A study to Determine the Relationship between Assistive Technology and Supported Employment Outcome

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Abstract

Objectives: To verify the relationship between the level of assistive technology use and employment outcomes for individuals with disabilities as perceived by their job coaches. Methods/Statistical Analysis: A survey was sent to Minnesota and Wisconsin job coaches between January 2012 and February 2012. Surveys were mailed to 291 job coaches on January 29, 2012; two surveys were eliminated because they did not serve the supported employment. Findings: The results strongly demonstrate that the use of assistive technologies in supported employment improve the employment, the placement rate and the length of time in employment for people with disabilities. Improvements/Applications: The federal and state government has to increase the budget of assistive technology and the professionals must try to publicize the information about assistive technology.

Keywords: Assistive Technology, Supported Employment Outcome

1. Introduction

The rising cost of federal disability programs has stimulated a rethinking of government policy in recent years. Since at least the mid-1970s, awareness has changed from income support for people with disabilities to policies designed to promote independence, freedom of choice and employment. In a study on enabling workers with disabilities, “At present, the 14.5 million disabled Americans aged 21 to 64 are working” (p. 36). The change from income support for people with disabilities to independence, freedom of choice and employment has brought a new paradigm of supported employment and assistive technology.

A study by Cox examined that over 15% of the U.S. population has some level of disability. For 20 years, there have been huge changes for the employment of individuals with disabilities. Even for the most severe disabilities, supported employment could provide persons with disabilities with employment. The number of employed people with disabilities has grown from 9,800 to over 140, 000. Furthermore, the employability of people with disabilities can be improved with assistive technology. Also, most of the successful employment outcomes come from assistive technology. Thus, vocational rehabilitation counselors have to provide people with disabilities with proper assistive technology. Taken together, it would seem that there is irresistibly clear confirmation in the progress towards supported employment and assistive technology as the best chance for persons with disabilities.

Thus, the purpose of this research was to determine the relationship between the level of assistive technology use and employment outcomes for persons with disabilities as perceived by their job coaches. Particularly, the research questions of this study are as follows:

To begin with, what kind of assistive technologies are provided by a job coach for people with disabilities in supported employment? Also, does the use of assistive technology improve the employment of people with disabilities? Finally, what are problems or obstacles to facilitate assistive technology in supported employment?
2. Review of Theoretical Literature

2.1 Supported Employment
Supported employment is a delivery model that has expanded over the last 20-24 years as an opportunity to the flow-through range of occupational services. Duane and Neufeldt used the term “employment with support” which has now established into the expression “supported employment”1. That is, supported employment is paid work that comes from normal work settings.

In the last 20 years, supported employment has become a gradually helpful alternative for people with disabilities to support independence and community and social integration2. In study on supported employment stated “Supported employment has developed at a remarkable rate. Since 1986, the number of persons participating in supported employment has increased from fewer than 10,000 in Fiscal Year (FY) 1986 to 140,000 in FY 1995” (p. 194). Between 1986 and 1995, the percentage of corporations that have hired individuals with disabilities increased from 62% to 64%3. The consumers of supported employment contribute to the economies of their communities. They make almost $768 million annually and pay nearly $150 million each year in federal, state and local taxes4. Supported employment serves those who are receiving services in sheltered work, who have been excluded and who also need on-going services to stay in integrated employment situations5.

2.2 Assistive Technology
Assistive technology makes it possible for people with disabilities to contribute to society as meaningful members6,7,8.

Specifically, assistive technology is described as any item, piece of gear or product system that is used to enhance, maintain or recover functional capacities of people with disabilities9. This includes low-tech devices and high-tech devices. Thus, assistive technology can be either simple or complex10. High and low technology can increase the employability for people with disabilities. Assistive technology is much more than just hardware. Assistive technology is often connected with job accommodation such as the implementation of job site modifications, adaptations and the use of aids within the work place11. These include scheduling work activities, reordering tasks, relocating work and other organizational changes12.

If assistive technology combines with supported employment, the employment opportunities of people with disabilities can be improved13. Also, people with disabilities can better access the majority society by assistive technology14. According to the National Center for Health Statistics15, more than 17 million individuals with disabilities used assistive technology devices for mobility impairments, orthopedic impairments, hearing impairments and vision impairments in 199416.

There is no single answer to attain the employability of people with severe disabilities. Even though, assistive technology is a good solution, it must be used properly to be effective17.

3. Method

3.1 Data Collection
The population in this research consists of job coaches who work in Minnesota and Wisconsin. In order to provide everyone an equal chance to be selected, a simple sampling method was applied. The sample population included all job coaches whose names are provided by MNDACA (Minnesota Developmental Achievement Center Association).

A survey was sent to Minnesota and Wisconsin job coaches between January 2012 and February 2012. The subjects were given a written description of the research and a consent document prior to being given the survey. All information is confidential.

3.2 Instruments
It is a quantitative research using a survey to determine the relationship between the level of assistive technology use and employment outcomes for persons with disabilities. The research survey was advanced with consultation from one professional who works in the rehabilitation field. The survey used in this study included nine questions that examine demographic data and the opinion of job coaches regarding assistive technology and employment.

The instrument used in this study was a self-report survey developed by the researcher to collect information about the supported employment and assistive technologies. Survey questions were developed based on an analysis of the literature as well as the professional's
advice and the researcher’s personal knowledge. The questionnaire consisted of two sections and nine questions.

3.3 Data Analyses
The researcher interpreted and reported the data in percentages and frequencies. The statistical tools used in this research are means, frequency counts, percentages and standard deviations. The data of this survey are examined by the version of SPSS 10 for Windows software.

4. Results

4.1 Demographic Characteristics
Surveys were mailed to 291 job coaches on January 29, 2012; two surveys were eliminated because they did not serve the supported employment. Useable replies were gained from 70 job coaches for a rate of response of 24.05%.

The researcher found that the job coaches vary in demographic categories. In age category, 55.7 percent (n = 39) were 40 or more years old which was the largest age group. The mean of the number of years a person has worked is 8.15 years and 61.3 percent (n = 38) that have been job coaches over 5 years. Supposing that the job coaches’ work experiences in supported employment programs are so important, the result shows that many of the job coaches in this study have the adequate practices for supported employment programs.

72.9 percent (n = 51) of the job coaches were female in this research. The female group is 2.7 times larger than the number of coaches in the male group. Females, as a job coach, play a leading role in this rehabilitation field. Only one of the job coaches was African American.

The job sites of job coaches have even distribution over Minnesota (47.1%) and Wisconsin (52.9%).

4.2 Types of Assistive Technologies
In Table 1, data analysis of types of assistive technologies by job coaches showed that 71.4% of job coaches provided people with disabilities with augmentative or alternative communication, 38.6% with computer access-alternative input interface, 32.9% with environmental control systems, 20.0% with prosthetics and orthotics, 87.1% with accommodations (altered instructions, modified tools, job carving), 35.7% with aids for vision impaired, 42.9% with aids for hearing impaired and 52.9% with mobility aids. Two job coaches did not respond to the research questions. The researcher found that accommodations such as altered instructions, modified tools and job carving are vital factors in assistive technologies. Augmentative or alternative communication and mobility aids also play important roles in assistive technologies.

| Types of assistive technologies | Frequency | Percent |
|---------------------------------|-----------|---------|
| Augmentative or alternative communication | 50 | 71.4 |
| Computer Access, Alternative input interface | 27 | 38.6 |
| Environmental control systems | 23 | 32.9 |
| Prosthetics and orthotics | 14 | 20.0 |
| Accommodations | 61 | 87.1 |
| Aids for vision impaired | 25 | 35.7 |
| Aids for hearing impaired | 30 | 42.9 |
| Mobility aids | 37 | 52.9 |
| Other | 6 | 8.6 |
| None | 2 | 2.9 |

4.3 Job Coaches’ Perceptions about the Use of Assistive Technologies in Supported Employment
In order to determine the association between the level of assistive technology use and employment outcomes for persons with disabilities as perceived by their job coaches, the three questions such as employment, placement rate and length of time in employment were provided to the job coaches. The following results were the job coaches’ perceptions about the use of assistive technologies in supported employment programs.

4.3.1 Employment
To verify the relationship between the use of assistive technology and the employment of individuals with disabilities in supported employment, the following question was provided to the job coaches. How much do you agree or disagree to the statement? “The use of assistive technology improves the employment of people with disabilities in supported employment.”

Question for the employment utilized the Likert scale was used for answering (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree). The
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The mean of question number four is 4.32. As shown in Table 2, 'Strongly Agree' was 47.1% and 'Agree' was 41.4% while 'Neutral' was 8.6%. 'Disagree' was calculated at 2.9%.

As seen in Table 2, it seems that the job coaches in this study agreed that the use of assistive technology improves the employment of individuals with disabilities in supported employment.

Table 2. EMPLOYMENT

| Frequency | Percent |
|-----------|---------|
| Strongly Disagree | 0 | 0.0 |
| Disagree | 2 | 2.9 |
| Neutral | 6 | 8.6 |
| Agree | 29 | 41.4 |
| Strongly Agree | 33 | 47.1 |
| **Total** | **70** | **100.0** |

4.3.2 Placement Rate

So as to determine the relationship between the use of assistive technology and the placement rate of people with disabilities, the following question was offered to the job coaches. How much do you agree or disagree to the statement? “The use of assistive technology in supported employment improves the placement rate of people with disabilities.” The mean of question for placement rate is 3.83 shown in Table 3. Both 'Strongly Agree' and 'Agree' were 31.4% while ‘Neutral’ was 25.7%. ‘Disagree’ was calculated at 11.4%. In some degree, the job coaches in this study agreed that the use of assistive technology improves the placement rate of people with disabilities (Table 3).

Table 3. PLACEMENT RATE

| Frequency | Percent |
|-----------|---------|
| Strongly Disagree | 0 | 0.0 |
| Disagree | 8 | 11.4 |
| Neutral | 21 | 30.0 |
| Agree | 23 | 32.9 |
| Strongly Agree | 21 | 31.4 |
| **Total** | **69** | **100.0** |

4.3.3 Length of Time in Employment

To prove the association between the use of assistive technology and increases the length of time in employment for individuals with disabilities, the subsequent question was provided to the job coaches as seen in Table 4. How much do you agree or disagree to the statement? “The use of assistive technology in supported employment increases the length of time in employment for people with disabilities”. There was missing data because one person didn’t give the answer. The mean of question for length of time in employment is 3.88. As shown below (See Table 4), 'Strongly Agree' was 30.0% and ‘Agree’ was 32.9% while ‘Neutral’ was 30.0%. ‘Disagree’ was calculated at 5.7%. Taken together, it seems that the job coaches in this study agreed that the use of assistive technology increases the length of time in employment for people with disabilities.

Table 4. LENGTH OF TIME IN EMPLOYMENT

| Frequency | Percent |
|-----------|---------|
| Strongly Disagree | 0 | 0.0 |
| Disagree | 4 | 5.7 |
| Neutral | 21 | 30.0 |
| Agree | 23 | 32.9 |
| Strongly Agree | 21 | 31.4 |
| **Total** | **69** | **100.0** |

4.4 Problems or Obstacles to Facilitate Assistive Technology in Supported Employment

The job coaches were given the opportunity to respond with the problems or obstacles for facilitating assistive technology in supported employment that they faced as seen in Table 5. 50.0% of the job coaches indicated that cost is the most important issue for facilitating assistive technology, 44.3% of the job coaches answered that the lack of information about assistive technology is an important factor, 32.9% of the job coaches mentioned that employer’s indifference is a problem, 24.3% of the job coaches answered that no proper assistive technology was the obstacle and 20.0% of the job coaches responded to the “Other” category.

Table 5. PROBLEMS OR OBSTACLES

| Problems or obstacles | Frequency | Percent |
|-----------------------|-----------|---------|
| Cost | 35 | 50.0 |
| The lack of information | 31 | 44.3 |
| Employer’s indifference | 23 | 32.9 |
| No proper assistive technology | 17 | 24.3 |
| Other | 14 | 20.0 |
5. Conclusions and Recommendations

The objective of this study was to verify the relationship between the level of assistive technology use and employment outcomes for persons with disabilities as perceived by their job coaches.

Data analysis of types of assistive technologies by job coaches illustrated that 87.1% of job coaches provided people with disabilities with accommodations, 71.4% with augmentative or alternative communication and 52.9% with mobility aids. The results show that accommodations such as altered instructions, modified tools and job carving are vital factors in assistive technologies. Augmentative or alternative communication and mobility aids also play important roles.

Also, the job coaches in this study agreed that the use of assistive technology improves the employment of people with disabilities in supported employment. The results strongly demonstrate that the use of assistive technologies in supported employment improve the employment, the placement rate and the length of time in employment for people with disabilities. First of all, the use of assistive technology in supported employment is able to powerfully enhance the employment of people with disabilities in supported employment. In contrast to the placement rate and the length of time, the job coaches also have 37.1% and 35.7% in the neutral and reverse standpoint.

Furthermore, the job coaches were given the opportunity to respond with the problems or obstacles for facilitating assistive technology. The results indicate that the job coaches considered the cost (50.0%) and the lack of information (44.3%) as the most considerable problems or obstacles. To overcome these barriers, the federal and state government has to increase the budget of assistive technology and the professionals must try to publicize the information about assistive technology.

There are some recommendations for further research. For determining the relationship between assistive technology and supported employment outcome, this research was found through surveying the job coaches. The opinions by the job coaches were imperative to decide the relationship between the use of assistive technology and employment outcomes for people with disabilities. Because the satisfaction of assistive technology is based on the job coaches’ awareness, it is difficult to generalize the results as also being the ideas of people with disabilities. Thus, the future researcher has to conduct various methods such as direct interviews with people with disabilities, assistive technology vendors and developers.

Surveys were mailed throughout Minnesota and Wisconsin to the job coaches, so it is hard to regard the results as opinions of all job coaches in the U.S. In the ethnicity category, the result showed that 97.1% (n = 68) of the job coaches are Caucasian. Only one of the job coaches is African American. To reduce these biases, the research of federal level will be needed in future related research.

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