

11-2-2020

## Agricultural Employees' Use of and Preferences for Educational and Training Opportunities

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### Recommended Citation

McElravy, L., Conner, N. W., Stripling, C. T., & Loizzo, J. (2020). Agricultural Employees' Use of and Preferences for Educational and Training Opportunities. *Journal of Human Sciences and Extension*, 8(3), 6. <https://doi.org/10.54718/IHXC1940>

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### **Acknowledgments**

This project was completed with support from the Nebraska Rural Poll team at the University of Nebraska – Lincoln.

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*Educational and training opportunities provide individuals with many options when it comes to building their knowledge base. Both formal and informal educational opportunities are available in many different formats, including face-to-face and online delivery methods. The purpose of this study was to examine the type of education and training opportunities in which Nebraska agricultural employees participate and their satisfaction with different delivery formats. The specific objectives of this study were to determine 1) the type of education or training programs rural agricultural employees have participated in over the last two years, and 2) the differences between attitudes toward face-to-face versus online education and training approaches. In general, results indicated that agricultural professionals participated in face-to-face training and training related to their job more often than other types of training. They also tended to be more satisfied with face-to-face training than online training. As educators develop programming for agricultural professionals, these findings may be helpful in designing high impact educational opportunities.*

*Keywords:* education, training, agricultural employees, online education, face-to-face education

### **Introduction**

An individual's level of education often affects the quality of life for the individual and their family (Greenstone & Looney, 2012). According to the Bureau of Labor Statistics (Hogan & Roberts, 2015), as individuals seek and attain further education or advanced degrees, their earning potential rises. Postsecondary educational opportunities provide learners a foundation that allows them to attain new skills, increase their knowledge, and increase their quality of life (Federation of Post-Secondary Educators of BC, 2012). Universities serve as a mechanism to advance society through the creation and dissemination of new knowledge (Ellis & Goodyear, 2010).

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In today's postsecondary educational environment, a range of educational opportunities exists from formal to non-formal. These opportunities are offered by various groups such as public and private colleges and universities, technical schools, businesses, commodity groups, and the Cooperative Extension Service (Extension). However, the best methods or formats for delivering educational programs are a matter of ongoing debate. Allen and Seaman (2013) described four delivery methods for postsecondary education: 1) traditional, 2) web-facilitated, 3) blended/hybrid, and 4) online. Traditional courses provide the learner with face-to-face instruction, which centers on oral and written information delivery. Web-facilitated courses use instructional technology and provide a platform in which the instructor may post course documents for the learners to access. The blended/hybrid method combines face-to-face meetings with instructional technology that allows for online discussion groups and the means to post content online. According to Allen and Seaman (2013), the blended/hybrid method often allows for the reduction of face-to-face class sessions. The online method allows the instructor to deliver the course in a manner that removes face-to-face meetings from the course and provides the content online for the students to access. In addition to these traditional methods, some institutions are offering Massive Open Online Courses (MOOCs; Allen & Seaman, 2013). MOOCs expand traditional distance education models by allowing educators to deliver instruction through a learning management system to thousands of learners who typically enroll free of charge (Liyaganawardena et al., 2013).

Formal education is only one piece of the education system. According to the National Institute of Food and Agriculture (NIFA), Extension provides non-formal educational opportunities for rural agricultural employees (NIFA, n.d.). Extension focuses on providing educational opportunities to agricultural producers based on innovative research (NIFA, n.d.). Education may be delivered through face-to-face classes, webinars, training programs, publications, newsletters, online classes, or certificate programs. According to the University of California (UC) San Diego Extension (2016), Extension certificate programs allow learners to investigate new knowledge, use real data, enhance their career earning potential, and increase their employability.

Education literature indicates that rural education has historically suffered from injustices and disadvantages due to unjust educational policy (Abel & Swell, 1999; Azano, 2011; Budge, 2006; Burton & Johnson, 2010; Jimerson, 2005; Mathis, 2003). Additionally, even though more education and training programs are available online and broadband internet investment in rural areas is linked to positive economic outcomes (Stenberg, 2010), there are still significant differences in access to high-speed and broadband internet in rural areas of the U.S. (Federal Communications Commission, 2018).

Given the unique needs of training agricultural professionals in rural areas and the continued growth of options for accessing education and training, the purpose of this study was to examine the type of education and training opportunities in which Nebraska agricultural employees participate and their satisfaction with different delivery formats.

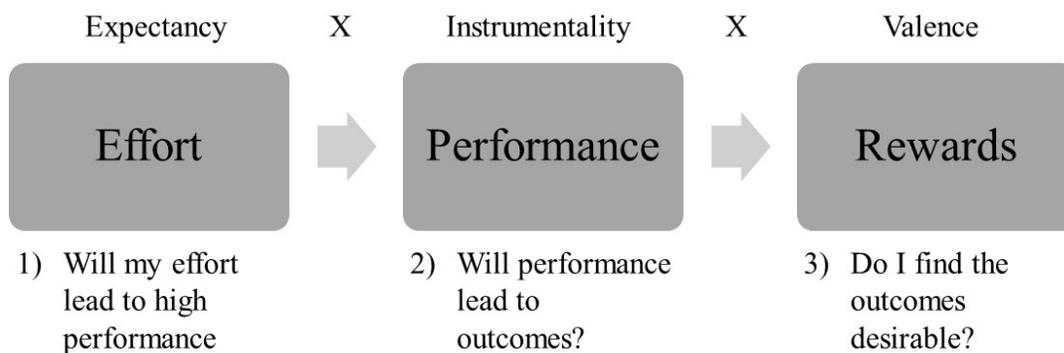
### Theoretical Framework

Since this study focused on the perceptions of education and training by individuals from rural counties employed in the agricultural sector, the theory of achievement motivation served as the framework. Murray first described achievement motivation in 1938 (Brunstein & Heckhausen, 2008) as an effort “to master, manipulate or organize physical objects, human beings, or ideas. To do this as rapidly and as independently as possible. To overcome obstacles and attain a high standard. To excel one’s self. To rival and surpass others” (Murray, 1938, p. 164).

Quaglia and Cobb (1996) later defined achievement motivation “as the conscious or unconscious drive to do well in an achievement-oriented activity” (p. 129). According to Quaglia and Cobb (1996), achievement motivation influences the choices an individual makes. However, achievement motivation does not always predict an individual’s life choices, educational choices, or career choices. Quaglia and Cobb (1996) posit that individuals will limit or maximize their successes based on the group with which they associate.

More specifically, the expectancy-value theory framed this study (Atkinson, 1957; Vroom, 1964). According to Schunk (2004), the expectancy-value theory allows for individuals to evaluate how much they value a specific outcome, and this value determines their behavior and contributes to how much effort is put into obtaining a particular outcome. Individuals typically seek realistic outcomes and do not invest energy in unattainable goals (Schunk, 2004). The model for this study is from Bauer and Erdogan (2012) and is based on Vroom’s (1964) and Porter and Lawler (1968; see Figure 1).

**Figure 1. Summary of Expectancy Theory (Bauer & Erdogan, 2012, Expectancy Theory, para. 1; Based on Porter & Lawler, 1968, and Vroom, 1964)**



Operationalized to this study, expectancy is an individual’s belief about the likelihood that effort will lead to learning outcomes related to education or training. The higher the belief that effort will lead to success, the higher the expectancy. Instrumentality is a belief that outcomes are positively associated with completing educational or training programs. An example of high

instrumentality would be a person believing that completing a specific certification will lead to earning a specific job. Rewards refer to the belief that the outcomes are valuable. Elaborating on the previous example, a specific job may only be valuable if it pays more or is intrinsically rewarding. Thus, valence refers specifically to the value placed on the outcome associated with the training or educational program. Holding everything else constant, a person is more likely to engage in a specific behavior if any of the three elements of the theory, expectancy, instrumentality, or valence, is increased. Motivation to engage in a specific behavior is enhanced by increasing expectancy, instrumentality, or valence.

### **Purpose and Objectives**

According to the 2015 Nebraska Rural Poll, 65% of the rural respondents ( $n = 1,294$ ) reported that obtaining a college degree is a critical component of having a successful life. Results also showed that over half of the respondents reported that the increased number of people earning college degrees is a key component of improving the economy (Nebraska Rural Poll, 2015). To help ensure the success and future development of rural communities in Nebraska, it is critical to understand the rural population's view of postsecondary education and residents' educational needs moving forward. Because the agricultural industry in Nebraska in 2014 had \$24 billion in cash receipts and ranked within the top 10 of the agricultural producing states in the U.S. (United States Department of Agriculture – Economic Research Service, 2020), it was critical to understand how employees in the agricultural sector perceived education and training opportunities. According to a USDA report (Goecker et al., 2010), the agricultural industry will have approximately 54,000 job openings annually for individuals who hold a minimum of a baccalaureate degree in the areas of food, renewable energy, and the environment. Considering the amount of agricultural-related employment that requires postsecondary education, understanding how Nebraska employees in the agricultural industry perceived education and training opportunities would help agricultural education professionals design and implement educational programming that will be used to ensure agricultural jobs do not go vacant.

The purpose of this study was to examine the type of education and training opportunities in which Nebraska agricultural employees participated and their satisfaction with different delivery formats. The objectives of this study were

- 1) To determine the type of education or training programming in which rural agricultural employees participated across a span of two years, and
- 2) To determine the differences between preferences toward face-to-face versus online education and training approaches.

### **Methods**

This study used secondary data that were originally collected for the 2015 Nebraska rural poll. The Nebraska rural poll questionnaire was mailed to 6,228 households in Nebraska, which were

randomly selected and represented a sampling of nonmetropolitan households in Nebraska (Vogt et al., 2015). Responses were received from 1,991 households, for a 32% response rate (Vogt et al., 2015). Out of the 1,991 households that completed the poll, 189 households/participants self-identified as being employed within the agricultural industry. Data from the 189 self-identified agricultural employees from the Nebraska Rural Poll (Vogt et al., 2015) were used for this study. The Nebraska rural poll is a collaborative effort developed and administered by the University of Nebraska – Lincoln Agricultural Economics department, the Rural Futures Institute, and Nebraska Extension (Vogt et al., 2015). The rural poll is a 14-page questionnaire with items related to well-being, community, climate and energy, community involvement, and education. Three subsets of items were used for this study: 1) demographic questions, 2) questions related to participation in training and education, and 3) four statements focused on satisfaction with training and education. The satisfaction with training and education response options ranged from *very dissatisfied* to *very satisfied*; a response of *does not apply* was also available.

The total design method (Dillman, 1978) guided data collection:

- 1) A pre-notification letter was sent to participants, informing them of the research and questionnaire.
- 2) Seven days later, a questionnaire was mailed to each participant, and a cover letter signed by the project director accompanied the survey.
- 3) Seven days after the questionnaire and letter were mailed, a follow-up postcard was sent to each participant as a reminder.
- 4) If the questionnaire was not received approximately 14 days after the original mailing, a replacement questionnaire was sent to the participant.

Data used in this study were from the community and education sections of the survey (Vogt et al., 2015). Of the total responses received, only individuals who indicated that agriculture best described their primary occupation were included. SPSS was used to analyze the data.

Descriptive statistics were used to describe demographic information, participation in education and training opportunities, and level of satisfaction with education and training opportunities.

Several limitations of this research should be noted. First, the survey used in this project was an opinion survey. The link between perceptions and actual behaviors was not verified. However, to decrease the challenges associated with remembering past events over a long period, respondents were asked about their educational activities from 2013-2015. Additionally, participants self-identified as being employed within the agricultural industry, which may lead to inaccuracy in the self-identification. This study is not generalizable to the entire population. The mean age of the population in this survey was 47.79. As has been the case with the Nebraska Rural poll, collecting information from younger adults is more challenging due to the increased likelihood that younger adults are more transitory by nature. Thus, generalizing these results to young adults should be done with caution.

## Findings

Demographic information provided by the participants indicated 139 were male (73.6%), 47 were female (25.0%), and 3 participants did not respond. The minimum and maximum ages of respondents were 23 and 87, respectively, with a mean of 47.8 ( $SD = 16.1$ ). One respondent indicated Spanish/Hispanic/Latino best described his/her ethnicity. Additionally, for race, one respondent chose American Indian or Alaska, one respondent marked other, three respondents did not choose a response, and 185 respondents (97.6%) indicated White best described their race. Additionally, Table 1 provides the breakdown of education levels across respondents.

**Table 1. Education Levels of Respondents ( $n = 189$ )**

Education	<i>n</i>	%
Less than 9 <sup>th</sup>	1	0.5
9 <sup>th</sup> grade to 12 <sup>th</sup> grade (no diploma)	3	1.6
High school diploma	43	23.1
Some college, no degree	31	16.7
Associate degree	45	24.2
Bachelor's degree	52	28.0
Graduate or professional degree	11	5.9
Missing	3	1.6

Of the respondents, 94 (49.7%) indicated they had participated in some type of formal education course, workshop, webinar, or other training in the past two years. The types of training in which they participated are provided in Table 2. For all categories of education and training, the face-to-face delivery format was attended most often. For both face-to-face and online education, seminars, workshops, or webinars "for my job" was the most common type of training attended.

**Table 2. Types of Education or Training ( $n = 189$ )**

Type of Training	Face-to-Face		Online	
	<i>f</i>	%	<i>f</i>	%
Courses to complete or count toward an associate degree (2-year degree)	16	8.5	2	1.1
Course to complete or count toward a bachelor's degree (4-year degree)	11	5.8	2	1.1
Courses to complete or count toward a masters or other advanced degree	5	2.6	2	1.1
Courses to complete or count toward a certification program	44	23.3	18	9.5
Courses for continuing education units	29	15.3	21	11.1
Seminars, workshops, or webinars for my job	68	36.0	27	14.3
Non-credit courses for my own general interest	28	14.8	6	3.2
Seminars, workshops, or webinars for my own general interest	35	18.5	13	6.9
Other	6	3.2	0	0.0

The frequency of participant satisfaction responses with different types of training is displayed in Table 3. Only responses from participants who indicated engaging in specific education or training delivery methods were included. Across all four types of training, more participants indicated being *satisfied* or *very satisfied* than being *very dissatisfied* or *dissatisfied*. A majority of respondents found two types of training generally satisfying a) traditional in-person credit courses and b) in-person seminars or workshops. Respondents generally had *no opinion* of online credit courses, and 50% found online webinars or workshops satisfying.

**Table 3. Satisfaction with Types of Training**

Type of Training	N	Very Dissatisfied		Dissatisfied		No Opinion		Satisfied		Very Satisfied	
		f	%	f	%	f	%	f	%	f	%
Online credit courses	52	3	5.8	10	19.2	21	40.4	13	25.0	5	9.6
Online webinars or workshops	58	0	0.0	10	17.2	19	32.8	21	36.2	8	13.8
Traditional in-person credit courses	54	0	0.0	3	5.6	14	25.9	28	51.9	9	16.7
In-person seminars or workshops	84	0	0.0	3	3.6	10	11.9	52	61.9	19	22.6

### Conclusions, Recommendations, and Implications

Based on the demographic information collected in the rural poll, 96.4% of the respondents had achieved at least a high school diploma. This suggests that when trainers and educators are planning to deliver programs, they would be safe to assume that nearly all the participants have at least a high school diploma, providing a baseline for necessary skills relevant for agricultural education programs (e.g., reading, math, and science).

The results from Table 2 suggest agricultural professionals attend more face-to-face training than online training, regardless of the specific context. This study's scope prevented us from understanding why face-to-face training was more often attended, and the results pose several questions: Is there an issue with high-speed internet access that prevents rural agricultural professionals from attending online training? Are agricultural education and training professionals developing adequate online training options? Is there a social aspect of face-to-face programs that motivates agricultural professionals to attend face-to-face training? Other explanations for these results likely exist, and future research could explore why agricultural professionals attend more face-to-face training than online training, even though it could be expected that the burden for travel would be significant for rural agricultural professionals.

The most often attended types of training were “seminars, workshops, or webinars for my job” for both face-to-face (36% of respondents) and online (14.3% of respondents) formats. This result is not surprising given the pace with which information is generated and technology is being developed, and the need that may exist for ongoing development opportunities in the workplace. However, it appears that participants were more likely to attend face-to-face programs that resulted in some kind of certification, then attend training that resulted in a degree (associates, bachelors, or graduate/advanced) or continuing education credits.

Certifications may lend themselves to agricultural professionals because they allow learners to investigate new knowledge, enhance their career earning potential, and increase their employability (UC San Diego Extension, 2016). Therefore, educators and trainers are advised to use a certification format for delivering programs because they tend to be the most common type of training attended by agricultural professionals.

Generally, respondents tended to participate in and are more satisfied with face-to-face over online education and training offerings (see Table 2 and Table 3). While there is pressure to deliver instruction online (National Research Council, 2009), agricultural workers are still interested in and satisfied with face-to-face, real-time education and training programs. Therefore, we recommend education and training providers continue to offer face-to-face and online opportunities to provide flexible learner-centered experiences. Future research should seek to determine why agricultural employees participate more frequently in face-to-face education and are more satisfied with face-to-face than online offerings. This information would help providers in choosing and improving delivery formats. Education and training providers could then use characteristics of what participants prefer about face-to-face training to design and improve online training.

Understanding the degree to which agricultural professionals are satisfied with different types of training could be used to inform training and education developers on what type of methods to use in the programs they develop. If we consider the expectancy-value theory (Atkinson, 1957; Vroom, 1964), agricultural professionals who want education or training will participate in activities they value, and satisfaction is likely an indicator that could predict future behavior. For example, if an agricultural professional wanted to develop a certain skill, and different options exist for how to receive training to develop the skill, according to expectancy-value theory, this professional would be more likely to choose a training method with which they expect to be successful. Past satisfaction with specific program delivery formats could be an important predictor for choices of delivery formats in the future.

From 2010-2012, 20% of rural (nonmetropolitan) counties in the U.S were considered farming dependent (Parker, 2015). This statistic provides further evidence of the economic dependence many rural counties have on farming and agriculture. How professionals participate, engage, and perceive training and educational opportunities is one component of ensuring the sustainability

and growth of the agricultural industry. In general, this study's results indicate that agricultural professionals participate in face-to-face training and training related to their job more often than other types of training. Agricultural professionals also tend to be more satisfied with training that is offered face-to-face. Furthermore, agricultural professionals agree that job seekers require an associate's or bachelor's degree to compete in the workforce. As educators develop programming for agricultural professionals, these preferences may be helpful in designing high impact educational opportunities.

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### **Acknowledgement**

This project was completed with support from the Nebraska Rural Poll team at the University of Nebraska – Lincoln.