

Final Report

Perceptions of the Intermodal Transportation Industry
Related to Recruitment and Retention of Human
Resources

Introduction

Work done by the Transportation Research Board (TRB) and the Western Transportation Advisory Council (WESTAC), has identified the impending human capital shortage in both the operating and managerial ranks of employees in the intermodal transportation industry. This research proj

equipment, and improving infrastructure. In fact, as David Arian, president of Local 13: International Longshore and Warehouse Union, states, “it is estimated that in the Los Angeles, California area alone 13,000 plus workers are needed to work at the docks in order to contend with the freight traffic in that area alone” (as quoted in Broder, 2004). In addition to having to contend with pr

- 1) the future availability of a skilled and qualified workforce for transportation;
- 2) the sustainability of transportation training and education programs.

The WESTAC report indicated that transportation in Canada is having difficulty attracting, training and retaining people: information about transportation is inadequate; transportation has an image problem; too few people are pursuing transportation careers or education; education programs are being cancelled or are surviving on minimal enrollment; there is a gap between education programs and industry needs; jobs are requiring more training and skills; companies have cut back on their training programs; and the skills shortage issues are not being taken seriously enough.

According to the Railway Association of Canada (RAC) there is increasing concern across industries over pending labor shortages. The RAC estimates that 30 to 50% of the rail workforce is eligible to retire over the next 5 to 10 years. Similar shortages are being identified by the U.S. DOT (TRB, 2003). In an effort to address this concern the U.S. Department of Transportation's Garrett A. Morgan Technology and Transportation Futures Program and the department and the TTD have developed transportation projects to promote learning experiences to prepare individuals for careers in transportation. The department and the TTD also plan to develop materials to highlight high paying transportation careers and illustrate, science, computer and other technology necessary to pursue such careers. However, with regard to the intermodal transportation industry specifically, and also with passenger transportation, little is known about the overall future needs and plans to address those needs.

A report published by the Council of Logistics Managers (Carr & Lemay, 1999) highlighted the importance of human resource issues in logistics and the need to understand logistics jobs, career paths, and personal development in terms of job requirements, competencies, and training needs. Researchers, as described in the report, visited over 60 sites in 43 firms and interviewed 632 people. The results underscored the need for continuing emphasis on training and development of managerial personnel with a focus on development as a means of increasing retention.

Conversations with transportation executives in the U.S. and members of the Intermodal Transportation Institute board, at the University of Denver, further highlighted the growing concerns regarding the availability of qualified professionals in the intermodal transportation industry. This study addressed these concerns by assessing the perceptions of the intermodal transportation industry from the point of potential job seekers with respect to the existence of perceived and forecasted shortages, as well as the positive and negative perceptions related to the recruitment and retention of employees.

Methodology

In order to assess perceptions and to make recommendations regarding the intermodal transportation industry, it was important to identify the knowledge base that students in community colleges and 4-year universities have regarding careers in the field of transportation. Students from these two types of educational facilities were chosen as the sample population because they will be entering the labor force in the next few years and because many students are still struggling to identify what type of career they would like to pursue.

Participant Characteristics

A total of 447 surveys were collected from community colleges and 4-year universities in California, Colorado, Maryland, Michigan, and Texas. Of the 447 respondents, 202, or 45.3%, were male and 245, or 54.7%, were female, age ranged from 17 to 62 and average reported years of education was 14.7. Below is a table that presents the demographic information for the questionnaire respondents (please note that answers were not provided to all questions by participants).

Characteristic	N
Gender	
Male	202
Female	245
Race	
White	232
Asian	70
Black	77
American Indian	1
Hispanic	44
Other	23
Age	
20 and below	104
20-29 years	279
30-39 years	41
40-49 years	12
50-59 years	6
60-69 years	1
Educational Level	
1-3 years of College	298
4-6 years of College	128
7+ years of college	14

Procedures

Prior to data collection, written permission to conduct this study was secured from the Institutional Review Board (IRB) at the University of Denver and verbal permission was granted from college representatives for the researcher to be on site.

The researcher would arrive on the campus of the community colleges and the 4-year universities and would report to the common area, typically either the food court or the student lounge. Each student would then be approached and the study would be explained. If the potential respondent had questions, they would be addressed at this time. Once a student gave their consent to participate, they were provided with a copy of the questionnaire (see Appendix A). Upon completion the respondent would be given their choice of an incentive: either a pack of Gum or a \$1 scratch off lottery ticket (both incentives were of equal value).

Measures

The questionnaire assessing perceptions of the intermodal transportation industry related to recruitment and retention of human resources was devised by Philbrick and Sherry (2004: Appendix A) and was comprised of several classes of variables including:

Influencing Factors For Career Choice
Occupational Values
Preference for a Career in Transportation
RIASEC

The next 5 questions were designed to determine what, if any, incentive would influence a respondent to obtain a career in the field of transportation. The following incentives were assessed: financial assistance to complete your degree and work in transportation; the provision of employee assistance, wellness, and fitness programs; labor/management relations; and opportunities for career advancement and leadership. The last question simply asked if the respondent would consider a career in the transportation industry (the dependent variable in this study).

The RIASEC Model, a vocational interest typology defined by Holland, assessed job preference. Holland's RIASEC Theory 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. Because this is a widely used paradigm for understanding career selection, questions assessing "type" were included in this questionnaire so that it could be determined if individuals of a certain type are more likely to endorse items assessing interest in transportation related careers. Specifically, these questions were numbered 18 through 23 and looked at preference for work activities centering on: practical hands-on problems and solutions; ideas, thinking, and problem solving; artistic and creative use of forms, design, and patterns; helping, teaching, providing service, or working with people; leading people, directing projects, making decisions; and predictability, definite procedures, routine, data, details, and organization.

Questions assessing knowledge and desirability of careers related to the industry sectors as defined by the Dictionary of Occupational Titles (1991). These included the 14 occupations listed in the table below:

<i>Industry</i>
Arts, entertainment, & media
Science, math, & engineering
Plants & animals
Law, law enforcement, & public safety
Mechanics, installers, & repairers
Construction, mining, & drilling
Transportation (rail, aviation, shipping, trucking)
Industrial production – manufacturing
Business detail
Sales and marketing
Recreation, travel, & other personal services
Education & social service
General management & support
Medical & health services

Respondents were asked to rate their knowledge of the types of occupations and how desirable they felt obtaining a job in that industry would be. Ratings ranged from 1 (most knowledge/most desirable) to 14 (least knowledge/least desirable). Both knowledge and desirability were assessed because while someone may know a great deal about computers (rating of 1) they may find a career in that industry very undesirable (rating of 14).

Following these ratings, a listing of Fortune 500 transportation companies was provided

Variable

Above is a table that presents the means and standard deviations for questions assessing the importance of job related factors, the degree to which certain factors would influence one's decision to enter a career in the transportation field, and occupational values.

It must be emphasized then that if an individual does not perceive a career choice as having the possibility of providing satisfaction or gratification of the values held by the individual (e.g., achievement, altruism, autonomy, comfort, safety, and status) then there is a considerable likelihood that the individual will not pursue the career in question.

The table below demonstrates that the most important occupational value for the survey respondents was the feeling of comfort (job security and good working conditions) and achievement (feeling of accomplishment and the full use of ones abilities). The least important occupational value was labor management relations, perhaps the result of few“ ksrimeT39 0 TD

	Frequency	Valid Percent
Arts	42	12.1
Science	41	11.8
Plants	10	2.9
Law	19	5.5
Mechanical	6	1.7
Construction	14	4.0
Transportation	9	2.6
Industry	7	

For the purpose of this study then, it of interest to review the degree to which values are endorsed by those who report pursuing a career in the transportation industry as desirable. From this information we can learn more about possible recruitment strategies for transportation related careers. Below is a listing of the endorsements, rank ordered (please note that several of the values have equal means), for the 16 values presented in the questionnaire for respondents interested in the transportation field.

Rank Order	Value	Mean
1	Achievement	4.44
1	Fringe Benefits	4.44
2	Career Stability	4.33
2	Status	4.33
3	Career Advancement	4.00
4	Autonomy	3.78
4	Comfort (job security...)	3.78
4	Safety (supportive mgmt...)	3.78
5	Travel Opportunities	3.67
5	Flexible Hours/Work Schedules	3.67
5	EAP, Wellness, and Fitness Programs	3.67
6	Financial Reward	3.44
7	Altruism	3.33
7	Labor/Mgmt. Relations	3.33
8	Scholarships	3.11
9	Location of Company	2.89

For people who desire a career in transportation, the data reveals that achievement, characterized by feelings of accomplishment and the ability to use one's skills and abilities, and the provision of competitive fringe benefits, including health coverage and retirement packages, are equally important and the most highly valued of all. Geographic location of the company and scholarships are the least important. Flexible work schedules were important as well (mean= 3.67) but not as important as it was for most other occupations (e.g., Mechanical: mean = 4.33; Arts: mean = 4.10; and Law: mean = 4.0). Please refer to Appendix B for a full review of the means for the 16 occupational values by industry career.

When asked if respondents would consider work

that they found a transportation related career to be desirable. This could be due to a lack of industry knowledge of careers in transportation. When asked about familiarity with careers in transportation respondents limited their answers to that of truck driver, airline pilot, ship captain, and train driver. It seems then that limited knowledge is a significant barrier to the recruitment of individuals into the field of transportation.

Discussion

Civil engineering has long been the traditional degree for entrance into the transportation industry. However, over the last several years, enrollment in civil engineering programs has been declining (Meyer & Jacobs, 2000). This, in conjunction with the aging workforce, has made it necessary to look to other professions to provide the human capital needed to keep the transportation industry running safely and effectively. Students from ten different community colleges and 4-year universities, in five states, completed a questionnaire assess

APPENDIX A

Questionnaire for Assessing Perceptions of the intermodal transportation industry related to recruitment and retention of human resources.



This survey is designed to identify the main factors that influence career choices.

Using the scale below, please indicate the number that best reflects your perceptions:

To what degree are the following important in your decision to enter a specific career?

1	2	3	4	5
Little or No Degree	Slight Degree	Moderate Degree	Considerable Degree	Very Great Degree
1. ...career stability, security, & a well-defined career path?				
2. ...potential for significant financial reward?				
3. ...travel opportunities?				
4. ...competitive fringe benefits (health insurance, pension, & retirement)?				
5. ...high status (potential for advancement, leadership, & prestige)?				
6. ...autonomy (work on your own, make decisions)?				
7. ...comfort (job security & good working conditions)?				
8. ...safety (supportive management, predictable, stable work environment)?				
9. ...status (potential for advancement, leadership, & prestige)?				
10. ...helping others & working in a friendly (non-competitive job)?				
11. ...autonomy (work on your own, make decisions)?				
12. ...comfort (job security & good working conditions)?				
13. ...safety (supportive management, predictable, stable work environment)?				
14. ...status (potential for advancement, leadership, & prestige)?				

To what degree would the following lead you to obtain a job in transportation...

13. ...financial assistance to complete your degree & work in transportation

Please rank order the following **fourteen industries** from 1 to 14 (1 being the highest ranking and 14 being the lowest) in terms of your **KNOWLEDGE** of what careers in these industries entail and how **DESIREABLE** you feel they are (e.g., the industry you would most like to work in would be ranked 1 just as the industry you know the most about would be a 1). Please use all 14 ratings (1,2,3,4,5,6,7...).

<i>Industry</i>	Knowledge (1to 14)	Desirability (1 to 14)
Arts, entertainment, & media		
Science, math, & engineering		
Plants & animals		

There are a number of different types of transportation companies. All of them have a wide range of departments and activities. Here are a few of the Fortune 500 companies, all of which posted a significant profit in the last fiscal year:

• Union Pacific Railroad	• United Airlines
• Federal Express	• Frontier Airlines
• UPS (small package)	• American Presidents Shipping
• Yellow Freight (Trucking)	• Amtrak

Given your major, and assuming you could work in your field in a company such as those listed above, how likely is it that you would work in the transportation industry?

Please rate from 1 (little or no degree) to 5 (very great degree): _____

If you could have a job, starting at 50K in your field of specialization, how likely is it that you would work in the transportation industry?

Please rate from 1 (little or no degree) to 5 (very great degree): _____

Demographic Questions (please answer)

Gender: _____

Age: _____

Race: _____

Number of Years of Education: _____ (e.g., HS = 12 years)

Scholastic Major: _____

APPENDIX B

Means for Occupational Values by Desirability of Industry Career



Career	Value #1	Value #2	Vale #3	Value #4	Value #5	Value #6	Value #7	Value #8	Value #9	Value #10	Value #11	Value #12	Value#13	Value#14	Value#15	Value#16
Arts	4.167	3.9762	3.4762	4.2143	3.5238	4.0952	4.2857	3.8810	3.6667	4.4286	3.9524	4.2381	3.1905	3.30953		