

Formal Vocational Education for Work-Related Reasons: A National Comparison of Work Related Rationales and Results for Web-based and Traditional Participants

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This research describes reasons and outcomes for participating in vocational education and examined differences between online and traditional students. The Adult Education for Work-Related Reasons Survey, part of (NHES: 2003) population is adults age 16 or older who were not enrolled in grade 12 or below, not institutionalized, not on active duty in the U.S. armed forces, and enrolled in a college degree during the past twelve months for work-related reasons. Differences were identified between traditional and online students.

Keywords: Work-Related Education, Formal Vocational Education, Professional Development

According to a 2005 National Center for Educational Statistics report “one-third of civilian, non-institutionalized adults age 16 and older in the United States, took formal courses or training” (p. 1) for work-related reasons. Work-related education in the United States is not a new phenomenon. The Morrill Land Grant Act of 1862 expanded the role of higher education to educate individuals in agriculture, home economics, mechanical arts, and other practical professions. This act provided support for higher education to disseminate technical and practical instruction for business and industry. In more recent literature, Holton and Trott (1996) stated that within higher education, human resource development, and specifically, vocational education (now known as career and technical education) has a common goal of preparing the workforce and enhancing the competitiveness of America’s workers. Organizational changes such as quality improvement, mergers, reengineering, downsizings, and the rise of the information age forced the need for changing education and the workplace (Kotter, 1996; Tetenbaum, 1998). To stay competitive, changes in technology, economy, management, job procedures, and knowledge management, require employees to develop new knowledge, skills, and abilities. In short, workforce development is a necessity and needs to take place. A study that examined adult education programs from 1991 to 1999 supported adult learning is taking place and even increasing according to the number of people enrolled in programs (Creighton & Hudson, 2002).

While much of the work-related education takes place in the traditional classroom, there has been a fast dash taking place in all of higher education towards online learning. According to Allen and Seaman (2003), 1.6 million students took some form of online learning during 2002-2003. More specifically in terms of workforce development, a national survey of career and technical education at the community college level, reported that 76% (n=270) of the colleges are delivering career and technical education via distance education (Johnson & Benson, 2003). While there is a large move for work-related education, the literature still states that many times individuals are responsible for their own development (Salzman, 1998). Even though much is being done in terms of work-related education, there has been little research that examines why individuals are completing formal degree programs in the vocational for work-related reasons. Furthermore, there is a limited amount of knowledge on the outcomes of formal work related vocational education for students. In general terms, since there has not been as much research from the students’ perspective, there also has not been a comparison of students that complete work-related education online, and with traditional methods. This study will describe the reasons and outcomes for work-related vocational education and compare online and traditional learners.

Review of Literature

The literature review for this study examined formal education for work-related purposes. In aligning with the purpose of this study, online and traditional work-related education and training, reasons why individuals complete formal work-related education and training, and the results of complete work-related education and training were examined.

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Education for Work-Related Purposes

There has been much research that calls for workforce development in the United States to ensure competitiveness in business and industry (Adler, 1984; Bailey, 1990; Hrebiniak, 1974; Nussbaum, 1998; U.S. Congressional Research Service, 1985). The 2003 industry report in the October issue of *Training* stated that over 50 billion dollars has been spent annually on training between 1999 and 2003. *Training* also reported that the top 100 companies spent approximately 4% of their budgets, close to 7 million dollars, on training and development programs in 2004. Although a large amount of money is being spent on training, research has reported that workers are being responsible for their own skill development (Salzman, 1998). While it seems logical that offering individuals' work-related education would close the gap, Carnevale and Goldstein (1990) stated that while much is spent on training, little is directed to those without college degrees. In another study of full-time workers, it was found that individuals with higher levels of education, four-year degrees or graduate education, spent more time on work-related learning, were more predisposed to work-place learning, and more likely to use benefits related to education (Westbrook & Veale, 2001). Bernstein (1988) concluded that highly skilled workers get the majority of the training investment while medium and low skill workers are receiving less training. Schomann & Becker (1995) stated that opportunities to educate polarized the gap between those that had different levels of educational attainment rather than closing the gap. Many companies want to focus on specific training rather than general training. Graham (1985) stated that more school is a function of socioeconomic status and the goal and practical reasons were connecting continuing education.

Kenner, Androwich, and Edwards (2003) stated distance education can build professional skills, collaborative relationships, global thinking, problem-solving, and the skills to use resources. In addition to the specific technical training, general skills are being developed. While companies are not expending funds for training in the general skill area, Salzman (1998) stated that companies are interested in employees attending higher education; however the specific area is not of interest. This type of employee is expected to have minimal basic skills, ability to learn, and strong work ethic. In turn, it has been reported that training and education are related to a positive shift in the development of competencies (Lucarelli, 2004). In early human capital theory, Becker (1975) stated that individuals decide upon education based on the lifetime payoff. Being involved in work-related education is based on the idea of making an investment. Booth (1993) states according to human capital theory, employee earnings will increase by furthering qualifications after the completion of their first degree.

Purpose and results of work-related education. Why are individuals completing work-related education? Loewenstein and Spletzer (1999) reported most employee training is general in nature and has a positive effect on productivity. Employees can see how general training is valuable outside of their current position and place more value on it (Loewenstein & Spletzer, 1999), which is important because, to get the most out of training, it is a joint effort between employer and employee. General training can be viewed as a gift from the employer to the employee, thus increasing an exchange in kind, the employee giving back to the employer in terms of productivity. Additionally, employees can view this as the organizations' commitment to their development. If an employee is thinking of leaving a company they can view education as an advantage in a job search.

Many workers complete more formal education to increase their wages. Much research has provided evidence there is a positive correlation in training and increase in wages (Altonji & Spletzer, 1991; Barron, Black, & Loewenstein, 1993; Levine, 1993; Lynch, 1992). Others believe that increasing education level can provide opportunities for promotion.

The information age is changing the workforce drastically. To stay competitive, changing jobs and roles in business and industry requires businesses to be learning organizations (Senge, 1990). While it is important to maintain and improve skills, it is also important to be able to learn new knowledge and skills. For this reason, some employers require or recommend further education. Many organizations are attempting to create workplace environments that foster learning and one strategy that has emerged is tuition reimbursement (Fusch, 2000). A postsecondary program that has partnered with business and industry to develop the workforce in their community is the integrated manufacturing program at McHenry County College's Academy for High Performance (NCCTE, 2005). In this case, the employer is working as a partner with the community college and the employee, in recommending the further education.

In other professions, further formal education is needed to get and keep certifications. A certification is a "credential awarded by an employer, a vendor, or an association or independent agency" (Hale, 2000, p. xx). It is noted that there are differences in certification and some require "passage of an exam benchmarked to predetermined occupations or professional standards" (Carnevale & Desrochers, 2001, p. 19). Certifications are different in their requirements and do not all require education and experience. An example of a certification is the Society for Human Resource Management Senior Professional in Human Resources (SPHR). This certification does require an exam, continuing education, and work experience to get certified and keep current. Other areas such as

accounting need further education to get and keep certification. There are many certifications that are being used in the workforce. Bartlett (2002) provides a detail overview of certifications in the information technology area.

The results of participating in work-related education related to the reasons why people participate. While there are many reasons why people participate in work-related education, the results are very important. Possible outcomes include improving knowledge and skills, learning new skills, increasing employability, advancing in career, getting new jobs, and making more money. These outcomes directly and indirectly relate to the reasons for participation.

Online and Traditional Work-Related Education

There have been many studies comparing online and traditional education. The National Center for Educational Statistics (2002) reported that online learners are from a variety of age groups. This contradicts Palloff and Pratt (2003) that online students were working adults. Since there are such a variety of students completing online and traditional education, it is important to see why people select one or the other. While there is a large amount of work-related education and training taking place online, the reasons for completing it online seem to be more logistical. Online learning is good for the mid career professional because it offers a wide variety of courses and offer convenience (Leah, 2001). Plummer (2003) stated that online learning offers cost savings and scheduling easy. Smith and Rupp (2004) stated that preference of the computer for communication was the number one reason why people chose an online educational course, followed by the reduction of travel to class and the ability to work at one's own pace. These reasons support a survey by eCollege.com (1999) that suggests people prefer the flexibility offered in online educational courses.

Theoretical Framework

This research is based on a substantive theory. Substantive theory offers an explanation in a restricted setting and is limited in scope while still providing a theoretical framework (Camp, 2001). The limited scope of this paper is the setting of vocational education for work-related reasons and additionally the concept of online delivery. With this stated, the research has shown that formal work-related vocational education provides positive outcomes to students. Additionally, there has been a large shift that is integrating online education specially with working adults due to cost saving and the flexibility with scheduling. Yet, despite the positive outcomes identified in traditional vocational education for work related reasons and the shift to online learning, the differences in outcomes for online and traditional vocational education for work-related reasons need to be examined.

Need for the Study

The intention of this research was twofold in nature. The first purpose was to examine the reasons adults identify for participating in formal vocational education for work-related reasons and describe the perceived results of participating in that formal vocational education. The second purpose of this study was to examine if there was a difference between students that have completed education training over the Internet/World Wide Web in terms of work-related reasons for participating and the perceived results of participating in that learning. To address this purpose, four research objectives were developed:

1. Describe the participants on selected personal and employer demographic variables.
2. Describe the work-related reasons for participating in a vocational/technical degree for work-related learning.
3. Describe the work-related outcomes for participating in a Vocational/Technical degree for work-related learning.
4. Examine if there is a significant difference in online and traditional students work related-reasons and outcomes for participating in a vocational/technical degree for workplace learning.

Methods

This study used an ex post facto, descriptive design. The methods section will discuss the procedures used to meet the research objectives. Specifically, the methods section will include a description of the dataset, participants, instrumentation, data collection, and data analysis.

National Household Education Surveys

This research used the National Household Education Surveys (NHES) of 2003. The dataset included information on demographic and educational information. This study focused on one part of the NHES 2003, the

Adult Education of Work-Related Reasons Survey (AEWR), the other part of the NHES study was the Parent and Family Involvement in Education Survey (PFI). The first Adult Education Surveys that were part of the NHES were conducted in 1991. Since then, Adult Education Surveys have been conducted in 1995, 1999, 2001, and 2003. The survey collected information on participation in university and college degree programs and certificate programs, postsecondary vocational/technical degree and certificate programs, apprenticeships, work-related course and informal learning for work-related reasons.

Participants. For this study, the population of interest was “adults age 16 or older who were not enrolled in grade 12 or below, not institutionalized, and not on active duty in the U.S. armed forces” (p. 1). The participants all were taking a college degree or vocation degree during the past twelve months. This dataset had a total of 226 participants in the online group and 1426 participants in the traditional group for any type of education. There were 38 individuals in the online group and 269 were in the traditional group that was enrolled in a vocational degree for work-related reasons. For the purpose of this paper, analysis was conducted on only this vocational education group.

Instrumentation. The NHES:2003 survey included both the PFI and the AEWR. The AEWR took on average 16.8 minutes to complete. The survey was designed to provide valid and reliable results. The survey was developed and conducted by Westat and NCES. The national standards for survey research were followed for this study. Additionally, advice and guidance from higher education faculty, American Society of Training and Development, and statistics experts was used for the study design. Item response rates were all about 99% except amount of earning (83%), total credit hours earned (71%, total household income (80%), and exact household income to the nearest 1,000 (53%) and field tested.

Data Collection. Due to the cost and nature of the survey, both the AEWR and the PFI were conducted simultaneously. The surveys were administered through random digit dial (RDD). To increase response rate, length of time of the survey was taken into consideration. Thirty interviewers were trained to collect the data. Computer Assisted Telephone Interview (CATI) was implemented to improve checks for eligibility, scheduling, sampling, improve response rates, and manage data quality. Coding was conducted during the interview and range specifications and logic checks were in place to insure accuracy. The response rate for the AEWR survey was 80.5% (n= 12,725).

Data Analysis Methods

To answer research objective one, to describe the participants on selected demographic variables; mean, standard deviation, frequency, and percent were used. Frequency and percent were used to meet research objective two and three, describing the reasons for participation in postsecondary vocational/technical degree programs that are work-related. Research objective four sought to examine if there is a significant difference between online and traditional students' reasons and results for participating in work-related learning for those participating in vocational/technical programs. While much research uses parametric tests, non-parametric tests do not require as many assumptions. The data to meet research objective four is best suited for a non-parametric test. This data meets the assumption of independence of observation, observations measured in frequencies, and mutually exclusive categories (Ary, Jacobs, & Razaveih, 1996). The specific test used to answer research objective four was the chi-square goodness of fit test. Additionally, it is necessary to include an index of effect size (Kotrlík & Williams, 2003). For this study, Cramer's V was calculated for Chi-square tests as recommended (Kotrlík & Williams, 2002; Lowry, 2002).

Findings

Research objection one was to describe the participants on selected personal and employer demographic variables. The average age of the participants was 30.9 (SD=11.23). There were a total of 647 (40.6%) males and 947 (59.4%) females. The majority of the participants were white, non-Hispanic (n=1064, 66.8%). Only 5% (n=85) of the participants had a GED and less than 2% did not report high school diplomas or GED. The majority, 55.8% (n=890) were not married. Only 4.8% of the individuals reported retiring in the next year. The largest percent (36.8%) came from the south census region.

An overview of employment related demographics is provided. Of the participants, 53.0% (n=845) reported having only one employer in the last 12 months. About 50% (n=789) reported being employed full-time and working 35 or more hours weekly. Of the respondents, 18% (n=286) reported not being in the labor force and 7.84% (n=125) reported looking for work. The participants were from companies of various sizes with the largest group (n=621, 39.0%) being from companies with more than 1000 employees.

Research objective two sought to describe the work-related reasons for participating in vocational/technical degrees. Table 1 shows, in the traditional group, the top three reasons for participating were to learn new skills/knowledge (87.4%), maintain/improve skills/knowledge (77.3%), and change job/enter workforce/ own business

(74.0%). In the online group the top reasons in order are: maintain/improve skills/knowledge (84.2%), learn new skills/knowledge (73.3%), and change job/enter workforce/own business (55.3%). The same reasons, with varied order, were in the top three for both online and traditional participants in vocational/technical education.

Objective three sought to describe the outcomes for participating in a vocational/technical related degree for work-related learning. Table 2 provides an overview of the outcomes for completing formal work-related vocational/technical education degrees. In the traditional group, 92% reported the degree helped their ability to advance in their career. Additionally, 91% in the traditional group reported improved existing skill/knowledge and learned entirely new skill respectively. In the online group, 97% reported the vocational/technical degree for work-related reasons improved their existing skill/knowledge. The next highest reported outcomes were increased employability and improved their ability to advance.

Table 1. *Comparison of Online and Traditional Learners Reasons When Completing Formal Work-Related Education for Vocational/Technical Degrees*

Reasons for Completing Work Related Education	Traditional (n=267)		Online (n=38)		χ^2	df	p	Cramer's V	Strength of Association
	f	P	f	P					
Maintain/Improve Skills/Knowledge	208	77.3	32	84.2	.92	1	.33	.06	Negligible
Learn New Skills/Knowledge	235	87.4	28	73.3	5.07	1	.02	.13	Weak
Employer Required/Recommended	58	31.4	11	31.4	.22	1	.64	.03	Negligible
Receive Promotion/Pay Raise	72	34.3	11	31.4	.11	1	.74	.02	Negligible
Change Job/Enter Workforce/Own Business	199	74.0	21	55.3	5.74	1	.02	.14	Weak
Get or Keep Certification	151	56.1	18	47.4	1.03	1	.31	.06	Negligible
Other Reason	66	24.5	11	28.9	.35	1	.56	.03	Negligible

Note. n=307 reporting being enrolled in a vocational/technical of work-related reasons.

n=35 did not respond to the method used to complete instruction (traditional/online)

Rea & Parker (1992) Cramer's V Interpretation .00 and under .01 Negligible, .10 and under .20 Weak, .20 and under .40 Moderate, .40 and under .60 Relatively Strong, .60 and under .80 Strong, and .80 and under 1.00 Very Strong

Research objective 4 sought to examine if there is a statistically significant difference between those that have taken a course online and in a traditional format for a vocational/technical degree at a postsecondary school. Table 1 shows a comparison of online and traditional vocational/technical students. When comparing the online and traditional groups, there was a statistically significant difference between their reasons for education, in that they report learning new skills and knowledge ($\chi^2=5.07$, $df=1$, $p=.02$) and changing jobs/entering the workforce or own business ($\chi^2=5.74$, $df=1$, $p=.02$). The traditional group reported having more people state they took the degree to change jobs/enter workforce or to own a business. The traditional group was more likely to report they completed the vocational/technical degree to learn new skills.

Table 2 compares the perceived outcomes for those completing vocational/technical degrees for work-related reasons between online and traditional groups. The only area that was different in the outcome area was learned entirely new skill ($\chi^2=5.73$, $df=1$, $p=.02$). The traditional group was more likely to report learned entirely new skills than the online group.

Table 2. Comparison of Online and Traditional Learners Reasons for Completing Formal Vocational/Technical Work-Related Education

Outcomes of Completing Work Related Education	Traditional (n=269)		Online (n=38)		χ^2	df	p	Cramer's V	Strength of Association
	f	P	f	P					
Improved Existing Skill/Knowledge	245	91.1	37	97.4	1.76	1	.18	.08	Negligible
Learned Entirely New Skills	246	91.4	30	78.9	5.73	1	.02	.14	Weak
Increased Employability	239	88.8	35	92.1	.37	1	.54	.04	Negligible
Improved Ability to Advance in Career	231	92.1	35	92.1	1.12	1	.29	.06	Negligible
Got New Job/Changed Career/Own Business	91	33.8	12	31.6	.07	1	.78	.02	Negligible
Made More Money	85	31.6	14	36.8	.42	1	.52	.04	Negligible
Any Other Reason	16	5.9	4	10.5	1.15	1	.28	.06	Negligible

Note. n=307 reporting being enrolled in a vocational/technical of work-related reasons.

n=35 did not respond to the method used to complete instruction (traditional/online)

Rea & Parker (1992) Cramer's V Interpretation .00 and under .01 Negligible, .10 and under .20 Weak, .20 and under .40 Moderate, .40 and under .60 Relatively Strong, .60 and under .80 Strong, and .80 and under 1.00 Very Strong

Conclusions and Recommendations

The participants that were selected from the overall dataset for this study participated in vocational/technical degree programs for work-related purposes. Of these participants, the majority were female, white non-Hispanic, held high school diplomas and were not married. About half reported working full-time and at one employer. The majority of the respondents were employed at companies having more than 1000 employees.

Those participating in traditional vocational/technical degrees for work-related reasons identified learning new skills and knowledge, maintaining and improving skills and knowledge, and changing job, entering the workforce or own business as the reasons to be in a program. This supports Knowles' model of andragogy in practice that adults have goals and purposes for learning (Knowles, Holton, Swanson, 1998). The participants that have taken online courses in the vocational/technical degrees reported maintaining and improving skills and knowledge, learning new skills and knowledge, and changing jobs, entering the workforce or owning their business as the reasons to be in a program. These reasons did not vary between the two groups and lead us to conclude that the online and traditional students have similar reasons for being enrolled in vocational/technical programs.

The vocational/technical education traditional degree participants reported that the outcomes of helping to advance their career, improving their existing skills and knowledge and learning entirely new skills were the most reported outcomes. The online vocational and technical degree group reported they improved their existing skills and knowledge, increased employability, and improved their ability to advance in their careers. The outcomes that emerged support the literature in terms of learning new knowledge and skills (educational outcomes) and in terms of work-related outcomes advancing in career and increasing employability.

The online and traditional students in vocational/technical education reported two differences in terms of reasons for completing a degree. Online students were less likely to report the reasons of learning new skills and knowledge, and changing jobs and entering the workforce or owning their own business than traditional students. This provides evidence that the online environment might be better suited if a base level of content knowledge is present with the students and not for learning new skills. In terms of outcomes between the online and traditional groups was that they learned an entirely new skill. More participants in the traditional group than the online group reported learning new skills as an outcome.

This research provides a national base on the reasons people complete work-related education in vocational/technical degree programs. Furthermore, the outcomes of work-related education in both college and vocational/technical degree programs are better understood. And finally, the differences between how traditional and online adult learners view the reason and outcomes of learning are better understood.

Future Research & How This Research Contributes to New Knowledge in HRD

This research has provided leads for more research in the area of adult education for work-related reasons. Specifically, future research projects that can build on this project are:

- Examine the difference between academic and vocational programs in terms of reasons for completing degrees and outcomes of the degrees.
- Examine the differences between gender and the reasons for completing degrees for work-related reasons.
- Examine the differences in training received based upon the participants' educational level. Examine if training further separates educational levels of individuals and reduces gaps.
- Explore other reasons why individuals are completing formal education for work-related reasons and examine if there are differences in specific disciplines in terms of online and traditional work.

This research provides a national perspective of the work-related career and technical education. This research contributes by providing a better view of the rationales of individuals seeking a degree in career and technical education. These reasons for completing a vocational education degree for work-related reasons can be used to market programs. Furthermore, it describes the perceived outcomes of individuals seeking a degree in career and technical education, giving a perspective that is not currently in the literature. This article will help HRD professionals in better understanding those in their workforce completing career and technical education. HRD professionals could use the findings from this when marketing and completing employee development plans. Furthermore, this can specifically assist in building a base to help better understand the development of employee technical skills. In regard to other areas, it provides evidence that there are some differences in the rationale for online and traditional participants. These reasons for completing the learning experience could further impact the design of instruction for HRD programs in technical skill areas.

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