decisions*	3.60	3.98	1.03	-2.12	<b>0.036</b>
df=145 *** $p<.001$ ** $p>.01$ * $p<.05$					

Looking only at women's responses (see Table 6), those willing to accept a job in transportation had somewhat more interest in the Enterprising interests as indicated by the "leading people" item. However, this difference only approached statistical significance ( $t=-1.9$  ( $df=25$ ),  $p<.07$ ).

Table 6. Differences in Vocational Interests among Women Accepting Positions

	Not Accept (N=9)	Accept (N=18)	Std. Dev.	t	p<
Practical hands-on problems and solutions?	4.22	3.89	1.09	0.93	0.36
Ideas, thinking, and problem solving?	4.22	4.22	0.97	0.00	1.00
Artistic, creative use of forms & design?	4.22	3.72	1.09	1.13	0.27
Helping, teaching, or working with people?	4.00	3.89	0.71	0.32	0.75
Leading people, directing, making decisions?	3.67	4.17	0.71	-1.89	0.07
Predictability, data, details, & organization?	3.89	3.78	0.93	0.27	0.79
<i>df=25      ***p&lt;.001   **p&gt;.01   *p&lt;.05</i>					

While there were no differences in vocational interests between accepters and non-accepters, there was a slight nonsignificant tendency for women interested in transportation positions to prefer “leading people.” More research may be needed to understand these results and to fully appreciate their relationship to decision making. No significant differences in vocational interests were found between men who were willing to accept a position and those who were not.

### Social Support

The survey instrument also allowed comparison between degrees of perceived support between accepters and non-accepters. As seen in Table 7, significant differences were obtained for persons likely to accept a position in transportation. Accepters were more likely to have access to “mentorship” and “professional networks” in transportation. In addition, they indicated that they had “role models” with whom to identify. They also reported that a “family”, “friend” or “relative” had told them about the industry. Lastly, they indicated that their “family was supportive” and that a “mentor contributed to my success” in transportation. These results underscore and reinforce the anecdotal evidence frequently heard that a good indicator of willingness to accept a position (and also succeed) in the transportation industry is whether a family member has worked in the industry. Investigating the gender differences in perceived support between men and women, however, revealed no significant differences. In fact, only one item, “A friend of mine told me about a job in transportation and that has increased my interest,” approached significance ( $p<.10$ ).

Table 7. Differences in Perceived Support among Those Willing to Work in Transportation

	Not Accept (N=38)	Accept (N=44)	Std. Dev.	t	P<
I have access to professional networks and/or mentorship in the transportation industry.	2.45	3.30	1.20	-3.29	0.00
I am interested in being mentored, or mentoring others, in the transportation industry.	2.84	3.27	1.22	-1.59	ns
There are role models in the transportation industry that I can identify with.	2.32	3.30	1.02	-3.89	0.00***
I have had a formal or informal mentor at some point in my education.	2.97	3.07	1.15	-0.34	ns
A member of my family (or relative) worked in transportation.	1.97	2.64	1.13	-2.24	0.03*
A close friend or relative recommended transportation as a field for me.	1.84	2.98	1.15	-3.79	0.00***
A friend of mine told me about a job in transportation and that has increased my interest.	1.89	3.05	1.13	-3.94	0.00***
My family would be supportive if I took a job in transportation.	2.74	3.68	0.95	-3.69	0.00***
I currently have a mentor who is supportive of me pursuing a transportation job.	1.82	2.55	1.01	-2.68	0.01**
My professional network or mentor has contributed to my success in transportation.	2.08	2.64	1.28	-1.85	0.07
<i>Note: df=1,80 *** p&lt;.001 ** p&gt;.01 *p&lt;.05</i>					

Looking just at those women who would be likely to accept a position in transportation (see Table 8), accepters were more likely to indicate that a “friend” or “family member” made the difference by “recommending” or suggesting transportation as a career or profession. The implications of these findings are clear for outreach efforts: more effort should be devoted to early mentoring and also to recruiting potential employees who work with family members. For example, offering scholarships and other financial support to children or relatives of current employees, or internships to persons who are strongly recommended by current employees, might increase the number of persons who pursue and accept positions in transportation.

Table 8. Differences in Perceived Support among *Women* Who Would Accept a Position

	Not Accept (N=9)	Accept (N=18)	Std. Dev.	t	Sig. (2- tailed)
1. I have access to professional networks and/or mentorship in the transportation industry.	2.89	3.33	1.36	-0.90	ns
2. I am interested in being mentored, or mentoring others, in the transportation industry.	2.89	3.28	1.05	-0.77	ns
3. There are role models in the transportation industry that I can identify with.	2.44	3.22	1.01	-1.52	ns
4. I have had a formal or informal mentor at some point in my education.	3.44	3.00	1.01	0.78	ns
5. A member of my family (or relative) worked in transportation.	1.67	2.94	0.71	-2.15	0.04*
6. A close friend or relative recommended transportation as a field for me.	1.56	3.28	0.88	-3.19	0.00***
7. A friend of mine told me about a job in transportation and that has increased my interest.	2.11	3.39	1.05	-2.28	0.03*
8. My family would be supportive if I took a job in transportation.	2.67	3.50	1.12	-1.53	ns
9. I currently have a mentor who is supportive of me pursuing a transportation job.	1.89	2.56	1.05	-1.19	ns
10. My professional network or mentor has contributed to my success in transportation.	2.00	2.67	1.41	-1.07	ns
<i>Note: df=25 *** <math>p &lt; .001</math> ** <math>p &gt; .01</math> * <math>p &lt; .05</math></i>					

Some differences were also found among men (see Table 9) who were willing to accept versus those who would not accept a position in transportation. Namely, accepters reported having greater “access to mentors,” having “role models,” and having had a “family member,” “a close friend,” or a “supportive family member” in the field. The role of social support and mentoring thus seems to have played a more significant role in influencing decisions among men.

Table 9. Differences in Perceived Support among *Men* Who Would Accept a Position

	Not Accept (N=36)	Accept (N=25)	Std. Dev	t	P<
I have access to professional networks and/or mentorship in the transportation industry.	2.11	3.52	1.12	-5.47	0.000
I am interested in being mentored, or mentoring others, in the transportation industry.	2.47	3.68	1.13	-4.59	0.000
There are role models in the transportation industry that I can identify with.	2.33	3.32	1.01	-3.49	0.001
A family member worked in transportation.	1.97	2.72	1.23	-2.33	0.024
A close friend or relative recommended transportation as a field for me.	2.00	3.16	1.12	-3.54	0.001
A friend of mine told me about a job in transportation and that increased my interest.	1.81	3.00	1.17	-3.76	0.000
My family would support a job in transportation.	2.61	4.04	1.05	-5.76	0.000
I currently have a mentor who is supportive of me pursuing a transportation job.	1.75	2.80	1.00	-3.49	0.001
My professional network or mentor has contributed to my success in transportation.	2.00	2.92	1.22	-2.86	0.006
df=59 *** $p < .001$ ** $p > .01$ * $p < .05$					

### Self - Efficacy

Another potential predictor variable examined in the survey was self-efficacy. Results of the comparisons on self-efficacy for the general sample revealed that persons who have a high degree of self-confidence that they possess “skills” that are of value and that they will be “successful” in the transportation industry are more likely to accept a position (see Table 10). In addition, a belief that the “mission and values” are worth supporting was also a differentiator among accepters. Persons who believed that they will find “friends” and people with “similar” interests who were “supportive” were also more likely to accept. Lastly, those who thought that they would be able to engage in the “lifestyle” and “income” they sought were also more likely to lean towards accepting.

Examining the differences in self-efficacy perceptions of women who were willing to accept or not accept a position in transportation did not reveal any significant differences between accepters and non-accepters. This is somewhat surprising as self-efficacy has played a role in previous research.

Table 10. Differences in Acceptance on Self-Efficacy

Self-efficacy items	not Accept (N=38)	Accept (N=44)	Std. Dev.	t	P<
The values and mission of a transportation job are worth supporting	3.45	3.57	0.76	-2.21	0.03*
I am confident that I will be an effective employee in the transportation industry.	3.13	3.93	0.88	-3.46	0.00***
I will be as good, or better, at my job as other people who hold the same position.	3.45	3.89	0.86	-1.91	0.06
I have skills that are valuable to the transportation industry.	2.89	3.70	1.11	-3.40	0.00***
I am confident that I will be successful working in the transportation industry.	3.03	3.80	1.10	-3.17	0.00***
I am confident that i will find friends among my coworkers in the transportation industry.	3.08	3.68	1.10	-2.36	0.02*
I expect there will be lots of people with similar interests working in transportation.	3.13	3.66	1.12	-2.11	0.04*
I expect the transportation industry to be supportive of workers of my gender.	3.50	3.89	1.22	-1.52	ns
I am confident that working in transportation will provide me with the lifestyle I seek.	2.79	3.80	1.14	-3.85	0.00***
I am confident that working in transportation will provide me with income I desire.	3.05	3.52	1.16	-1.80	0.08
Note: df = 1,80 *** $p < .001$ ** $p > .01$ * $p < .05$					

## Predictive Models

### *Pursue a position in transportation*

After reviewing the previous results, a predictive model examining the various measures together was constructed. A regression analysis examining the relative contribution of the variable measured was constructed using stepwise regression, where occupational values, occupational interests, support from family or mentors, and self-efficacy were entered into the equation in the order listed. The rationale for entry order was based on the previous findings and theoretical literature that identified interests, abilities and values as key contributors in the occurrence of the dependent variable. A significant model with eight predictors was produced ( $F(6,142) = 31.38$ ,  $p < .001$ ) that accounted for 64% of the variance in the dependent variable (See Table 11).

Table 11. Regression Analysis of Predictor Variables onto Interest in Pursuing a Position

	Beta	t	Sig.
1. I think that I am a good fit with the transportation industry. ( <i>Self-efficacy</i> )	0.608	9.853	0.001***
2. My family would be supportive if I took a job in transportation. ( <i>Support</i> )	0.228	3.598	0.001***
3. Safety (supportive, predictable, stable work environment)? ( <i>Occupational Values</i> )	-0.281	-4.1	0.001***
4. Employee assistance, wellness, and fitness programs? ( <i>Occupational Values</i> )	0.204	3.071	0.003**
5. Geographic location of company? ( <i>Occupational Values</i> )	-0.195	-3.056	0.003**
6. Opportunities for career advancement and leadership? ( <i>Occupational Values</i> )	0.185	2.647	0.009**
7. I will be as good, or better, at my job as other people who hold the same position. ( <i>Self-efficacy</i> )	-0.19	-2.961	0.004**
8. I am confident that I will be successful working in the transportation industry. ( <i>Self-efficacy</i> )	0.161	2.529	0.013*
Dependent Variable: <i>I want to work in transportation.</i> *** $p < .001$ ** $p > .01$ * $p < .05$			

Results indicated that self-efficacy, occupational values, and social support were significant predictors of study participants' interest in working in transportation. More specifically, belief in one's ability to work in transportation and belief in one's ability to make a difference were strong predictors. Having values that were indicative of the type of work that would be done and where a person would work was also predictive. Lastly, it seems that geographic location of the company and comfort with a more ambiguous set of work activities were also predictors. A supportive family also made a significant contribution to the likelihood of being interested in working in a position in transportation.

#### *Accepting a position in Transportation*

Several items in our battery asked about willingness to accept or take a job in transportation. These seemed to be slightly different than just being willing to pursue or possibly consider a job in transportation. Obviously, many factors will ultimately influence whether a person looks for, accepts, and stays in a job. The investigators looked at the variable that predicted response to the question "Even if I had a job offer in another industry I would still like to work in the transportation industry." Using regression analysis, they found some results that were similar to those for the "pursue" response. A significant model with six predictors was produced ( $F(6,142) = 19.76$ ,  $p < .001$ ) that accounted for 46% of the variance in the dependent variable (See Table 12).



Table 12. Regression Analysis of Variables onto Interest in Pursuing Jobs Transportation

Item	Beta	t	Sig.
1. I think that I am a good fit with the transportation industry. (Self-efficacy)	0.321	4.228	0.000***
2. I expect to be satisfied with the kind of work I do in this job. (Self-efficacy)	0.275	3.555	0.001***
3. There are role models in the transportation industry that I can identify with. (Support)	0.279	3.787	0.001***
4. I am interested in being mentored, or mentoring others, in the transportation industry. (Support)	-0.208	-2.649	0.009**
5. Potential for significant financial reward? (Occupational Values)	-0.226	-3.368	0.001***
6. I expect to be satisfied with my job including the hours and amount of work. (Self-efficacy)	0.219	2.788	0.006**
Dependent Variable: <i>I want to work in transportation.</i> *** $p < .001$ ** $p < .01$ * $p < .05$			

Another item that was highly similar was “Even if I could find a job with comparable pay I would want to work in transportation.” This item was also examined with stepwise multiple regression where occupational values, occupational interests, support from family or mentors, and self-efficacy were entered into the equation in the order listed. Results of the analysis produced a significant equation with six predictor variables ( $F(6,142) = 47.024$ ,  $p < .001$ ) that accounted for 66% of the variance in the dependent variable (see Table 10).

Table 13. Regression Analysis of Predictor Variables onto Interest in Accepting a Position

	Beta	t	Sig.
1. I think that I am a good fit with the transportation industry. (Self-efficacy)	0.696	12.47	0.001
2. I have access to professional networks and/or mentorship in the transportation industry. (Support)	0.242	4.094	0.001
3. Potential for financial reward? (Occupational Values)	-0.239	-4.01	0.001
4. I am confident that I will be successful working in the transportation industry. (Self-efficacy)	-0.147	-2.581	0.011
5. A friend of mine told me about a job in transportation and that has increased my interest. (Support)	0.12	2.109	0.037
6. A clear path to a higher management position? (Occupational Values)	0.12	2.009	0.046

## Summary

To further clarify our findings, the list of significant mean differences between all of the non-redundant items is presented in Table 12 and graphically displayed in Figure 4. The complete listing of all items, means and standard deviations is presented in the Appendix.

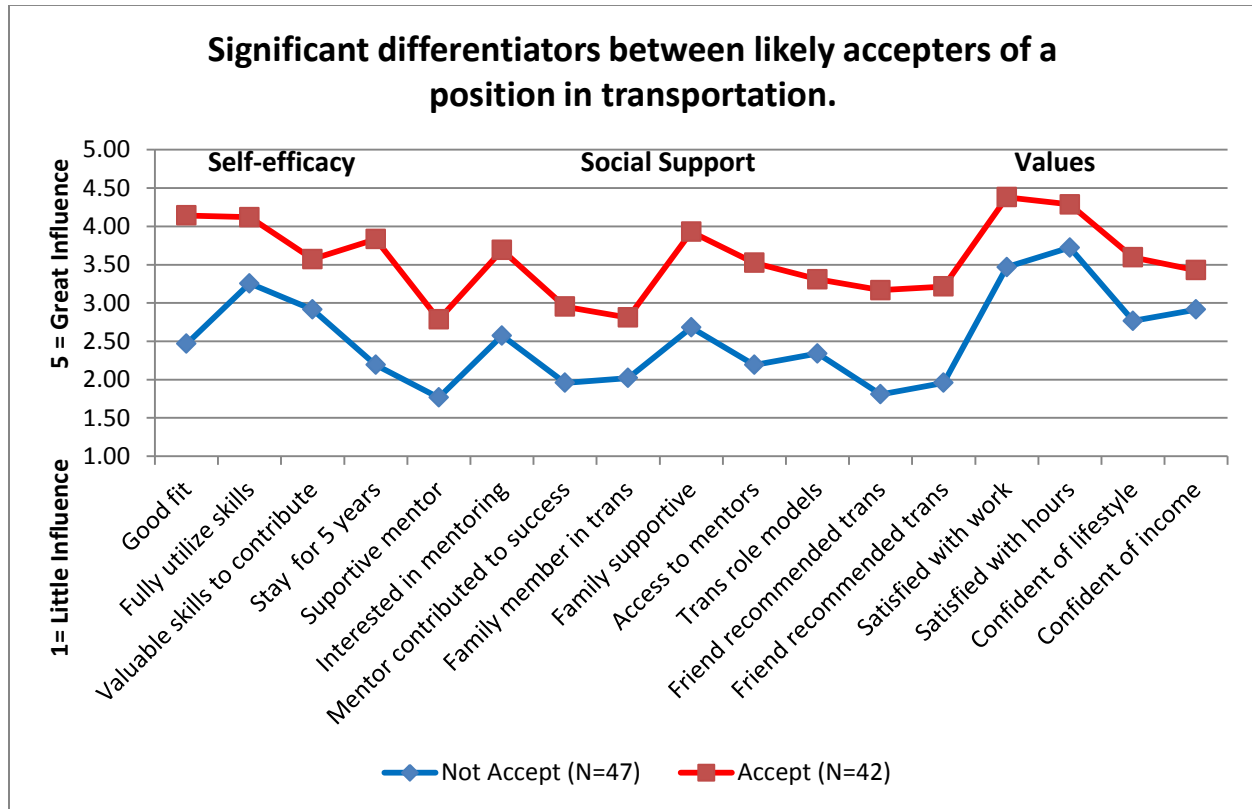


Figure 4. Profile of Persons Interested in Accepting a Position in Transportation

The results presented in Figure 4 summarize a profile of a person who indicates a strong preference for accepting a position in the field of transportation. Table 12 also shows the magnitude of the mean differences and the odds of accepting versus not accepting a position in transportation. The summary of the results suggests that social support in the form of role models and other trusted sources with knowledge of the industry plays a key role. Second, having a high degree of self-confidence and self-efficacy in possessing the skills necessary to make a difference in the industry is also a significant differentiator. Lastly, some awareness of and degree of acceptance of the characteristics of the work environment such as hours and lifestyle are also relevant.

Differences between male and female accepters were observed on ten different variables as shown in Figure 5. Career stability and competitive fringe benefits along with status and prestige associate with the position were significant differentiators. In addition, work activities that offered the possibility of practical hands-on activity along with leading others and being helpful also made an impact. Lastly, being confident of one's ability to make a contribution and being satisfied with the work activities also were important contributors to making a decision. The role of social support in the form of a friend was not as important but was still significantly different.

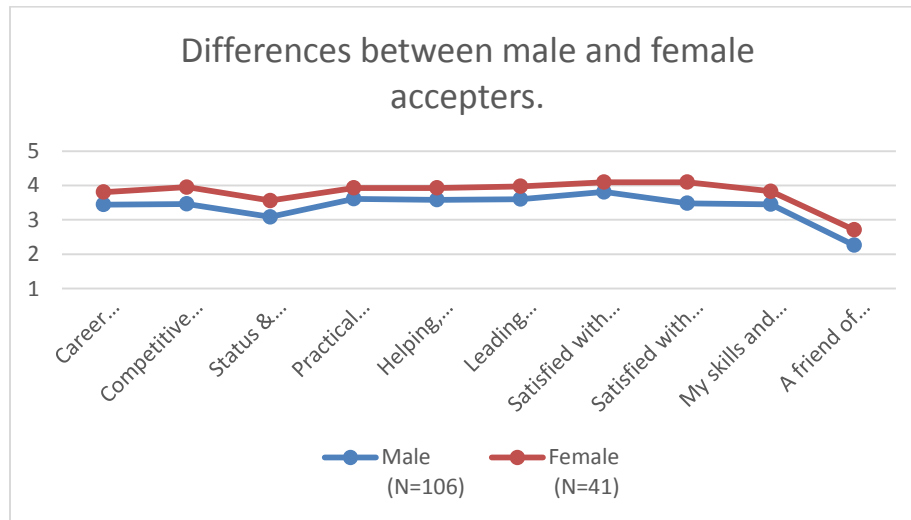


Figure 5. Profile of Differences for Accepting Vs. Not Accepting Transportation Jobs

The differences between accepters and non-accepters among women provide interesting comparisons as well. As can be seen in Figure 6, significant differences and trends towards significance on key variables differentiated the accepters from the non-accepters.

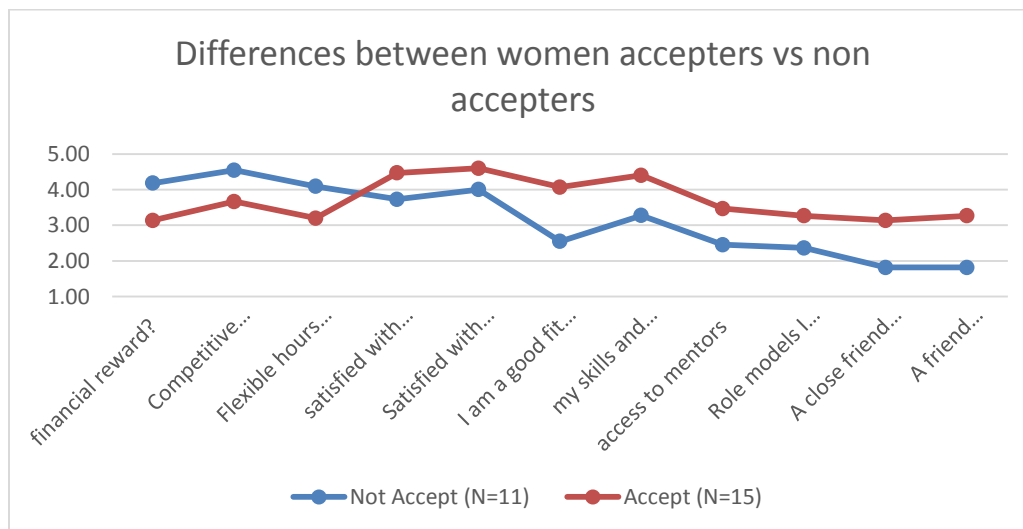


Figure 6. Differences Between Female Accepters vs Non-Accepters

Interestingly, women likely to accept a position in transportation were less interested in significant financial rewards, competitive fringe benefits and flexible hours than those who would not accept. However, they were more interested in feeling that they were a good fit, fully utilizing their skills and abilities, and having mentors and role models. They were also more

likely to have been influenced by a close friend or relative to consider a position in transportation.

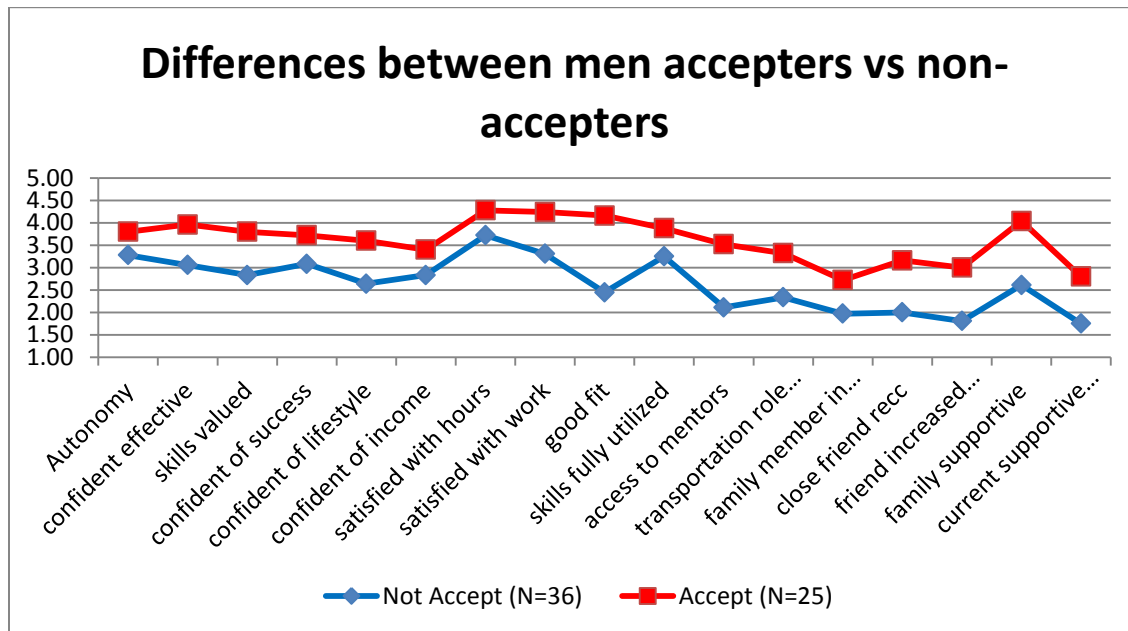


Figure 7. Differences between Male Accepters and Non-Accepters.

Lastly, looking at the differences between acceptor and non-acceptor men, we see the familiar pattern of self-efficacy, social support and occupational values. For self-efficacy, significant differentiators included higher scores on belief that skills would be valued and on income, lifestyle and being confident of success.. Social support was also important in that role models, family members, mentors and friends were positive influences on accepters. Similarly, satisfaction with the type and nature of work hours and activities was also important.

### Odds of Accepting/Rejecting

The practical implications of these results are best seen when applied to selection interviews and hiring. Indicators of what items and characteristics are most likely to lead to the identification of a successful candidate (the responses to the items that were able to significantly differentiate between accepters and non-accepters) were further analyzed. While the statistically significant differences between means of assigned groups point to significant differences between the way that people will respond, it is also important to understand the probability of accepting. Interviewers and hiring managers will most likely want to understand the relative importance of a particular response to an item. One way of determining the importance of a response is to assess the odds of accepting or not accepting a position based on how the person responds. To determine the odds, the data must be arranged in a two by two contingency table. Since the data were originally obtained by using a five-point Likert response format, the decision to collapse and dichotomize the data into relevant two by two matrices was made and a series of results was generated. The data arranged in Table 14 illustrate how the data are transformed from a five-point Likert cross tabulation table into a two-by-two contingency table.

Table 14. Cross Tabulation of "Good Fit" Vs. "Accepting" a Position in Transportation.

	Even if I could find a job with comparable pay I would want to work in transportation (Count)					
I think that I am a good fit with the transportation industry.	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree	Total
Strongly Disagree	5	3	0	0	0	8
Disagree	4	10	3	0	0	17
Neither	5	15	45	9	0	74
Agree	0	5	10	17	1	33
Strongly Agree	0	0	2	3	12	17
	14	33	60	29	13	149

To calculate an odds ratio, the probability of not accepting (rejecting) based on the response to the item and the probability of accepting was calculated. The best ratio in this case was thought to be the ratio of the probability of accepting when agreeing to the item compared to the probability of accepting when disagreeing to the item. In this case, the cells in the lower right quadrant (Agree, Strongly Agree) for the Accept category (Agree-Strongly Agree) are summed and divided by the sum of responses in the cells for Accept and Not-Accept (not including the count for the Neither Agree or Disagree column):

Probability of Accepting when Agreeing:

$$(17+1+3+12)/(33+17)-(10+2) = 32/37 = 0.86$$

Probability of Accepting when Disagreeing:

$$(0+0+3+0)/((8+17)-(0+3)) = 3/25 = 0.12$$

Ratio of Accepting to Rejecting (OR):

$$.86/.12 = 7.21$$

In this example, the odds of accepting a position when answering “agree” or “strongly agree” to the question “I think that I am a good fit with the transportation industry” are 7.21, or greater than 7 to 1. An interviewer or hiring manager can thus have a higher degree of confidence in the likelihood of a candidate accepting a position if the person agrees with the item. Similarly, the odds of accepting can be determined for other items that significantly differentiated accepters from non-accepters. Table 15 presents the rank order of the items in order of the magnitude of their OR for acceptance.

Table 15. Significant Differentiators between Accepters and Non-Accepters.

	Not Accept (N=47)	Accept (N=42)	Std. Dev.	t	Sig. (2- tailed)	P(Accept) if Agree	P(Accept) if Disagree	Odds Ratio
Good fit	2.47	4.14	0.91	-9.43	0.000 <sup>a</sup>	86%	12%	7.21
Fully utilize skills	3.26	4.12	1.03	-4.26	0.000 <sup>a</sup>	72%	33%	2.17
Stay for 5 years	2.19	3.83	1.01	-7.32	0.000 <sup>a</sup>	81%	40%	2.00
Valuable skills	2.91	3.57	1.14	-2.80	0.006 <sup>b</sup>	73%	38%	1.92
Satisfied with hours	3.72	4.29	0.97	-2.80	0.006 <sup>b</sup>	66%	38%	1.75
Confident effective	3.13	3.86	0.99	-3.08	0.003 <sup>b</sup>	72%	43%	1.69
Interested mentor	2.57	3.69	1.16	-4.80	0.000 <sup>a</sup>	74%	45%	1.62
Confident of lifestyle	2.77	3.60	1.24	-3.21	0.002 <sup>b</sup>	69%	43%	1.62
Family supportive	2.68	3.93	1.04	-5.62	0.000 <sup>a</sup>	78%	48%	1.61
Friend recommend	1.81	3.17	1.14	-5.13	0.000 <sup>a</sup>	84%	53%	1.58
Access to mentors	2.19	3.52	1.08	-5.92	0.000 <sup>a</sup>	80%	52%	1.55
Trans role models	2.34	3.31	1.01	-3.89	0.000 <sup>a</sup>	77%	52%	1.49
Satisfied with work	3.47	4.38	0.95	-5.11	0.000 <sup>a</sup>	67%	46%	1.45
Supportive mentor	1.77	2.79	1.00	-3.91	0.000 <sup>a</sup>	78%	56%	1.39
Confident of success	3.06	3.62	1.21	-2.22	0.029 <sup>c</sup>	69%	53%	1.30
Confident of income	2.91	3.43	1.19	-1.98	0.051 <sup>d</sup>	69%	53%	1.30
Friend recommend	1.96	3.21	1.08	-4.75	0.000 <sup>a</sup>	75%	59%	1.27
Family in trans	2.02	2.81	1.26	-2.78	0.007 <sup>b</sup>	69%	57%	1.22
Mentor contributed	1.96	2.95	1.23	-3.62	0.000 <sup>a</sup>	67%	56%	1.19
<i>df= 87<sup>a</sup> p&lt;.001<sup>b</sup> p&lt;.01<sup>c</sup> p&lt;.05<sup>d</sup> p&lt;.10</i>								

## Discussion

The results of this study point to a number of key findings about a varied sample of individuals pursuing, accepting and remaining in a transportation job. The study determined that for the general sample, 70% were not interested in or were unlikely to accept a job in transportation. Put another way, only 30% were interested in possibly accepting a position in transportation. It is apparent that the overall popularity of work in this field is not great.

Finding a low interest among members of the general population in transportation jobs is not necessarily surprising. Similar results have been reported by previous researchers (Philbrick & Sherry, 2004). It should be noted that the transportation industry is not that large, as indicated by the only 4,890,400 employees currently employed as reported by the BLS (2016). Consequently, transportation organizations should probably focus their efforts and limited resources on those who are highly likely to accept a position in transportation.

Because of the nonrandom nature of this sample, which could limit its generalizability, different results may be found for different samples and geographic locations. However, these results also point to a number of factors that are related to identifying persons who would be interested in working in the transportation industry. Specifically, in this particular sample, those who would accept a position in transportation were influenced by feelings of self-efficacy, social support and the occupational values related to job characteristics.

Self-efficacy as a key factor in career decision-making has been studied for a number of years beginning with Betz & Hackett (1981). The present results are consistent with past research that has associated career decision self-efficacy with career choice (Quimby & O'Brien, 2004). In this study, self-efficacious beliefs and attitudes related to effectiveness and success in the transportation industry clearly differentiated persons who were more likely to accept positions in transportation from those who were less likely. Thus, the extent to which persons are of the opinion that they can make a contribution and succeed in transportation can strongly influence their decision to accept a position in transportation.

The results of the present study are also consistent with the notion that social support can influence career decision and choice. The findings of Garcia et al. (2015) indicated that parental and teacher social support were directly related to career decision-making and optimism relative to career choice. Buday et al. (2012) also found that social support contributed directly to men's and women's ability to envision themselves in a future science career, which in turn predicted their interest in and motivation for a science career. In addition, Metheny & McWhirter (2013) tested a model predicting career-related outcome expectations in a sample of 270 male and female undergraduate students. Predictor variables included family support and family career-related interactions. The results of their study suggested that family status and family support were associated with career decisions. Results of the present study suggest that the contributions of friends, family members, mentors and role models play a significant role in the decision to accept a position in transportation.

Occupational values also contributed to the decision making process. As early as 1960, Super showed that occupational values were strongly related to career choice and decision-making. Carruthers (1968) demonstrated that different occupational groups endorsed different occupational values. Duff & Cotgrove (1982) showed that the choices social science students selected about values were related to choice of industry. Interestingly, Eley et al. (2010) found that work and personal values were related to nurses' decisions to leave the profession. More recently, Abrahamsen (2015) showed that nurses' later career choices were affected by career values and that the tendency among undergraduate nursing students to choose care of older people rather than general hospital care after graduation increased as their score on altruism decreased. They concluded that the choice of clinical field after graduation correlates with undergraduate nursing students' perceived professional qualifications and job values. Additionally, Weisgram, Dunella & Fulcher (2011) found that values were a larger contributing factor to the traditionality of occupational choices than self-perceived masculinity/femininity. In the present study, work values (specifically, financial rewards, career stability and advancement, and to some extent geographic location) played a role in the prediction of career choice and acceptance of positions in transportation. Financial rewards, however, were negatively related to pursuing a position. In other words, individuals interested in high financial rewards were less attracted to transportation. Similarly, geographic location was also negatively related to choosing a career in transportation, suggesting that travel was less important than a specific location.

Taken together, the results support a model of career choice that combines self-efficacy, work values, and social support in contributing to the decision to pursue or accept a position in transportation.



### Battery of Successful Screening Items

Based on these results and the differential odds ratios generated, it is suggested that hiring personnel look at Table 16 in attempting to identify potential candidates and also in differentiating among those who will be more likely to accept a position in transportation. (Odds ratios and variable group are in parentheses).

Table 16. Battery of Successful Screening Items

1. *Persons confident they are a good fit with the transportation industry.*(SE) (7:1)
2. *Persons confident they will fully utilize their skills and abilities.* (SE) (2.2:1)
3. *Persons confident they have skills valuable to transportation.* (SE) (1.9:1)
4. *Persons confident they will be effective in transportation.* (SE) (1.8:1)
5. *Persons confident of their success in transportation.* (SE) (1.3:1)
6. *Persons comfortable with work hours and schedule.* (Values) (1.4:1)
7. *Persons confident that transportation will provide right lifestyle.* (Values) (1.4:1)
8. *Persons comfortable with the kind of work in transportation.* (Values) (1.4:1)
9. *Persons confident that transportation will provide right income.* (Values) (1.3:1)
10. *Persons whose family is supportive of their career choice.* (SS) (1.6:1)
11. *Persons who have a friend who recommended they pursue.* (SS) (1.5:1)
12. *Persons who have a transportation role model.* (SS) (1.4:1)
13. *Persons who have had access to a mentor for transportation.*(SS) (2:1)
14. *Persons with a family member who worked in transportation.*(SS) (1.2:1)

*Note: SS = Social Support, SE = Self- Efficacy, Values = Occupational Values.*

This list of characteristics could easily be used by managers, recruiters, and candidates themselves to assess whether an individual is a good fit with the organization and the job. Turning these ten characteristics into a set of questionnaire items for a screening tool, structured interview or other assessment selection test for pre-employment screening would be one way of utilizing this information. Additionally, these characteristics could be addressed in orientation briefings to persons considering the transportation industry for a job. By clearing identifying these key issues, it should be possible to save time, and focus only on those who have the highest likelihood of success in the long run.

**Recommendations**

The findings of this study provide a blueprint for organizations, employers and recruiters for identifying individuals who will have a higher probability of pursuing and accepting a position in transportation.

1. Target persons who have similar interests and values to those of transportation. Similar interests include practical problem-solving as opposed to artistic and social work tasks.
2. Target persons in populations that have similar values, such as preferring some autonomy and career stability, while having less interest in significant financial rewards.
3. Target persons with knowledge of and willingness to accept a position with the type of hours, work schedule, and work demands typical of the transportation industry.
4. Conduct screening of individuals using empirically validated interview questions to maximize odds of identifying candidates with a high probability of accepting offers.
5. Develop screening instruments that include assessments of social support factors likely to predict success, such as family, friends, and mentors who have a positive view of transportation.
6. Develop screening instruments that include assessments of self-efficacy considerations that relate to success in transportation, such as skill utilization, goodness of fit, and ability to contribute to the field.
7. Develop screening instruments that address key occupational values such as lifestyle characteristics, income, career stability, hours of work and work schedule.
8. Develop screening instruments that identify persons who are interested in key work activities such as practical problem-solving and less interested in social environments and altruistic or artistic activities.
9. Develop screening instruments that help identify female candidates by determining those who have a strong belief in their ability to succeed and contribute to transportation, those who place less emphasis on significant financial reward or flexible work hours, and those who have friends, family, role models and mentors who are positive about transportation.
10. Develop screening instruments that help select males who have a greater willingness to accept a position in transportation by identifying those who show a strong preference for transportation work activities and a strong supportive social network that endorses transportation.

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## Appendix A.

	<b>Not Accept (N=47)</b>	<b>Accept (N=42)</b>	<b>Std. Deviation</b>	<b>t</b>	<b>Sig. (2- tailed)</b>
Career stability, security, & a well-defined career path?	3.49	3.79	1.23	(1.23)	0.22
Potential for significant financial reward?	3.85	3.48	0.98	1.79	0.08
Travel Opportunities?	3.83	3.57	1.09	1.06	0.29
Competitive fringe benefits (health, tuition, & retirement)?	3.85	3.57	1.08	1.34	0.18
Geographic location of company?	3.43	3.57	1.06	(0.60)	0.55
A social environment while at work?	3.49	3.55	0.98	(0.27)	0.79
Challenges (solving important problems)?	3.43	3.71	1.08	(1.15)	0.25
Creativity (thinking outside the box & new approaches)?	3.70	3.98	1.04	(1.25)	0.22
Flexible hours/work schedules?	3.74	3.67	1.03	0.33	0.74
Achievement (accomplishment & full use of abilities)?	3.85	4.05	1.16	(0.89)	0.38
Altruism (helping others & friendly, noncompetitive job)?	3.74	3.88	1.13	(0.59)	0.56
Autonomy (work independently, make own decisions)?	3.28	3.62	1.12	(1.51)	0.14
Comfort (job security & good working conditions)?	3.87	3.95	1.12	(0.35)	0.73
Safety (supportive, predictable, stable work environment)?	4.04	3.86	0.88	0.93	0.36
Status (leadership & prestige)?	3.34	3.19	1.09	0.59	0.55
Financial assistance to complete your degree and work?	3.60	3.38	0.88	0.96	0.34
Employee assistance, wellness, and fitness programs?	3.45	3.40	1.04	0.17	0.87
Labor/management relations?	3.30	3.26	0.86	0.17	0.87
Opportunities for career advancement and leadership?	3.89	3.83	0.94	0.29	0.78
Competitive salary?	3.70	3.86	1.10	(0.72)	0.47
Competitive fringe benefits?	3.45	3.57	0.97	(0.58)	0.56
A clear path to a higher management position?	3.91	3.79	0.97	0.60	0.55
Practical hands-on problems and solutions?	3.81	4.00	1.01	(0.90)	0.37
Ideas, thinking, and problem solving?	3.94	3.98	1.07	(0.18)	0.86
Artistic and creative use of forms, design, and patterns?	3.83	3.76	1.05	0.30	0.76
Helping, teaching, providing service,	3.74	3.79	1.03	(0.19)	0.85
Leading people, directing projects, making decisions?	3.81	3.79	0.95	0.11	0.91
Predictability, definite procedures, routine, data, details?	3.87	3.67	1.01	0.91	0.37
Your personal values are in line with values found in?	3.26	3.50	1.03	(1.06)	0.29
Values & mission of transportation worth supporting?	3.51	3.76	0.80	(1.18)	0.24
I am confident that I will be an effective employee in the transportation industry.	3.13	3.86	0.99	(3.08)	0.00
I will be as good, or better, at my job as other people who hold the same position.	3.62	3.79	1.05	(0.72)	0.47



I have skills that are valuable to the transportation industry.	2.91	3.57	1.14	(2.80)	0.01
I am confident that I will be successful working in the transportation industry.	3.06	3.62	1.21	(2.22)	0.03
I am confident that i will find friends among my coworkers in the transportation industry.	3.26	3.60	1.21	(1.31)	0.19
I expect to be friends with my coworkers.	3.62	3.52	1.13	0.39	0.70
I expect there will be lots of people with similar interests working in transportation.	3.19	3.57	1.04	(1.57)	0.12
I expect the transportation industry to be supportive of workers of my gender.	3.38	3.74	1.26	(1.37)	0.17
I am confident that I can handle any gender issues that might arise while working in transportation.	3.87	3.79	0.99	0.39	0.70
I am confident that working in transportation will provide me with the lifestyle I seek.	2.77	3.60	1.24	(3.21)	0.00
I am confident that working in transportation will provide me with income I desire.	2.91	3.43	1.19	(1.98)	0.05
I expect to be satisfied with my job including the hours and amount of work.	3.72	4.29	0.97	(2.80)	0.01
Even if I had a job offer in another industry I would still like to work in the transportation industry.	2.57	3.86	1.08	(5.92)	0.00
I want to work in transportation.	2.43	4.07	0.99	(8.07)	0.00
I expect to be satisfied with the kind of work I do in this job.	3.47	4.38	0.95	(5.11)	0.00
I expect most people on this job to be very satisfied with the job.	3.45	3.88	0.97	(2.25)	0.03
I think that I am a good fit with the transportation industry.	2.47	4.14	0.91	(9.43)	0.00
I expect that my skills and abilities will be fully utilized in my current job.	3.26	4.12	1.03	(4.26)	0.00
Even if I could find a job with comparable pay I would want to work in transportation.	1.70	4.31	0.46	#####	0.00
I expect to stay in a transportation job for at least 5 years.	2.19	3.83	1.01	(7.32)	0.00
I expect to work in transportation but would take another job, for better pay, if offered.	3.23	3.67	1.37	(1.61)	0.11
I have access to professional networks and/or mentorship in the transportation industry.	2.19	3.52	1.08	(5.92)	0.00
I am interested in being mentored, or mentoring others, in the transportation industry.	2.57	3.69	1.16	(4.80)	0.00
There are role models in the transportation industry that I can identify with.	2.34	3.31	1.01	(3.89)	0.00
I have had a formal or informal mentor at some point in my education.	2.94	3.21	1.15	(1.04)	0.30
A member of my family (or relative) worked in transportation.	2.02	2.81	1.26	(2.78)	0.01
A close friend or relative recommended transportation as a field for me.	1.96	3.21	1.08	(4.75)	0.00
A friend of mine told me about a job in transportation and that has increased my interest.	1.81	3.17	1.14	(5.13)	0.00
My family would be supportive if I took a job in transportation.	2.68	3.93	1.04	(5.62)	0.00



I currently have a mentor who is supportive of me pursuing a transportation job.	1.77	2.79	1.00	(3.91)	0.00
My professional network or mentor has contributed to my success in transportation.	1.96	2.95	1.23	(3.62)	0.00
I expect to rely on my immediate supervisor or manager when things get tough at work.	3.02	3.90	1.07	(4.08)	0.00
I expect my immediate supervisor or manager to listen to my work-related problems.	3.49	3.83	1.08	(1.65)	0.10
I expect my immediate supervisor or manager to help me in getting my job done.	3.40	3.95	0.92	(2.81)	0.01
I expect my supervisor or manager to be competent in doing his/her job.	3.81	4.17	1.12	(1.63)	0.11
I expect my supervisor to be concerned about the welfare of those who work for him/her.	4.00	4.12	1.02	(0.58)	0.56
I expect my supervisor or manager to go out of his/her way to praise good work.	3.68	3.81	1.00	(0.58)	0.56
I expect my supervisor or manager to be supportive of me.	3.70	4.07	1.14	(1.69)	0.10
I expect to get along well with my supervisor or manager.	3.81	4.05	1.04	(1.15)	0.25
df=87					