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A Mixed-Methods Analysis of the Educational Needs of Employers and Non-English Speaking Workers in Arboriculture

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A Mixed-Methods Analysis of the Educational Needs of Employers and Non-English Speaking Workers in Arboriculture

Abstract

Arboricultural employers and non-English speaking workers were surveyed to acquire information about their outreach educational needs. Results suggest that language barriers sometimes reduce job performance and threaten worker safety and relationships. Respondents stated that employee performance would improve if workers received English language and cultural training. Method of education mattered, with face-to-face learner and educator contact as the preferred method. It is recommended that arboriculture employers and outreach educators provide English language and cultural outreach education opportunities to arboriculture workers whose first language is not English, then follow this with arboriculture training and information (such as pesticide safety).

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Introduction

Cooperative Extension has identified the need to increase organizational diversity and works to adjust organizational culture and structure to meet the challenges presented by demographic

change (Seevers, Treat, Cummings, & Wright, 1996). This is primarily in anticipation of addressing future client needs in natural resources, agriculture, and other educational areas. In 1992, for example, Chesney (1992) predicted that the workforce would change dramatically in only a decade. He argued that while in 1992, "15% of the agricultural workforce are minority," in 2000, "more than 42% will be minority or immigrant" (Chesney, 1992).

Additional claims about future minority or immigrant participation in the national workforce support a continuance of such trends. Grogan (1991) argued that by the year 2010, "one-quarter to one-third of all Americans will belong to racial or ethnic minority groups." He points out that people from these groups will have varying histories, customs, values, and sensitivities and that it is wise, prudent, and fair to understand the specific needs of these workers and design and implement programs to help transition them into the mainstream (Grogan, 1991).

Significant dialog and programmatic interest exists to provide for the needs of non-English speaking people--primarily of Hispanic/Latino heritage and descent--working in the arboricultural industry. This is due to the belief that such workers form an increasingly large population in the arboricultural industry, with anecdotal evidence supporting this claim. For example, the arboricultural supervisor for Connecticut Light and Power (CL&P) stated that,

CL&P has entered into a two year, renewable contract with ABC Professional Tree Company based in Houston, Texas. ABC is minority owned and provides utility tree services to utilities from Texas to New England. Our brief experience with ABC workers is that they have a very good work ethic, and are hard working" (A. Carey, per. comm., March 9, 2006).

While scholarship on the immigrant workforce exists (e.g., Reitz, 1998; Trucios-Haynes, 2002), there is little specifically targeting arboriculture and outreach education. Three excellent and recent studies have addressed this issue (Bragg, 1998; Kuhns, Bragg, & Blahna, 2002, 2004), but they focus primarily on minority professionals in urban forestry and arboriculture and do not address outreach education.

The study reported here addresses this empirical gap. The motivation is that in spite of the perceived significant contribution minorities and immigrants make to the arboricultural industry, there has been little research concerning non-English speaking arboricultural workers, with only one known scholarly study identified to date (Mendoza 1995). It seems reasonable that a better understanding of worker needs would help better focus scarce resources of time, money, and talent (Pride, 1997; Farner, Rhoads, Cutz, & Farner, 2005).

Methods

There are challenging barriers and constraints to conducting needs assessments of immigrant workers, and trust is an obvious one. It has also been shown that interviewing recent legal immigrants can be challenging due to prejudices and bias at least perceived, and sometimes experienced by, a potential interviewee in such research (Batson, 1990). Hence, an interdisciplinary, multilingual research and outreach education team was formed to assess the needs of non-English speakers in the green industry in Connecticut with the arboricultural industry as one of several target groups.

A mixed-methods approach was used because this has been shown to be a superior way to collaborate data (Egan, Jones, Luloff, & Finley, 1995; Neuman, 2004). The first part of the project sought information from arboricultural employers about (1) whether there are non-English speaking workers in their company, (2) what employers think about the work characteristics of such employees, and (3) what do employers believe their non-English employees need for information. In the second part, face-to-face field interviews of non-English speaking workers was conducted concerning their needs related to arboricultural work.

Part One: Survey of Arboricultural Employers

Survey Instrument

A survey instrument was developed to: (1) establish whether non-English speaking people were in the arboricultural workforce, (2) identify or clarify a number of perceptions and opinions concerning arboricultural business owners concerning the non-English speaking arboricultural workforce, and (3) determine whether or not permission to interview workers would be granted by employers (to complete the second, face-to-face survey of workers).

A four-page survey instrument was developed using the procedures by Bradburn, Seymour, and Wansink (2004), specifically regarding question saliency. The first question posed asked what type of industry the survey recipient operated, and this was done to verify whether or not the company in fact performed arboricultural services. The second question asked if they employed non-English speaking workers. If they responded "no," then they were instructed that they were finished and asked to return the survey. If they responded "yes," then they were asked to complete the remainder of the questions. The next question asked about worker nationality.

This was followed by a series of 36 five-point Likert scale (ranging from strongly agree [5] to

strongly disagree [1]). These questions were written to explore issues employers encounter due to employing non-English speaking workers, such as problems encountered (e.g., difficulty training workers, language barriers), tools workers may need (e.g., non-English educational materials, workshops), and educational topics (e.g., plant diseases, pesticide safety). Employers were then asked if workers could be interviewed face-to-face.

Survey Procedures

Survey procedures followed the methods suggested by Folz (1996) and Fowler (2002). In Connecticut, the licensing of arborists has been required by the state for almost a century. Connecticut Tree Protection Association (CTPA) is the principal nongovernmental arboricultural organization composed mostly of licensed arborists. The organization possesses a well maintained mailing list including owners of arboricultural companies who might employ non-English speaking workers in the state. The mailing list was obtained in early 2005 and was purged of people known not to be owners of arboricultural companies (e.g., researchers, government officials), resulting in 648 people included in the survey.

The first mailing included cover letter, survey instrument, and self-addressed, stamped return envelope. This mailing was followed by a reminder postcard 10 days later. A second mailing like the first was mailed 10 days later, with one postcard mailed again as a reminder. Anonymity and confidentiality were guaranteed. Return envelopes were coded to inform surveyors which employers had returned surveys so they could be removed from subsequent mailings.

Survey research design seeks to minimize systematic error and to achieve as high a response rate as possible; unfortunately, return rates have been decreasing in recent decades even in salient samples (Egan et al., 1995). Out of the 648 surveys mailed, eight were returned by the postal service. A total of 311 completed, valid surveys were returned for a 52% response rate. The response rates in this census survey approximate the range of current national averages for sample surveys (Rylander, Propst, & McMurtry, 1995), especially when considering the sensitivity of survey research surrounding immigrant workers (Egan et al., 1995; Neuman, 2004). Data were entered into an SPSS data file and analyzed using descriptive statistics and cross-tabulations.

Part Two: Non-English Speaking Arboricultural Worker Field Surveys

Structured survey questions were developed following the methods suggested by Bradburn, Seymour, and Wansink (2004). A face-to-face interview (in the first language of the interviewee) was arranged between the interviewer and the employee through the employer and was done to acquire detailed arboricultural worker information. The goal was to acquire direct responses from non-English speaking workers and then compare and contrast the qualitative worker information with the quantitative arboricultural employer information. Employers indicating regularly employing non-English speaking workers were asked if they would permit interviews of their workers. A sample of those responding affirmatively was selected based on cost efficiency and access restrictions. A semi-structured survey was developed and largely mirrored the mail survey. Trained, Spanish speaking interviewers visited work sites after gaining permission from employers.

Results

Employer Responses

Employers were first asked, "What type of work does your company perform?" Eighty-three percent (N = 276) indicated they provide arboricultural services. Some also indicated they provide other services as well: landscape installation (23%), turf management (15%), forest management (12%), and other (14%). The second survey question asked, "Do you regularly employ workers whose primary language is not English?" Seventy-one percent (N = 215) of the respondents indicated that they do not employ non-English speaking workers and this concluded their participation.

Of greater interest, 29% (N = 96) of the respondents reported employing non-English speaking workers, and they were asked to continue the survey (the remainder of the survey analysis is based on 96 responses). Employers stated their workers' first languages were as follows: Spanish/Central American, 19%; Spanish/Mexican, 15%; Spanish/Puerto Rican, 11%; Portuguese 5%; Patois English, Jamaican, 1%; and French, 0.5%. The next question was, "What is the greatest 'job' non-English speaking workers perform for you?" Respondents indicated 85% of the work was arboricultural in nature, followed by landscape installation (37%), turf maintenance (19%), grounds maintenance (14%), and nursery production (3%).

The next set of questions addressed communication issues (Table 1). Results show that employees generally agree with all four statements. That is, on-the-job communication is generally good and for the most part effective. However, there is a slightly less agreement with workers speaking English well enough to function on the job. This indicates that language is at least somewhat of a barrier.

Table 1.
How Employers Feel About Their Experiences with Non-English Speaking Workers

Statement	Statistics ¹	
	MN	SD
Workers are literate (can read and write) in their native language	3.69	1.10
Workers do speak enough English to function well enough on the job	3.38	1.08
Workers need someone to interpret for them in order to understand instructions or directions	3.60	.96
Non-English speaking workers learn by watching and imitating others	3.73	.78
1 Mean (MN) value on a five-point scale (5=strongly agree to 1=strongly disagree) that best reflects employers degree of agreement for each statement with each mean value's standard deviation (SD).		

Another set of questions asked employers their impressions about some of the problems when employing non-English speaking workers. Results again suggest that language barriers pose challenges (Table 2). Notable is the frustration expressed by workers and employers concerning language. Employers seem to have a need to have qualified bilingual crew leaders. These results suggest that the language barriers caused by employing non-English speaking workers would not be such a challenge if bilingual, qualified crew leaders were more available.

Table 2.
How Employers Feel About Some of the Problems and Concerns That Arise When Employing Non-English Speaking Workers

Statement	Statistics ¹	
	MN	SD
It can be difficult to train these workers	3.37	1.16
It can be difficult to supervise these workers	3.25	1.14
Language barriers creates frustration for crew leaders or myself	3.64	1.00
Language barriers creates frustration for workers	3.60	1.04
Communication with workers requires the presence of a translator	3.08	1.11
It is difficult to find qualified bilingual foremen/crew leaders	3.57	1.23
It is difficult to know worker's needs because of language barriers	3.29	1.08
1 Mean (MN) value on a five-point scale (5=strongly agree to 1=strongly disagree) that best reflects employers degree of agreement for each statement with each mean value's standard deviation (SD).		

Employers were next asked what they feel would be the best tools to educate and train non-English speaking workers. Results show that employers feel that workers learning English would be best solution (MN = 4.26) (Table 3). They also feel that a manual of common English-Spanish words would help (MN = 4.1). Various methods of learning cluster close together indicating that employers believe any of these methods, except visual/picture type training manuals (MN = 3.49), would help. Interestingly, employers generally agree that a language course/workshop teaching Spanish to employers would be helpful (MN = 4.00).

Table 3.
How Employers Feel About What Would Be the Best Tools to Use in Training Non-English Speaking Workers

Statement	Statistics ¹	
	MN	SD
English course for workers	4.26	.90
A manual with common terms/words used in the industry in English and other languages (i.e., English-Spanish)	4.18	.80
Courses/workshops on job practices for crew leaders in Spanish	4.01	1.01
Non-English video training materials	4.00	1.03

Courses/workshops to teach Spanish to employers	4.00	.84
Courses/workshops on job practices for workers in Spanish	3.96	.97
A conference on issues related to employment of immigrant workers	3.95	.94
Courses/workshops on job practices for crew leaders in English	3.90	.96
Non-English written training materials	3.82	1.05
Visual/picture type training materials (no words)	3.49	1.12
1 Mean (MN) value on a five-point scale (5=strongly agree to 1=strongly disagree) that best reflects employers degree of agreement for each statement with each mean value's standard deviation (SD).		

Table 4 provides employer opinions of what topics are most important and, in general, there is agreement that all are important with some more important than others (none were not important). Tree care principles was the most important topic (MN = 4.53), with little disagreement (SD = .58). This is followed closely by a similar item, best arboricultural practices (MN = 4.44, SD = .63). Planting and care of landscape ornamentals is ranked third, followed by pesticide safety and pesticide application. Interestingly, personal hygiene is closely associated with the pesticide education needs.

Table 4.
What Topics Employers Feel Are Most Important for Non-English Speaking Workers

Statement	Statistics ¹	
	MN	SD
Tree care principles	4.53	.58
Best arboricultural practices	4.44	.63
Planting and care of landscape ornamentals	4.31	.81
Pesticide safety	4.27	.79
Pesticide application	4.07	.99
Good personal hygiene	3.99	.87
Plant disease identification	3.94	.86
Integrated pest management	3.89	.96
Insect pest identification	3.89	.89
Management of inter-cultural differences at the workplace	3.86	.99
Beneficial insect identification	3.80	.87
Weed identification	3.77	.87
Management of non-English speaking workers	3.75	1.05
Use and care of equipment	3.63	1.26
Forest harvesting/logging practices	3.47	1.26
1 Mean (MN) value on a five-point scale (5=strongly agree to 1=strongly disagree) that best reflects employers degree of agreement for each statement with each mean value's standard deviation (SD).		

Employee Responses

Of the 96 arboricultural employers who indicated that they regularly employ non-English speaking workers, 26 stated they would not permit their workers to be interviewed, and 20 did not respond to that question. Two said there was "no time," and one stated that he "worried that workers would feel threatened and he did not want to risk losing their trust." Fifty (52%) employers responding indicated they would permit interviews, yet only five employers and 13 non-English speaking workers could in fact be scheduled due to scheduling conflicts.

Respondent countries of origin were Brazil (five), Guatemala (one), and Mexico (seven). All respondents were male, with an average age of 30.6 years, and ranging from 18 to 43 years. Of these, the majority (seven) indicated they were married, with six respondents indicating they were not married. Seven respondents indicated they did not have any children, one had one child, two had two, two had four, and one respondent had five.

Eight respondents said their first language was Spanish, two spoke Portuguese, and three provided no response. Respondents indicated they speak their first language very well, and all but two indicated that they read in their first language very well. The two Portuguese speaking workers indicated that their second language was Spanish and that they speak this very well but read it only a little and do not write Spanish at all. Their third language was English, and they speak, read, and write in this language only a little. Others indicated English was their second language: one speaks English very well, five a little, and two not at all; one said he reads English very well, one only a little, and five said not at all; and three said they write English a little, five not at all, and three did not respond.

Education varied greatly: three respondents had received 12 years of education, one had 11, one had 10, three had nine, two had six, and one each had three, two, and one years of education. All grew up on farms. When asked what type of work they perform primarily, seven said tree pruning, while others stated they performed various tasks. All indicated they are required to speak English at work, with two required to read and write in English at work, and all are required to understand English in the workplace. Ten respondents said there is a person at the work available to translate. Only six respondents indicated they worked for more than a year (2.5 years was the longest), and seven stated this was a permanent position. Six indicated they move from work site to work site, with seven stating they work in one location.

When asked what they would be most interested in learning, the majority (nine) selected learning about U.S. culture and English language. Of those who first selected U.S. culture English language, plant cultivation was the second preferred topic. All indicated that they would be willing to receive free educational assistance, with their preferred learning methods being personal workshops (10 respondents), the Internet (one respondent), video (one respondent), and radio (one respondent). Seven said they would prefer learning at work, whereas three prefer a community center and three others a school. Obstacles to learning were English language challenges (three respondents), time (three respondents), and transportation (six respondents). Only one respondent indicated he is currently participating in any training program. It should be noted that workers did not provide any open-ended responses of any depth.

Discussion and Conclusions

It has been well established that cultural background plays a rather dramatic and significant role in peoples' perceptions of urban forestry (Fraser & Kenney, 2000), tree planting (Ames, 1980), landscape design and management (Kaplan, Kaplan, & Ryan, 1998), and other environmental and occupational values and schemes (Spaargaren & Mol, 1992). It is equally important, however, to also understand the social networks that bring immigrants to the United States and sustain them; people cannot learn if personal and social needs are not met (Tilley 1990). Sociologists have consistently shown that social networks not only are critical in a persons decision to migrate, but for cultivating and sustaining relationships in order to gain financial and informational resources (Powel & Smith-Doerr, 1994).

This is obviously important--outreach education efforts will be unsuccessful unless relationships are established. This means that there is no way to guarantee that by simply placing a Spanish language publication into the hands of a worker this will result in that person adapting the arboricultural practice prescribed. Evidence for this is supported by another study (Ricard & Bloniarz, 2006) that found that tree wardens learned best in social educational settings. This suggests the best way to educate and motivate non-English speaking workers is by direct contact with people they trust (Bailey & Waldinger, 1991; Hobbs, 2001; Hoorman, 2002; Farnar et al., 2005).

The study reported here found that language is clearly important--both non-English speaking workers and their employers emphasized communication is, more often than not, a barrier regarding job performance and possibly safety. This is supported by social science research that has repeatedly shown that, "with a generally poor command of the receiving country's language, immigrants' economic destinies depend heavily on the structures in which they become incorporated and, in particular, on the character of their own communities" (Portes & Sesenbrenner, 1993) and that language is one of the most defining elements in any community (Powell & Smith-Doerr, 1994).

The literature suggests that while simply providing uni- or bilingual material may obviously provide information about arboricultural practices, it is unlikely to promote adoption of the practice. Even though there seems to be nearly universal agreement about the high value of work performed by non-English speaking employees, this study also suggests that there is a lot of variation among arboricultural employers about how and what to provide Spanish speaking workers: from employers who suggest workers should learn English absolutely to others who maintain they have benefited from learning a second language.

Recommendations

The findings presented here strongly suggest that face-to-face forms of educational events are the best method of reaching non-English speaking workers in the arboricultural industry. However, the natural resource literature has suggested that "mentoring may be the best way to go" regarding helping minority forestry professionals adapt and thrive in the profession of their choice (Bosworth,

1996). During the course of the face-to-face field interviews, it became clear that social networks are the primary means of garnering information leading arboricultural workers to acquire then stay with a specific employer.

It seems prudent to develop mentoring programs within companies--especially larger arboricultural and utilities--that employ immigrant workers or contract out for such services. It is suggested that this may be the best way of securing a stable and committed workforce because a high percentage of interviewees wanted to learn English, but could not because of time, travel, and financial constraints. In addition, it is suggested that educational materials and outreach education efforts address topics such as American culture, language, and public health. While arboricultural information in Spanish is clearly beneficial, results here strongly suggest such information is insufficient to ensure practice adoption. These findings suggest that Extension professionals might consider building social networks in communities of interest and based on trust and reciprocity.

Additional empirical research is also clearly needed. Macro-level needs assessment, such as nationwide surveys of arboricultural employers, is one way to follow worker needs and trends. However, ethnographic studies at the micro-level are more likely to flesh out the nuances of the real needs and expectations of arboricultural workers themselves (Feldman, Skoldberg, Brown, & Horner, 2004). This, of course, is a more difficult approach, but is likely to yield more valuable information (Neuman, 2004). With this information, more effective and efficient outreach education programs and material can be developed (Bailey & Waldinger, 1991; Hoorman, 2002).

It is clear that a better understanding by management of any arboricultural workers values and motivations will lead to the design of better recruitment, training, and retention programs, and comments by employers responding indicate a general willingness on their part to do so. In addition, the study reported here demonstrates that Extension professionals can better develop outreach educational efforts based first on empirical research conducted on the community of interest programs are intended to serve.

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