

## RURAL WORKFORCE DEVELOPMENT: ASSESSMENT AND EVALUATION OF NEEDS AND SYSTEMS

*Kristi L. Berg, Minot State University, kristi.berg@minotstateu.edu*

### ABSTRACT

The workplace of today has changed greatly in terms of the how, when, and where work is completed; and the organizational requirements on businesses have also become more demanding. Such changes are creating a situation in which businesses are seeking assistance when it comes to solving workforce problems. This paper examined the extent and scope of workforce training and development in a rural northern Midwestern county. This study provides new, specific data for local partners to base future training initiatives and programs and/or enhance existing workforce development programs. Results from this study acknowledge the ongoing need for workforce training and development and provide the foundation for future research.

**Keywords:** Workforce, Workforce Development and Training, Demographics

### INTRODUCTION

Changes in workforce demographics, competition for skilled employees, and advances in technology are key factors in the increasing demand for workforce development and training. The jobs of tomorrow are currently being shaped by a workforce that has endured the dot.com boom and bust era, the rise of global competition, and the new knowledge economy. Following World War II the economy shifted from agriculture to industry. As the economy shifts again, from industry to knowledge, a greater demand has been placed on the skill requirements of employees across many industries. An example of a skill requirement that has endured hearty demands follows: As long ago as 1999, Atkinson reported computer usage and employment of computer programmers had witnessed huge increases. The percentage of employees who use computers at work rose from 25 percent in 1984, to 46 percent in 1993, to 75 percent in 1999 [1]. In 2001 nearly 72.3 million employees or 53.3 percent of the total workforce used a computer at work [7]. Recent data from the Bureau of Labor Statistics reported another increase in the number of computers used in the workforce. In 2003, 73 million employees or 55.5 percent of the total workforce used a computer at work [19].

Changes to the role of workforce development and training in business intensify as the needs of the knowledge economy emerge and change on a daily basis [14]. It is not surprising that serious hiring difficulties are forecast as the United States faces a shortage of workers with the necessary skills. The Center for Workforce Preparation supports that notion, reporting that “about 20 percent of the American workforce possesses the skills to meet current job requirements and 80 percent of current jobs require post-secondary education or training” [2].

The importance of rural business involvement in the training and development of the workforce serves as the background for this research. Businesses within rural America are not excluded from the problems facing today's workforce. According to the Council of Economic Advisors [3] to President Obama approximately 50 million people reside in rural areas. While the economy of rural America no longer depends solely on farming and farm-based employment, agriculture remains a vital piece of the rural economy. Rural counties once dominated by farming employment are now dominated by non-farming employment such as manufacturing, services, natural resources, retail trade, and government operations. Workforce development directly contributes to the economic development of a region and a state. Economic development begins with individual businesses and “small business is an important part of rural America, accounting for over two-thirds of rural employment” [10].

The involvement of rural America businesses in workforce development is crucial for improving productivity, retaining employees, gaining competitive advantage, and contributing to community sustainability. Workforce trends are placing stress on the entire nation. It is commonplace within communities for blame to be exchanged

between business leaders, economic development initiatives, and educational entities. However, the issues reside within each of the aforementioned areas and unpreparedness and lack of cooperation could result in dire straits for some communities. The workforce trends converging upon the nation include:

- 1) **Demographic shifts.** The composition of the workforce has changed to include both native and foreign workers; the size of the workforce is decreasing as the US birth rates decline and the baby boomers exit the workforce; more jobs than workers will exist. The number of baby boomers applying for social security will grow by 37 percent in 2011, creating a disparity too large to be replaced by subsequent incoming workers and existing levels of immigration [9, 12].
- 2) **Skill variances.** The US high school graduation rate is declining; workers are less educated and unable to fulfill employment requirements; computer use is nearly unavoidable; the new economy has created a demand for applied skills. Use of the internet has created a crisis for employers as employees utilize technology to obtain information about employment opportunities. A globalized workforce also contributes to the demand employers experience as they compete for skilled employees [20, 5, 8].
- 3) **Ambition.** Younger workers can expect to change careers between 10-14 times; the trend of lifetime employment is being replaced by the trend of lifetime employability; workers with low levels of education experience higher levels of unemployment and lower earnings. Workers who are both adaptable and flexible are considered to be a premium in this knowledge economy [16, 15].

These trends have proven to be challenging, and will continue to place stress on the workforce, but something can be done. Partnerships among employers, workers, education, and government entities can be developed through awareness, incentives, and education and training to create a workforce equipped to meet current and future demands.

Changes to the role of workforce development and training in business intensify as the needs of the knowledge economy emerge and change on a daily basis [14]. It is not surprising that serious hiring difficulties are forecast as the United States faces a shortage of workers with the necessary skills. The Center for Workforce Preparation supports that notion, reporting that “about 20 percent of the American workforce possesses the skills to meet current job requirements and 80 percent of current jobs require post-secondary education or training” [2]. The importance of rural business involvement in the training and development of the workforce serves as the background for this research. The purpose of this study was to assess the need for workforce training and development of businesses in a rural area and to consider the influence of business demographics as an indicator for need.

Businesses within rural America are not excluded from the problems facing today’s workforce. The involvement of rural America businesses in workforce development is crucial for improving productivity, retaining employees, gaining competitive advantage, and contributing to community sustainability. The workforce trends converging upon the nation include demographic shifts, skill variances, and ambition. These trends have proven to be challenging, and will continue to place stress on the workforce, but something can be done. Partnerships among employers, workers, education, and government entities can be developed through awareness, incentives, and education and training to create a workforce equipped to meet current and future demands.

## PURPOSE OF THE STUDY

The purpose of this study was to statistically examine the extent and scope of workforce training and development of businesses in a rural northern Midwestern county utilizing a survey to collect information from the employer perspective. The results from this study serve to contribute knowledge related to workforce training and development during a time when such issues are vital to the economy of our nation. New information and data may

also enhance the workforce development programs of the businesses surveyed and provide opportunities for local partners who could provide assistance and/or workforce development solutions or training as a result of this research.

## RESEARCH QUESTION AND HYPOTHESES

The intent of this research was to illuminate the perspective of businesses in this rural northern Midwestern county regarding workforce training and development. The research question and hypotheses are guided from Rossett's [13] purpose-based strategic needs assessment model and Haynes [6] Mississippi Workforce Training Needs Assessment. Rossett's framework is fitting for this study as the model assesses the actual and optimal situation regarding training needs. The research study conducted by Haynes also coincides with Rossett's framework.

The primary research question which guided this study: Are the workforce development needs of rural area businesses located in Ward County, North Dakota being met? The study also addressed the following hypotheses:

- Ho1: The composite score for overall training needs is not statistically different for primary occupational type.
- Ha1: The composite score for overall training needs is statistically different for primary occupational type.
- Ho2: The composite score of training needs is dependent on the size of the business.
- Ha2: The composite score of training needs is independent of the size of the business.
- Ho3: The percentage of employees needing additional skill training is dependent on the increase in technological change of the business.
- Ha3: The percentage of employees needing additional skill training is independent of the increase in technological change of the business.
- Ho4: The percentage of employees needing additional skill training is not significantly different from the composite perception score that describes the benefit of distance learning programs.
- Ha4: The percentage of employees needing additional skill training is significantly different from the composite perception score that describes the benefit of distance learning programs.
- Ho5: Size of the workforce is dependent on the goals of the workforce.
- Ha5: Size of the workforce is independent of the goals of the workforce.

## INSTRUMENTATION

For the purpose of this research study a survey instrument utilizing closed-ended questions was utilized. The survey was originally developed by Dr. Joan Haynes [6] for use in her research entitled *Workforce Training in Rural Mississippi Community College Districts*. Email communication requesting permission to utilize the survey was obtained. An email from Dr. Haynes granting permission to use her original survey was received. Modifications were then made by the researcher to the Haynes' [6] original instrument. The modifications adapted the instrument to the focus of this research, accounting for terminology differences specific to the rural northern Midwestern county and for organization and ease of use purposes.

The instrument included eight closed-ended questions. The closed-ended questions "utilized response options to questions that measure variables in categorical or continuous units" [4]. This is known as scales of measurement and can be used to assess the survey instrument and determine what types of statistical data analysis to use. Scales of measurement consists of two types: categorical including nominal and ordinal scales and continuous including interval and rational scales. The scales of measurement were applied to the closed-ended survey questions as follows: nominal – questions one, two, and three; ratio – question four; ordinal – questions five, six, and eight; and interval – question seven. The constituted variables are independent and dependent; the questions pertaining to the variables include: independent variables – questions one, two, and four; and dependent variables – questions five, six, seven, and eight. The following table demonstrates the hypotheses relationship with variables and survey questions.

Table 1

Hypotheses	Independent Variables	Survey Questions	Dependent Variables	Survey Questions
1 – Area of the business may relate to training needs.	Area	1. Indicate occupational type of business.	Training Needs	8. Indicate level of interest with respect to your businesses specific training and retraining needs.
2 – Size of the business may relate to training needs.	Size	2. Indicate primary size of business.	Training Needs	8. Indicate level of interest with respect to your businesses specific training and retraining needs.
3 – A greater percentage of employees needing additional skill training may relate to an increase in technological change of the business.	Employees Additional Skill Training	4. Estimate what percentage of your employees needs additional skill training.	Technological Change	6. To what extent will technological change in your businesses increase your need for workforce training?
4 – A greater percentage of employees needing additional skill training may relate to the perception of benefit of distance learning programs.	Employees Additional Skill Training	4. Estimate what percentage of your employees needs additional skill training.	Distance Learning Program Needs	5. When considering training programs, indicate the usefulness of type of classes; distance training; and training assessment and credentialing.
5 – Size of the business may relate to goals for workforce training.	Size	2. Indicate primary size of business.	Workforce Training Goals	7. What are your businesses goals for the workforce training?

## RESEARCH FINDINGS

Descriptive statistics was used to summarize overall trends and tendencies of the data collected, specifically measures of central tendency and variability. Inferential analysis was utilized to test the hypothesis and advance conclusions regarding the population under study. Specifically, ANOVA and chi-square statistical techniques were utilized to test the hypotheses. To test hypotheses one and four the ANOVA statistical technique was utilized. ANOVA, analysis of variance, is a framework for hypothesis testing based on the consideration of multiple sources as part of a complex situation.

The analysis of the demographic statistics uncovered non-normal distribution patterns in each of the independent variables. Utilizing the Kolmogorov-Smirnova and Shapiro-Wilk test allowed the scores in the sample to be compared to a normally distributed set of scores with the same mean and standard deviation. The results of this test demonstrated significance ( $p < .05$ ) for each independent variable, proving a non-normal distribution pattern did in fact exist. This discovery was critical as the statistical methods selected to test the hypothesis rest on the whether the assumption of either normally or non-normally distributed data. The Skew and Kurtosis test was also performed to validate the findings of the Kolmogorov-Smirnova and Shapiro-Wilk test. This test looks for normality among the distribution of scores. In a normal distribution the values should be zero, values less than or greater than zero indicate a non-normal distribution of data, thus is the case in this situation. The results of this test support the findings of the first test and the assumption of non-normal distribution of each of the independent variables is theorized. Because significance was proven the assumptions for parametric testing were violated and non-parametric testing was utilized to test the hypothesis. Despite the inability to perform parametric testing as originally planned, valuable information resulted. Relationships between the independent and dependent variables were proven using non-parametric testing procedures. Indicating the results of research demonstrated value based upon the ranks of the data which were collected.

### Demographics Summary

Results from the occupational type demographic were discovered to be imbalanced ranging from a 40.3% response rate in the managerial, professional, and related occupations to a 1.3% response rate in the farming and related occupations. Responses by size of business revealed smaller businesses had a higher response rate, 1 to 10

employees (24.7%), as compared to larger businesses, with 501 and above employees (13%). A closer look at the demographics revealed a need to further categorize within the job titles categories. Of the respondents, 54.5% indicated other as job title, providing evidence of a diverse workforce. All respondents selecting other included their actual job titles. Similar responses enabled the researcher to identify the categories of director and manager. Each category had seven responses indicating director or manager within the job title.

The nation as a whole is experiencing a greater demand for skill variances by the 21<sup>st</sup> century workforce, shifting demographics, globalization, and a continued demand for technology use. When the demands of the 21<sup>st</sup> century workforce are placed on a less populated, rural area such as North Dakota the result is a diverse workforce spread across a sparsely populated area. Swaim's [18] research supports the notion of disparities in workforce development in rural areas, indicating high skilled employment to be found more readily available in urban areas and less skilled to be more dominant in rural areas. The demographic results of this research are indicative of a rural nature and mirror the demographics of North Dakota and the area under study.

## Research Question and Hypothesis Summary

The main objective of the primary research question which guided this study was to determine if the workforce development needs of rural area businesses located in Ward County, North Dakota are being met. Based upon the results and analysis of the hypotheses the researcher concluded that the workforce development needs of rural area businesses located in Ward County, North Dakota have not been met.

Differences between the actual and optimal situation were uncovered as a result of this needs analysis study. This research study revealed a statistically significant relationship between the independent and dependent variables of business size and training needs composite; percentage of employees needing additional training and increase in technological change; percentage of employees needing additional training and distance learning programs composite; and business size and workforce training goals. The analysis of each hypothesis follows and advances support for the researcher's conclusion to the overall research question which guided this study.

**Hypothesis 1.** The objective of this hypothesis was to determine if the overall composite score for training needs varied statistically for primary occupational type. Utilizing Friedman's ANOVA statistical significance proved non-existent. Ho1 was accepted. The composite score for overall training needs was not statistically different for primary occupational type. Concluding occupational types do have workforce training needs, but those needs did not vary when a measured utilizing a composite score of training needs.

**Hypothesis 2.** The objective of this hypothesis was to determine if the overall composite score for training needs was dependent on the size of the business. Utilizing Friedman's ANOVA statistical significance was proven. Ho2 was accepted. The composite score for overall training needs is dependent on the size of the business.

Findings from this hypothesis indicate an actual situation of need based on the conceptual framework of this study and Rossett's [13] needs assessment theory. Thus, the information collected provides potential to base future initiatives which can eventually lead to the creation of the optimal situation. The correlation between size of business and type of training is supported by data obtained by the BLS [19] which posits businesses with more employees were more likely to meet the training needs of their employees. Suggesting smaller businesses are more likely to need assistance to meet the training needs of their employees. Further exploration into the categories of training needs as classified by business size are warranted by this finding. Such information has the ability to provide information to enhance the workforce development programs within the area surveyed.

**Hypothesis 3.** The objective of this hypothesis was to determine if the percentage of employees needing additional skill training was dependent on the increase in technological change of the business. Utilizing chi-square statistical significance was discovered. Ho3 was accepted. The percentage of employees needing additional skills training is dependent on the increase in technological change of the business.

The researcher asserts that along with technological change the need for additional skills training is precipitated. As businesses experience technological change the desire for additional training is present, however the culture of the organization may mismatch the desire. The introduction of new technology has dramatically affected organizational culture over the last several decades [11]. Activities inside the organization are becoming increasingly dependent on the use of information technology. Systems are embedded in the landscape of the organization; monitoring, controlling, and assessing the ebb and flow of activities. The advancement and utilization of technology coupled with a diversely educated workforce are forcing organizations to address gaps created by technology use. While it is unknown if this finding is a result of such a mismatch it is valuable to recognize the relationship and explore possible cause as technological change is inevitable and the need for future training to keep up with the demand of technology is supported by the study's data.

**Hypothesis 4.** The objective of this hypothesis was to determine if the percentage of employees needing additional skills training varied in significance from the composite perception score of the benefit of distance learning programs. Utilizing Friedman's ANOVA statistical significance was proven. Ha4 was accepted. The percentage of employees needing additional skill training was significantly different from the composite perception score that describes the benefit of distance learning programs.

Distance learning programs may prove a viable option for providing additional skill training for employees. Survey respondents were open to the usefulness of utilizing distance training modes such as teleconference seminars, video-based, webinar, interactive, and television-based training when considering training programs. Research supports this notion as technology use was reported as having a key function and increased usage in delivering learning opportunities to employees [17]. Across economic sectors 21st century workplaces increasingly require basic technology fluency. Technology is a valuable asset when it comes to employee training, using technology can allow those being trained and the trainer to have the contact that is valuable to the learning process without traveling great distances to receive it. The comfort level experienced when workforce development is conducted using technology may be in direct relation to previous experience with technology such as a computer.

**Hypothesis 5.** The objective of this hypothesis was to determine if the goals of the business were dependent on size of the business. Utilizing chi-square statistical significance was discovered. Ho5 was accepted. The goals of the business are dependent on the size of the business.

This finding is valuable, albeit logical, as it recognizes the actual situation existing in a near optimal state. Respondents of the survey recognized the significance between the goals of the business and the size of the business. Such awareness and realization of need can translate into workplace satisfaction and employee retention which can contribute to improved productivity and competitive advantage [18]. While many disparities exist in workforce development in rural areas, a purposeful connection between the size and goals was uncovered as a result of this research.

## CONCLUSION

The connectivity of work and learning in the 21st century support the consideration of workforce training and development research. Workforce findings underscore the importance of business involvement in the training and development of the workforce. However, the workplace of today differs greatly in terms of the how, when, and where work is completed; and the organizational requirements on businesses have also become more demanding. Such changes are creating a situation in which businesses are seeking assistance when it comes to solving workforce problems. Results from this research along with support from Rossett's theory and the literature provide the foundation to present the results of this needs assessment survey. The overarching goal of this research was to uncover differences between the actual situation and optimal situation establishing whether the workforce training and development needs of rural area businesses in Ward County, North Dakota were being met.

Conclusions from this research have revealed opportunities for the researcher, local and state entities, and businesses within this county to address training and development needs. This study advances results and conclusions thus validating Rossett's Method and Haynes research by applying what was already known to a unique situation. Conducting a needs analysis from the rural employer point of view supported what was known and now adds to the body of literature on workforce development in rural areas and needs assessment effectiveness. The results of this study revealed that the needs for workforce training and development in this rural northern Midwestern county of North Dakota have not been met. This study provides new, specific data for local partners to base future training initiatives and programs and/or enhance existing workforce development programs. This research provided insight into the role technology plays in workforce development and revealed a gap in realized value of distance training, precipitating the need to further explore the benefits of utilizing distance learning programs. Information systems support the use of distance learning systems and have the potential to add to the skill levels of rural employees by fulfilling unmet needs. Results from this study acknowledge the ongoing need for workforce training and development and provide the foundation for future research.

Convenience sampling was utilized to survey businesses to determine workforce development needs within Ward County. The sampling population was obtained from a database of a local chamber of commerce. The population size of included 668 members with a valid email address. Seventy-seven respondents completed the survey for an overall response rate of 12%. The response rate was less than the accepted rate for a reliable study as indicated by the formal power analysis. However, during the time frame of data collection, a catastrophic flooding event began in the area under survey. Collecting a larger, more evenly distributed population would enable a purposeful sample allowing for parametric analysis thus strengthening the outcome of the research. A unique factor of this proposed study is the rural setting. Even though the research was conducted in a rural North Dakota setting, it is anticipated that future research in similar rural and even urban settings may provide insight regarding workforce training and development.

A closer look at the demographics also revealed a need to expand the categories of job titles. Of the respondents, 54.5% indicated other as job title, providing evidence of a diverse workforce spread across a sparsely populated rural area. All respondents selecting other indicated their job titles. Similar responses enabled the researcher to produce the following categories of director and manager. Each category had seven responses indicating director or manager within the job title. For the purpose of future research the researcher recommends this area of the survey be modified. The researcher did not anticipate additional job categories when the survey was revised to reflect the rural area to be surveyed and the pilot study results did not reflect this either. Further exploration into the categories of training needs as classified by business size are warranted by the study findings also. This study utilized a composite score for overall training needs versus examining each category of training need as related to business size.

Collecting data from the business perspective was one of the parameters of this study. However, the intent to explore workforce development from beyond the business perspective is recommended. Other entities such as employers, higher education, and workforce entities may also benefit by gaining a better understanding of the business needs as a result of this study.

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# Issues in Information Systems

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