

JADARA

Volume 42 | Number 2

Article 4

November 2019

The Impact of College Training and Vocational Rehabilitation Services on Employment for Consumers with Hearing Loss

Daniel L. Boutin
The University of Alabama

Follow this and additional works at: <https://repository.wcsu.edu/jadara>

Recommended Citation

Boutin, D. L. (2019). The Impact of College Training and Vocational Rehabilitation Services on Employment for Consumers with Hearing Loss. *JADARA*, 42(2). Retrieved from <https://repository.wcsu.edu/jadara/vol42/iss2/4>

THE IMPACT OF COLLEGE TRAINING AND VOCATIONAL REHABILITATION SERVICES ON EMPLOYMENT FOR CONSUMERS WITH HEARING LOSS

Daniel L. Boutin, Ph.D.

The University of Alabama

Abstract

Many deaf and hard of hearing consumers of the federal vocational rehabilitation (VR) program choose higher education training while similar consumers bypass college and prepare for work through other means. An ex-post facto study was conducted to determine which VR services predict competitive employment for two subgroups of consumers: those with hearing loss who received college training and those with hearing loss who did not receive college training. A comparison of the findings from multiple logistic regression analyses run on cases within a database of the Rehabilitation Services Administration reveal differences in effective services across these two subgroups.

Keywords: deaf, hard of hearing, vocational rehabilitation services, college and university training, competitive employment, logistic regression, RSA-911 database

Introduction

Job seekers have two broad options when considering preparation for entry into the workforce; that is, whether or not to seek college training. The justification of work readiness through higher education is not unfounded. For example, more jobs now require a college degree than in the past as workers are expected to have competencies in English, reading, math, and computer technology (Herr, 1999). The United States' shift from an industrial/manufacturing economy to an information/services economy is often cited as a dominant reason for the need to improve the skill sets of employees (Partnership for 21st Century Skills, 2008). Certainly, many people have chosen college as 25 million students were enrolled during the 2006-2007 academic year (Knapp, Kelly-Reid, & Ginder, 2008).

Despite the influx of millions of college students preparing for careers, many jobs remain available for those without college degrees. The U.S. Bureau of Labor Statistics calculates that approximately 27 million jobs not requiring any collegiate experience will be available during the decade ending in 2012 (Moncarz & Crosby, 2004). Examples of jobs include cashiers, retail, landscapers, truck drivers, office clerks, and housekeepers. Many people

are entering the workforce without college experience as evidenced by the approximate 38% of U.S.-born workers and 49% of recent immigrants (i.e., entered the U.S. 1996-2000) who are 25-34 years of age without any college experience and working (Bureau of Labor Statistics, 2000).

Individuals who are deaf and hard of hearing also face the decision of whether or not to prepare for work through higher education. College students with hearing impairments are estimated to comprise 6-16% of all college students with disabilities (Horn, Berkold, & Bobbitt, 1999; Horn, Peter, Rooney, & Malizio, 2002). Furthermore, college students with hearing impairments are represented at 100% and 93% of institutions of higher education with enrollments of more than 10,000 and 3,000-9,999 students, respectively (Lewis, Farris, & Greene, 1999). Persisting through college has positive outcomes for deaf and hard of hearing graduates. According to results from a 15-year longitudinal study, college graduates with hearing loss enjoy low unemployment rates and are employed in occupations such as computer programming, counseling, computer operations, teaching, and business management (Schroedel & Geyer, 2000). Many individuals with hearing impairments have chosen to obtain college experiences that lead to employment across a variety of occupations.

Although a college degree is beneficial to finding work, people with hearing impairments can and do bypass college to enter the workforce. Deaf adults one year out of high school were reported to be working in jobs such as food preparation, secretarial and office work, janitors, and stock and freight handlers (Schildroth, Rawlings, & Allen, 1991). Welsh and Walter (1988) found that deaf high school graduates without college degrees worked in a variety of jobs such as technical, sales and administrative support, operators, fabricators and labor, and precision production. In fact, a small percentage of these individuals even worked in managerial and professional occupations. Although somewhat dated, evidence supports employment opportunities for people with hearing loss without college experience.

A central resource for people with hearing impairments wanting to find or maintain employment is the state federal vocational rehabilitation (VR) program. The VR program is administered by the Rehabilitation Services Administration (RSA) within the U.S. Department of Education (Spitznagel, 2002). Consumers of VR may be eligible to receive services that are designed to help people with disabilities achieve vocational outcomes. College and

university training is one such service offered by the VR program. Therefore, VR consumers with hearing loss might find that the path to becoming employed through VR may or may not involve higher education training. Boutin and Wilson (in press) studied RSA data of the VR program during fiscal year (FY) 2004 and found that 9.1% of eligible consumers with hearing loss had received college and university training. The VR program can aid people with hearing loss to find work with or without the benefits of college.

Researchers have investigated the predictability of vocational outcomes for deaf and hard of hearing consumers based on the variety of services received within the VR program. Moore (2001) found that postsecondary education, on-the-job training, and job placement services are predictive of securing competitive work for consumers with hearing loss. Counseling and guidance and job placement services also predicted competitive employment but for VR consumers with pre-vocational deafness and less than 12-years of education (Moore, 2002a). Services found to predict higher post-VR earnings for consumers with pre-vocational deafness include college and university training, business and vocational training, and job placement (Moore, 2002b). Moore (2002b) did not control for consumers' level of education; however, Boutin and Wilson (in press) analyzed RSA data to determine which services predict competitive employment for deaf and hard of hearing consumers who attended college through the VR program. Results were reported that job search assistance, job placement, maintenance, rehabilitation technology, and other services predict work for those who received college and university training as well as these services.

Despite a growing body of knowledge on effective VR services for consumers with hearing loss, no studies have been conducted comparing services that predict competitive employment for consumers with hearing loss with and without collegiate training. The results from Boutin and Wilson (in-press) do not explain the extent to which their findings also apply to deaf and hard of hearing consumers who did not receive college and university training. Therefore, it is possible that job search assistance, job placement, maintenance, rehabilitation technology, and other services are not unique to college-bound VR consumers with hearing loss. The purpose of this study was to determine which VR services predict competitive employment for two groups of consumers with hearing loss: (a) those who received college and university training, and (b) those who did not receive college and university training.

Method

Data Collection and Preparation

Data were obtained from the FY 2006 RSA-911 database. This particular database contains coded information on consumers who interacted with the VR program and whose cases were closed between October 1, 2005 and September 30, 2006. Consumer information is documented across all stages of VR such as during determination of eligibility, rehabilitation planning, service delivery, and closure. Personnel from VR agencies across the United States and some of its territories input data into the RSA-911 database and forward it to the Rehabilitation Services Administration (RSA, 2006).

From the overall 617,149 cases closed during FY 2006, those cases coded other than deafness or hard of hearing were removed from the database. Cases reflecting deaf and hard of hearing consumers found not eligible for the VR program were also removed. Remaining data were split into two groups: cases coded as receiving college and university training and cases coded as not receiving college and university training. A total of 33,739 of all VR consumers (5%) whose cases were closed during FY 2006 were consumers with hearing impairments eligible for VR services and comprised the sample for this study.

Variables

Each of the 22 services offered by the VR program was an independent variable. All independent variables are dichotomous since each consumer either received or did not receive the particular service. Examples of services offered by VR include assessment, transportation, interpreter services, and technical assistance services. The dependent variable, competitive employment, is also dichotomous since each consumer exited the VR program either with or without a job. College and university training is defined by RSA (2006) as “Full-time or part-time academic training above the high school level leading to a degree (associate, baccalaureate, graduate, or professional), a certificate or other recognized educational credential” (p. 24).

Participants

The overall group of deaf and hard of hearing consumers identified as White (84%), followed by those identifying as Black (13%), Hispanic or Latino (9%), Asian (2%), American Indian or Alaskan Native (1%), Native Hawaiian or other Pacific Islander (1%). Hispanic or Latino consumers also identified as White (93%) followed by those also identifying as Black (4%) and American Indian or Alaskan Native (3%). Males and females were equally represented in the sample. Approximately 20% of consumers had less than 12 years of education at the time of application to the VR program, 73% had between 12-16 years, and 4% had greater than 16 years of education. RSA no longer identifies consumers' age in the 911 database (RSA, 2006).

Data Analysis

Multiple logistic regression is useful when analyzing the influence of two or more independent variables on one binary dependent variable (Agresti, 2002; Huck, 2004). Multiple logistic regression was used to determine the extent to which VR services predict competitive employment for deaf and hard of hearing consumers who did and did not receive college and university training. Each subgroup was further divided into model-building and validation sets through random selection because comparison data helps to check the logistic regression model's predictive ability (Neter, Kutner, Nachtsheim, & Wasserman, 1996). Therefore, only those independent variables that were statistically significant for both model-building and validation sets were considered to predict the dependent variable (Cohen, Cohen, West, & Aiken, 2003). Alpha was set at .01. A priori power considerations required 1,410 cases per analysis for the college subgroup and 1,355 cases per analysis for the no college subgroup assuming a small effect size and 80% chance of detecting an effect if one existed (Cohen, 1988).

Results

Refer to Table 1 for percentages of consumers who received each VR service across the main sample and subgroups of consumers with and without college and university training. The highest percentage of consumers received diagnosis and treatment of impairments (65%), assessment (64%), and VR counseling and guidance (59%). Although almost 68% of all consumers achieved competitive employment, fewer consumers who received college

and university training were closed successfully (65%) than those who did not receive this particular postsecondary training (68%). Since independent variables with sparse data may bias the analysis (Cohen et al., 2003), any service received by less than 1% of consumers was removed. As a result, one service was removed from the college subgroup (i.e., personal attendant) and three services were removed from the no college subgroup (i.e., basic academic remedial or literacy training, reader, personal attendant).

Consumers with College and University Training

Multiple logistic regression analyses were used with successful competitive employment ($Y = 1$) as outcome and 20 VR services for the subgroup of 1,489 consumers who received college and university training in the model-building set and 1,500 consumers in the validation set. An analysis of these cases supports a model that predict successful competitive employment better than a model that only includes the constant ($-2LL = 1812.40$, $\chi^2 = 122.84$, $df = 20$, $p = .000$, Nagelkerke $R^2 = .11$). Job placement assistance ($\text{Exp}(B) = 2.03$, $p = .000$) was the only VR service found to predict employment for consumers with hearing loss who received college and university training across both model-building and validation sets. All statistical assumptions of multiple logistic regression were met. Consumers who received college and university training were two times (103%) more likely to obtain a job after receiving job placement services than similar consumers who did not receive this service.

Consumers without College and University Training

Multiple logistic regression analyses were also used with successful competitive employment ($Y = 1$) as outcome and 18 VR services for the subgroup of 15,345 consumers who did not received college and university training in the model-building set and 15,405 consumers in the validation set. An analysis of these cases supports a model that predict successful competitive employment better than a model that only includes the constant ($-2LL = 15,620.46$, $\chi^2 = 3,536.80$, $df = 18$, $p = .000$, Nagelkerke $R^2 = .29$). A total of 10 VR services were found to predict employment for consumers with hearing loss who did not receive college and university training across both model-building and validation sets. Once again, all statistical assumptions of multiple logistic regression were met. Predictive services include diagnosis and treatment of impairments ($\text{Exp}(B) = 6.00$, $p = .000$), rehabilitation technology ($\text{Exp}(B) = 3.83$, $p = .000$), job placement assistance ($\text{Exp}(B) =$

2.30, $p = .000$), on-the-job supports ($\text{Exp}(B) = 2.09$, $p = .000$), maintenance ($\text{Exp}(B) = 1.56$, $p = .000$), VR counseling and guidance ($\text{Exp}(B) = 1.29$, $p = .000$), interpreter services ($\text{Exp}(B) = 0.84$, $p = .008$), job search assistance ($\text{Exp}(B) = 0.78$, $p = .001$), transportation ($\text{Exp}(B) = 0.65$, $p = .000$), and job readiness training ($\text{Exp}(B) = 0.60$, $p = .000$). For example, consumers who did not receive college and university training were six times (500%) more likely to obtain a job after receiving diagnosis and treatment of impairments than similar consumers who did not receive this service. However, these consumers were 0.60 times (40%) less likely to obtain a job after receiving job readiness training than similar consumers who did not receive this service. See Table 2 for a summary of logistic regression analyses for both predictive models (i.e., with and without college/university training).

Discussion

The purpose of the study was to determine those VR services that predict competitive employment for consumers with hearing loss who received and who did not receive college and university training from the federal vocational rehabilitation program. Job placement assistance was determined an effective VR service for deaf and hard of hearing consumers whether or not they received college and university training. Since the RSA (2006) defines job placement as a “referral to a specific job resulting in an interview, whether or not the individual obtained the job” (p. 26), it is not surprising that job placement assistance is an important component to helping people with disabilities secure employment. Although job placement is helpful to consumers with hearing impairments with and without college experience, its effectiveness has also been demonstrated with other groups such as consumers with mental retardation (Moore, Alston, Donnell, & Hollis, 2003; Moore, Feist-Price, & Alston, 2002; Moore, Flowers, & Taylor, 2000; Moore, Harley, & Gamble, 2004), recipients of public assistance programs (Rogers, Bishop, & Crystal, 2005), and consumers with psychiatric disabilities (Rosenthal, Dalton, & Gervey, 2007).

A comparison of both consumer subgroups reveals a huge disparity in elements leading toward competitive employment. Only one VR service was found to predict successful closure for VR consumers with hearing impairments who received college and university training compared to 10 predictive services for similar consumers who did not receive higher education training. This study provides some evidence that people with hearing impairments who are provided college education training through the

VR program may become work ready without requiring many other services within the VR system. Almost all institutions of higher education provide services for college students with disabilities including those the VR program also offers such as assistive technology, readers, and interpreters (Lewis et al., 1999). It is possible that college-bound consumers in the current study received services directly from their colleges and universities instead of the VR program. People with hearing impairments who bypass VR's college education training can still benefit from a variety of VR services and secure employment. This point is not surprising since the availability of VR services was identified by consumers and rehabilitation counselors as necessary for a successful rehabilitation process (Thomas & Whitney-Thomas, 1996).

Deaf and hard of hearing consumers who did not receive college and university training were more likely to become competitively employed after receiving (a) diagnosis and treatment of impairments, (b) rehabilitation technology, (c) job placement assistance, (d) on-the-job supports, (e) maintenance, and (f) VR counseling and guidance. The odds of finding work for consumers with hearing loss increased 500% if they received diagnosis and treatment of impairments but not college and university training. The RSA (2006) defines diagnosis and treatment of impairments to include, among other things, hearing aids and hearing therapy. In the current study, a greater percentage of consumers without college training were more likely to need diagnosis and treatment of impairments than those with this training. Capella (2003) found that deaf and hard of hearing VR consumers tend to be older than other consumers. Although consumer age and degree of hearing loss was not determined, it is possible that more consumers without college training were older than those attending college and with mild to moderate hearing loss, thereby, receiving hearing aids to overcome barriers to work.

Rehabilitation technology was identified as an effective service for consumers who did not receive college and university training. In fact, the odds that consumers found work increased 283% after they received this service. RSA (2006) defines this service as “the systematic application of technologies, engineering methodologies, or scientific principles to... address the barriers confronted by... individuals with disabilities in areas that include education,...[and] employment” (p. 27). Although rehabilitation technology has been previously found to predict work for deaf and hard of hearing consumers who received college and university training (Boutin & Wilson, in press), the current study provides support for this service only being effective for consumers who did not receive college training. Because of

the importance of rehabilitation technology predicting employment for these consumers, the fact that a higher percentage of college-bound consumers with hearing loss received rehabilitation technology should warrant further investigation.

On-the-job supports include job coaching, follow-up, job retention, and other activities that provide additional supports for people with disabilities already working in order to stabilize their placement (RSA, 2006). Catalano, Pereira, Wu, Ho, and Chan (2006) found that on-the-job supports predicted competitive employment for persons with traumatic brain injury (TBI). Catalano et al. suggested that components of supported employment may be more beneficial for those with TBI than traditional supported employment programs. The results may suggest a similar perspective for individuals with hearing loss not receiving college and university training.

Consumers in the no college subgroup were 56% and 29% more likely to become competitively employed after receiving maintenance and VR counseling and guidance, respectively, than similar consumers who did not receive these services. The importance of these results is compounded when placed in the context that these services were provided to a much greater percentage of consumers in the college subgroup. Based on this study, it is unknown why maintenance and VR counseling and guidance is provided to a greater percentage of consumers attending college but is more effective for those who don't attend. Since maintenance can involve monetary assistance for food, shelter, and clothing and counseling can involve personal adjustment counseling (RSA, 2006), it is plausible that consumers who require higher education are better adjusted to their disability and have their daily needs met more than consumers not requiring higher education training. Since Moore (2002a) found that counseling and guidance predicted competitive employment for consumers with hearing loss with less than 12 years of education and 20% of consumers in the current study did not complete high school, it is also possible that less educated consumers in the current study received counseling over college training.

Additional VR services were found to predict competitive employment for consumers but these services were inversely related to obtaining jobs. For example, consumers who did not receive college and university training were 40%, 35%, 22%, and 16% less likely to become competitively employed after receiving (a) job readiness training, (b) transportation,

(c) job search assistance, and (d) interpreter services, respectively. Job readiness training targets basic aspects of work such as work behaviors, timeliness, dress, and grooming (RSA, 2006). Transportation involves training to use transport systems as well as monetary assistance to cover costs associated with public travel (RSA). Job search assistance includes resume preparation, identification of job opening, and the development of interview skills. Finally, interpreter services are provided to assist deaf or hard of hearing individuals perform daily living activities either on or off the job (RSA). Once again, a greater percentage of consumers who attended college received these four VR services than those consumers not attending college. The benefits of collegiate experience may outweigh any impact from ineffective services since employment rates for people with disabilities and less than four years of college are double the rate experienced by high school graduates (Getzel, Stodden, & Briel, 2001). Since 20% of all consumers in the study had less than 12 years of education at the time of application for VR services, it is plausible that these consumers were overrepresented in the no college subgroup and required extensive assistance and support with communication and basic aspects of working such as developing appropriate work behaviors and interviewing skills.

Limitations

Limitations based on the design of the study should be considered in combination with the results. The use of a database and non-probability sampling procedure prevents the ability to test hypotheses beyond the extent that the data permits and restricts external validity (Frankfort-Nachmias & Nachmias, 1996). Finite data in the database results in difficulty constructing hypotheses suggested by authors of existing literature. External validity is threatened by a non-probability sampling procedure such as the criterion-based convenience sample implemented in the current study. As a result, it is impossible to estimate the population's parameters with theoretical certainty (Frankfort-Nachmias & Nachmias).

Implications

The results of this study have several practical implications for practitioners working with consumers with hearing loss. First, VR counselors should recognize that job placement services is an essential service for people with disabilities searching for employment. This is also true for deaf and hard of

hearing consumers whether or not they also receive college and university training. Second, counselors should be aware that some VR services can effectively help consumers with hearing impairments become competitively employed if they are either not ready for, or choose not to receive, higher education training. In this study, diagnosis and treatment of impairments, rehabilitation technology, job placement assistance, on-the-job supports, maintenance, and VR counseling and guidance are related to obtaining work. Counselors may want to assess the extent consumers might benefit from these services should they not attend college.

Third, counselors must recognize some services are related to the failure to obtain jobs. In this study, job readiness training, transportation, job search assistance, and interpreter services were found inversely related to obtaining work for consumers who did not receive college training. Counselors should pay closer attention and monitor consumer progress with rehabilitation plans if the consumers are receiving these services and no college training. Finally, the results of this study differed dramatically from a previous study that examined predictive services for consumers with hearing impairments who received college and university training in which several services were reported to predict work. Counselors are reminded to consider the individuality of each consumer when assessing, planning, and implementing vocational rehabilitation with people who have hearing loss.

Daniel L. Boutin, Ph.D.
The University of Alabama
Program in Counselor Education
Box 870231
Tuscaloosa, AL 35487-0231
(205) 348-0285 Voice
dboutin@bamaed.ua.edu

Table 1

Percentages of Consumers Receiving VR Services and Vocational Outcome across Main Sample and Subgroups

Variable	Main Sample ^a	College ^b	No College ^c
VR Services			
Diagnosis and treatment of impairments	64.8	60.9	65.2
Assessment	63.6	70.5	62.9
VR counseling and guidance	58.6	66.7	57.8
Rehabilitation technology	29.1	32.2	28.7
Other services	18.7	36.0	17.0
Job placement assistance	18.1	25.7	17.3
Transportation	14.9	39.3	12.6
Job search assistance	14.3	23.5	13.5
Information and referral services	13.0	18.5	12.5
Interpreter services	12.3	27.5	10.8
Maintenance	10.1	32.2	8.0
College and university training	8.9	100.0	0.0
On-the-job supports	5.3	7.4	5.1
Miscellaneous training	5.3	12.2	4.7
Occupational/vocational training	4.6	11.6	3.9
Technical assistance services	3.5	4.6	3.4
Disability related augmentative skills training	1.4	1.9	1.4
On-the-job training	1.3	2.3	1.2
Basic academic remedial or literacy training	1.0	3.7	0.7
Reader services	0.8	2.2	0.7
Personal attendant services	0.2	0.5	0.1
Vocational Outcome			
No competitive employment	32.1	35.3	31.8
Competitive employment	67.9	64.7	68.2

^a*n* = 33,739. ^b*n* = 2,989. ^c*n* = 30,750.

Table 2
Summary of Multiple Logistic Regression Analyses
for the Predictive Models

VR Service	With College/University Training			Without College/University Training		
	<i>B</i>	<i>SE B</i>	Exp(<i>B</i>)	<i>B</i>	<i>SE B</i>	Exp(<i>B</i>)
Job placement assistance	.708	.162**	2.031	.833	.071**	2.301
Diagnosis and treatment of impairments				1.792	.041**	5.999
Rehabilitation technology				1.342	.051**	3.827
On-the-job supports				.736	.083**	2.087
Maintenance				.445	.079**	1.560
VR counseling and guidance				.254	.043**	1.289
Interpreter services				-.181	.068*	.835
Job search assistance				-.255	.075*	.775
Transportation				-.430	.067**	.651
Job readiness training				-.505	.096**	.604

Note. Y = 1 competitively employed. X = 1 received VR service.

* $p < .01$, ** $p < .001$.

References

- Agresti, A. (2002). *Categorical data analysis* (2nd ed.). Hoboken, NJ: John Wiley.
- Boutin, D. L., & Wilson, K. B. (in press). An analysis of vocational rehabilitation services for consumers with hearing impairments who received college/university training. *Rehabilitation Counseling Bulletin*.
- Bureau of Labor Statistics. (2000). *Working in the 21st century*. Retrieved October 15, 2008, from <http://www.bls.gov/opub/working/chart5.pdf>
- Capella, M. E. (2003). Evaluating differences in demographics, services, and outcomes for vocational rehabilitation consumers with hearing loss versus consumers with other disabilities. *Journal of Rehabilitation*, 69(3), 39-46.
- Catalano, D., Pereira, A. P., Wu, M., Ho, H., & Chan, F. (2006). Service patterns related to successful employment outcomes of persons with traumatic brain injury in vocational rehabilitation. *NeuroRehabilitation*, 21, 279-293.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Cohen, J., Cohen, P., West, S., & Aiken, L. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum.
- Frankfort-Nachmias, C., & Nachmias, D. (1996). *Research methods in the social sciences* (5th ed.). New York: St. Martin's Press.
- Getzel, E. E., Stodden, R. A., & Briel, L. W. (2001). Pursuing postsecondary education opportunities for individuals with disabilities. In P. Wehman (Ed.), *Life beyond the classroom: Transition strategies for young people with disabilities*. Baltimore: Brookes Publishing.

- Herr, E. L. (1999). *Counseling in a dynamic society: Contexts and practices for the 21st century* (2nd ed.). Alexandria, VA: American Counseling Association.
- Horn, L., Berkold, J., & Bobbitt, L. (1999). *Students with disabilities in postsecondary education: A profile on preparation, participation, and outcomes* (NCES Publication No. 1999-187). Washington, DC: National Center for Education Statistics, U.S. Department of Education.
- Horn, L., Peter, K., Rooney, K. & Malizio, A. G. (2002). *Profile of undergraduates in U.S. postsecondary institutions: 1999-2000* (NCES Publication No. 2002-168). Washington, DC: National Center for Education Statistics, U.S. Department of Education.
- Huck, S. W. (2004). *Reading statistics and research* (4th ed.). Boston: Allyn & Bacon.
- Knapp, L. G., Kelly-Reid, J. E., & Ginder, S. A. (2008). *Postsecondary institutions in the United States: Fall 2007, degrees and other awards conferred: 2006-07, and 12-month enrollment 2006-07* (NCES Publication No. 2008-359). Washington, DC: National Center for Education Statistics, U.S. Department of Education.
- Lewis, L., Farris, E., & Greene, B. (1999). *An institutional perspective on students with disabilities in postsecondary education* (NCES Publication No. 1999-046). Washington, DC: National Center for Education Statistics, U.S. Department of Education.
- Moncarz, R., & Crosby, O. (2004). Job outlook for people who don't have a bachelor's degree. *Occupational Outlook Quarterly*, 48(4), 3-13.
- Moore, C. L. (2001). Disparities in job placement outcomes among deaf, late-deafened, and hard-of-hearing consumers. *Rehabilitation Counseling Bulletin*, 44, 144-150.
- Moore, C. L. (2002a). Comparative competitive employment levels for Latinos and non-Latinos without 12 years of education. *Journal of Applied Rehabilitation Counseling*, 33, 13-18.

- Moore, C. L. (2002b). Relationship of consumer characteristics and service provision to income of successfully rehabilitated individuals who are deaf. *Rehabilitation Counseling Bulletin*, 45, 233-239.
- Moore, C. L., Alston, R. J., Donnell, C. M., & Hollis, B. (2003). Correlates of rehabilitation success among African American and Caucasian SSDI recipients with mild mental retardation. *Journal of Applied Rehabilitation Counseling*, 34(3), 25-32.
- Moore, C. L., Feist-Price, S., & Alston, R. J. (2002). VR services for persons with severe/profound mental retardation: Does race matter? *Rehabilitation Counseling Bulletin*, 45, 162-167.
- Moore, C. L., Flowers, C. R., & Taylor, D. (2000). Vocational rehabilitation services: Indicators of successful rehabilitation for persons with mental retardation. *Journal of Applied Rehabilitation Counseling*, 31(2), 36-40.
- Moore, C. L., Harley, D. A., & Gamble, D. (2004). Ex-post-facto analysis of competitive employment outcomes for individuals with mental retardation: National perspective. *Mental Retardation*, 42, 253-262.
- Neter, J., Kutner, M. H., Nachtsheim, C. J., & Wasserman, W. (1996). *Applied linear statistical models* (4th ed.). Boston: McGraw-Hill.
- Partnership for 21st Century Skills. (2008). *21st century skills, education & competitiveness: A resource and policy guide*. Retrieved October 15, 2008, from http://www.21stcenturyskills.org/documents/21st_century_skills_education_and_competitiveness_guide.pdf
- Rehabilitation Services Administration. (2006). *Reporting manual for the RSA 911 case service report*. Washington, DC: Author.
- Rogers, J. B., Bishop, M., & Crystal, R. M. (2005). Predicting rehabilitation outcome for supplemental security income and social security disability income recipients: Implications for consideration with the ticket to work program. *Journal of Rehabilitation*, 71(3), 5-10.

- Rosenthal, D. A., Dalton, J. A., & Gervey, R. (2007). Analyzing vocational outcomes of individuals with psychiatric disabilities who received state vocational rehabilitation services: A data mining approach. *International Journal of Social Psychiatry, 53*, 357-368.
- Schildroth, A., Rawlings, B., & Allen, T. (1991). Deaf students in transition: Education and employment issues for deaf adolescents. *The Volta Review, 93*, 41-53.
- Schroedel, J. G., & Geyer, P. D. (2000). Long-term career attainments of deaf and hard of hearing college graduates: Results from a 15-year follow-up survey. *American Annals of the Deaf, 145*, 303-314.
- Spitznagel, R. J. (2002). State/federal vocational rehabilitation program. In J. D. Andrew & C. W. Faubion (Eds.), *Rehabilitation services: An introduction for the human services professional* (pp. 55-89). Osage Beach, MO: Aspen.
- Thomas, D. M., & Whitney-Thomas, J. (1996). *Perspectives from consumers and counselors on elements that influence successful vocational rehabilitation system delivery* (Research to Practice). Boston: Institute for Community Inclusion, Children's Hospital.
- Welsh, W. A., & Walter, G. G. (1988). The effect of postsecondary education on the occupational attainments of deaf adults. *Journal of the American Deafness and Rehabilitation Association, 22*(1), 14-22.