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Factors Impacting Employment Success for Transition-Age Youth with Visual Impairments

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Abstract

The following variables were found to be associated with employment for transition-age youth with blindness or visual impairment served by VR: work experience, academic competence, self-determination, use of assistive technology and locus of control. Self-esteem and involvement with the counselor were not associated with employment in this study.

Factors Impacting Employment Success for Transition-Age Youth with Visual Impairments

Transition from high school or college to work can be a complicated and frustrating experience for youth and young adults who are blind or visually impaired. Transition services are ideally designed to establish a continuum of collaborative services within the educational and vocational rehabilitation systems ultimately leading to timely competitive employment outcomes. Research projects investigating transition services and maximizing their impact on competitive employment outcomes typically include all disability groups, yielding little insight into the transition issues of youth and young adults who are blind or visually impaired (National Council on Disability, 2000).

While transition of youth and young adults with visual impairments is an important topic receiving considerable attention, limited empirical research has been conducted to determine what variables impact successful transition for this population. To learn more about the transition process for youth who are blind/severely visually impaired, this study examined public use data from the Longitudinal Study of the Vocational Rehabilitation Services Program (LSVRSP, School of Industrial and Labor Relations, 2003). Despite the paucity of empirical research with this population, a considerable amount of research has been conducted with transition-age youth with other disabilities. This research, along with research associated with persons with visual impairments of all ages, was used to identify variables for inclusion in this study.

Literature Review

Work experience has consistently been associated with successful transition for youth with disabilities. Employment experience during high school, during the summer or part-time employment, was a predictor of competitive employment after high school for youth with disabilities (Stodden, Dowrick, Gilmore, & Galloway, 2001), including youth with visual

impairments (Wolffe, 1996). Work-based learning, or using the workplace to gain hands-on experience about the employment sector, has been found helpful in promoting postsecondary employment among youth with disabilities as it provides an opportunity to practice job skills and learn more about specific career paths (Luecking & Mooney, 2002). However, youth with visual impairments are less likely than other youth to engage in these types of work experiences (Nagle, 2001).

Self determination has received a significant amount of attention in terms of transition of youth with disabilities. It can be defined as the ability to make one's own informed and positive choices about life events, both large and small. Self determination is generally regarded as being learned through life experiences and has been positively associated with successful transition outcomes for youth with disabilities (Bremer, Kachgal, & Schoeller, 2003). Yet secondary schools do not typically provide opportunities for students with disabilities to learn and practice self determination skills (Stodden, 2002). Locus of control, a concept closely related to self determination, refers to individuals' perceptions regarding whether they control their destiny and behavior or external forces exert more influence on their destiny and behavior. In a study of recent university graduates, perceived control was found to be positively associated with employment status (Saks & Ashforth, 1999). For students with disabilities, teaching choice and decision making was one support strategy that Hughes et al. (1997) found effective in facilitating transition from school to adult life.

Academic competence has been associated with better transition outcomes for youth with disabilities (Benz, Lindstrom, & Yovanoff, 2000). Educational programs that emphasize activities of daily living (ADL) at the expense of academics can negatively impact the academic achievement of persons with disabilities (Ferguson & Blumber, 2006; Jorgensen, 1997;

Szymanski, Hanley-Maxwell, and Parker, 1990). Presumably, this negative impact is a consequence of the academic curriculum being shortchanged because ADL skills training is included in the typical school day. Students with disabilities are more likely to have a lower level of academic achievement and be less prepared for college, particularly in math and science, than students without disabilities (Stodden, 2002). This may be associated with the fact that states vary in their secondary education requirements for students and in the accommodations they make for students with disabilities (National Center on Secondary Education and Transition, 2004).

Self esteem is generally considered one's measure of worth or competence. It has been associated with many positive outcomes, including employment for persons with disabilities served by the vocational rehabilitation system (Hayward & Schmidt-Davis, 2003). It has also been found to be important to employment for transition-age individuals: among secondary school students, those with lower self esteem tend to be unemployed at higher rates than those with higher self esteem (Dooley & Prause, 1997).

Use of assistive technology is a compensatory skill in that it allows persons with visual impairments the ability to perform tasks routinely performed by their sighted colleagues. Access to printed information is particularly important for academic and vocational success for youth with visual impairments (Nagle, 2001). However, while the use of assistive technology is regarded as an equalizer for persons with disabilities, youth in secondary schools typically do not have the opportunity to learn which assistive devices are best suited to their needs and how to use them (Stodden, 2002). Research has documented the importance of assistive technology to success in college for young adults with visual impairments (Avila, 2002; Trief & Feeney, 2003),

but the relationship between assistive technology and employment outcomes has not been investigated.

A previous study using the LSVRSP data found the quality of the relationship between the counselor and the consumer was associated with employment outcomes for persons who are blind or visually impaired (Capella-McDonnall, 2005). Specifically, consumers whose relationships with their counselors were rated as high quality were more likely to be competitively employed than consumers whose relationship quality was rated as low or average. However, this study included persons up to age 65 and did not separately examine transition aged consumers.

Based on the research conducted with either transition-age youth with other disabilities or with blind or visually impaired persons of all ages, seven research hypotheses and questions were developed for investigation in this study. For those variables with sufficient evidence to suggest that a relationship exists between them and employment for transition-age youth, hypotheses were used, while research questions were used with variables for which a limited amount of evidence exists.

1. Early work experiences will be associated with employment.
2. Academic competence will be associated with employment.
3. Self-determination skills will be associated with employment.
4. Higher levels of self-esteem will be associated with employment.
5. Is use of assistive technology/devices associated with employment?
6. Is involvement with the counselor in the VR process associated with employment?
7. Is an internal locus of control associated with employment?

Method

Data Source

The data used for these analyses are public use data obtained from Cornell's website for the Longitudinal Study of the Vocational Rehabilitation Services Program (LSVRSP; School of Industrial and Labor Relations, 2003). The LSVRSP was a large-scale research project initiated by Congress to evaluate the performance of the state-federal VR program. Data were collected between 1995 and 2000 from more than 8,500 VR consumers. Data were collected from each consumer at multiple points in time, usually for a three-year period. A multistage, complex design was used for sample selection, resulting in a nationally representative sample of VR consumers from this time period. Data for each consumer were collected on work history, functioning, vocational interests and attitudes, community integration, psychological characteristics, and perspectives on their VR experience. The methods for data collection were personal interviews and abstraction from VR case records.

Sample

The population of interest in this study was transition-age consumers with a visual impairment. Consumers with a primary or secondary disability code representing vision loss (i.e., between 100 and 149) who were 21 years of age or younger at the time of application were included in the sample. These criteria resulted in a sample size of 41 people who had data on at least one independent variable in the study. Demographic analysis revealed that a majority of consumers were male (61%) and White (80%). A small percentage (5%) were of Hispanic origin. They ranged in age from 14 to 21 at the time of application, with the majority aged 17 or younger (61%). Most consumers (78%) reported visual impairment as their primary disability, and a small majority were legally blind (54%). Forty-six percent of consumers had a secondary

disability, including hearing impairment, cerebral palsy, learning disability, and mental retardation.

Variables

The outcome of interest to the study was employment; therefore status at case closure (employed versus not employed) served as the dependent variable. Most of the independent variables investigated were previously associated with employment for transition-age youth (work experience, academic competence, self-determination, self-esteem), while some had not previously been studied with this population (use of assistive technology or devices, locus of control, and level of involvement with counselor).

Previous work experience was measured in three ways: recency of work experience, having worked since disability began, and number of jobs held prior to VR. Recency of work experience was divided into three categories: never worked, worked at some time but not within two years of VR application, and worked within two years of VR application. Academic competence was evaluated based on grade-level equivalent scores for reading and mathematics levels. (This data was obtained from the consumers' case file; how these academic levels were measured was not specified.) Self-determination was measured with consumers' responses to the following item: "Overall, to what extent did you take charge of decisions during your VR experience?" The response options were "to a great extent," "to some extent," and "not at all." Use of assistive technology/devices was measured with consumers' responses to the following items: "Do you use any special equipment for vision problems, such as a white cane, excluding eyeglasses or contact lenses?" and "Do you need any special equipment that you don't have?"

The consumer's involvement with his or her VR counselor was measured in three ways; the first was a rating of the quality of the consumer-counselor relationship by an outside observer

(i.e., the data collector). This rating was on a three-point scale: low quality, average quality, or high quality. Consumer-reported frequency of contact between the consumer and counselor (via both phone and in-person meetings) was also used to assess involvement, as were consumers' evaluations of their counselors' display of attention and interest ("Did your VR counselor show enough interest, attention, and concern for your needs during the rehabilitation process?" rated on a four-point scale from always to never). The average amount of contact reported by consumers at each data collection point was used for the frequency of contact variables, and the last reported score was used for counselor's show of interest.

Self-esteem was measured with the Rosenberg Self-Esteem Scale (SES; Rosenberg, 1965). This instrument is the most commonly used measure of self-esteem, and it is the standard against which new instruments are evaluated (Robinson, Shaver, & Wrightsman, 1991). It is conventionally scored on a 4-point scale, but the LSVRSP collected data on a 3-point scale (agree, neutral, disagree). Scores range from 10 to 30, with higher scores indicating greater self-esteem. Only scores available prior to case closure were used to evaluate the influence of self-esteem on future employment.

Locus of control was measured with Levenson's Locus of Control Scales (Levenson, 1981). There is evidence for the instrument's reliability and validity and it has been used frequently in published research. This instrument measures three aspects of locus of control with three subscales: internal, powerful others, and chance. Each subscale consists of eight items scored on a 6-point scale, but the LSVRSP used the same 3-point scale used with the SES. Scores range from 8 to 24 on each subscale, and higher scores indicate a greater sense of personal control in each area. Only scores that were available prior to case closure were used for this analysis, to evaluate the influence of locus of control on future employment.

Data analyses

Due to the small sample size, multivariate analyses were not possible for most variables. The exception to this was the use of the MANOVA procedure with the three subscales of the locus of control measure. The MANOVA procedure is appropriate for analyses that involve two or more groups and correlated variables that are conceptually associated with each other. For the remaining variables, univariate analyses were conducted. Fisher's Exact Test was used for categorical variables. This test is similar to the chi-square test but is used with small sample sizes, for which the chi-square test is not appropriate. An independent samples t-test was used to determine the relationship between self-esteem, employment outcome, and academic competence, and logistic regression was used to assess the effect of number of jobs on employment outcome.

An alpha level of .10 was used to determine statistical significance for all tests. A lenient alpha level was used because of the small sample sizes available for the analyses (to allow for increased power), but a mathematical correction to the alpha level was also employed because of the large number of statistical tests conducted with the data. Benjamini and Hochberg's (1995) method for controlling the False Discovery Rate (the expected proportion of Type I errors) was employed. Only results that meet statistical significance with this correction will be referred to as significant. In addition to evaluating the statistical significance of results, it is important to evaluate their practical significance. For this purpose, effect sizes were calculated for all analyses (Phi coefficients for categorical analyses, Cohen's *d* for mean differences, and odds ratio for logistic regression).

Results

The results for the work experience analyses that utilized Fisher's Exact Test are reported in Table 1, along with the results for all analyses that utilized this procedure. Analyses that involved other types of significance tests are reported in the text. Although consumers closed into employment were more likely to have worked in the two years before applying to VR, recency of work experience did not reach statistical significance (p = .07). Employment since the disability began did significantly predict employment status at closure, with all 22 of those closed with employment having had work experience since their disabilities began. Number of jobs held prior to VR also significantly predicted employment at closure: χ^2 (1, N = 35) = 8.69, p = .003. The value for the odds ratio associated with number of jobs was 5.64 (95% CI: 1.21, 26.28), which means that each additional job experience a consumer had prior to VR increased the odds of employment at closure by more than 5 times.

Academic competence was significantly associated with employment at closure, with consumers closed successfully having higher reading (t(12.4) = 3.62, p = .003) and mathematics (t(16) = 2.16, p = .046) achievement. (Note that a t-test for unequal variances was required for reading level.) Means and standard deviations for each group are provided in Table 2. These differences were large, with effect sizes of 1.58 for reading level and 1.03 for mathematics level. Some consumers in the sample had a diagnosis of mental retardation in addition to their visual impairment (n = 5). To ensure that the differences found on academic competence were not primarily due to mental retardation of some consumers, these analyses were also run with consumers with mental retardation removed. The results were significant, and in fact exhibited even greater effect sizes.

Self-determination skills and use of assistive technology were also significantly associated with employment at closure (see Table 1). Consumers closed with an employment

outcome were much more likely to report taking control of decision making during the VR process to "a great extent" than were those closed without employment. Consumers closed with employment were much more likely to report using assistive technology for vision problems than those closed without employment, and an equal percentage of consumers in each group reported needing assistive technology that they do not use.

Involvement with the counselor in the VR process was not associated with employment status at closure. Two of the four variables – quality of the counselor-consumer relationship and frequency of phone calls – used to measure involvement exhibited group differences but these differences did not reach statistical significance with the alpha-level correction applied (see Table 1). Self-esteem was also not associated with employment outcome for these consumers, $t(14) = 0.82$, $p = 0.43$. Consumers closed into employment ($M = 26.98$, $SD = 3.83$) and consumers closed without employment ($M = 25.44$, $SD = 3.64$) had similar average self-esteem scores.

Locus of control was significantly associated with employment outcome: Wilk's λ (3, 13) = 0.55, F-value = 3.60, $p = 0.04$. Differences were in the direction of consumers closed with employment having higher scores on all three subscales, indicating a more internal locus of control (see Table 2). When evaluated independently, differences on one of the three subscales (the powerful others scale) reached statistical significance, $F(1,15) = 6.57$, $p = 0.02$.

Discussion

Several variables associated with employment for transition-age youth with other disabilities were also associated with employment in this sample of transition-age youth with visual impairments. Work experience was important to becoming employed for this group. Having worked since the disability began was significantly associated with employment at case

closure, and those closed with employment were more likely to have worked recently, although differences did not reach statistical significance. Having held multiple jobs was predictive of employment at case closure. This aspect of work experience has not been investigated before, and the magnitude of the effect was rather surprising. This effect may have occurred for a few reasons: employers may look more favorably on youth who have been employed at multiple jobs because they have additional work experience or those youth who have been employed at multiple jobs may be more "employable" in terms of making a good impression or having adequate skills . Employment in multiple job settings may function as career exploration for youth, thus giving them additional knowledge about career options and work related behaviors. The effect of the number of jobs held by transition age youth during school on future employment needs additional study with other data sources. The importance of work experience is relevant given that youth with visual impairments attending secondary school are less likely to have held a job during the past year than youth from most other disability groups; only 35.7% of youth with visual impairments attending high school had held a job in the past year (Wagner et al., 2003).

Academic competence, in terms of higher reading and mathematics achievement levels, had a strong relationship with employment at closure. That a relationship exists between this variable and employment is not surprising, but perhaps the strength of the relationship is. In fact, in terms of effect size, the relationship between higher reading levels and employment was one of the strongest of all the variables evaluated in this study. According to results from the National Longitudinal Transition Study 2, the vast majority of youth with visual impairments (identified as their primary disability) complete high school and most attend postsecondary education (Wagner, Newman, Cameto, Garza, & Levine, 2005). Obtaining an education is not a

problem for the majority of this population, but the level of academic competence may be important regardless of the level of education attained, as these two levels may not necessarily match.

Use of assistive technology specific to the visual impairment also had a strong relationship with employment at closure. Almost all youth who achieved employment reported using assistive technology, while a large majority of those who were not employed at closure did not. A small, and equal, percentage of youth in each group reported needing equipment they did not have; therefore lack of access to technology did not seem to be an issue in terms of employment outcome. Use of assistive technology has also been associated with success in college for youth with visual impairments (Avila, 2002; Trief & Feeney, 2003). Therefore it seems that assistive technology fluency is vital for success after high school for this population, regardless of their career or life goals.

Two other variables that had a significant relationship with employment were self-determination skills and locus of control. More attention has been given to the importance of self-determination for transition-age youth with disabilities than to locus of control. However, these variables are related conceptually, in that an internal locus of control is considered one aspect of being self-determined (Wehmeyer, 1992). As a whole, youth in this study who obtained employment believed they had more control over what happened to them. In particular, they were less likely than those who did not obtain employment to feel that powerful others had control over their lives.

Implications

There are several important implications of these findings for youth with visual impairments and professionals who work with them. The results indicate that having multiple

employment opportunities throughout school would be valuable. Youth should be given the opportunity for multiple and varied work experience while in secondary school. Ongoing participation in transition programs that provide work experience could be beneficial to youth who have difficulty obtaining employment on their own.

Youth and professionals who work with them should be cognizant of their academic achievement levels. This factor was strongly associated with employment outcomes and prior research has shown it to be more important than educational level in terms of achieving a competitive employment outcome (Hayward & Schmidt-Davis, 2003). Potential discrepancies between students' actual academic achievement and their educational level should be investigated and efforts made to insure that students with visual disabilities have the skills that correspond with their educational levels. This is particularly relevant because it is a variable that could be targeted for change, and one that the youth has some control over.

Self-determination and locus of control are personal factors that could be influenced in youth with visual impairments. Research has indicated that youth with visual impairments report having few opportunities for self-determined behavior (Robinson & Lieberman, 2004). A primary way to influence these factors is to provide the youth with opportunities to make decisions and support for doing so. Active participation in educational planning, including Individualized Education Plan (IEP) meetings, is one technique to utilize decision and choice making skills for youth with visual disabilities. Professionals who work with these youth should provide them with these opportunities, but parents are important parties in development of this factor. Professionals may need to discuss with parents the importance of self-determination for the youth, and the need to allow them to make their own decisions.

Because assistive technology is an important factor in postsecondary and employment success, it is imperative for youth with visual impairments to learn as much as possible about assistive technology while still in high school. Youth with visual impairments should be given the opportunity to experiment with different assistive technology to determine what will be most helpful to them, and should be provided with the training and equipment that will assist them to function in their school and/or work environment. Changes in technology and changes in individual needs make this learning a lifelong process, so students must have the skills to assess their own needs and have the skills necessary to navigate the process of obtaining assistive equipment to fill those needs.

All of the factors associated with employment outcomes in this study could potentially be impacted through transition programs. Providing work experiences is a common activity of transition programs, and this research supports the importance of this activity. In addition to providing work opportunities, a goal of the transition program should be to teach youth job seeking skills and provide opportunities to obtain jobs using these skills. Locating and obtaining their own jobs could be expected to positively influence self-determination. Other methods to positively influence self-determination and locus of control could include providing opportunities for independent decision making in selecting program activities and potential jobs. Exposure to multiple assistive technology and devices would be an important focus of a transition pr. Providing these youth with the opportunity to learn about and sample assistive technology, and the training in how to appropriately use the technology, could be expected to have a positive influence on transition outcomes. Although it may not typically be a focus of transition programs, academic assessment could be included . Measuring a student's achievement levels and providing remediation if levels are lower than grade level would benefit

youth. If academic remediation were not possible in a transition program, the student should at least be made aware of this as an area needing attention, and receive referral information for remedial assistance from other sources.

Limitations

A primary limitation of this study is the small sample size available for the analyses. The sample sizes available for the analyses with the specific variables under study ranged from a low of 16 to a high of 41. The effect of small sample sizes is two fold: it reduces the power of the analyses and reduces the ability to generalize findings. Another limitation of the study is the large number of statistical tests conducted, which can increase the likelihood of spurious significant results. To address this issue, a mathematical correction to the alpha level, which controls the False Discovery Rate, was applied to determine statistical significance of results. In addition, effect sizes were used to evaluate the practical significance, or meaningfulness, of the statistically significant results. Certainly the limitations associated with this study should be taken into consideration when evaluating the results, and additional empirical research is necessary to support the findings presented. In addition to these limitations, the age of the data should be mentioned; data collection on the LSVRSP ended in 2000 and the data became publicly available in 2003.

Conclusions

This is one of the first empirical studies of factors associated with successful employment for transition-age youth with visual impairments. Several variables associated with transition success for youth with other disabilities were also associated with employment for youth with visual impairments, including work experience, academic competence, and self-determination. Use of assistive technology and locus of control were also associated with employment, while

self esteem and involvement with the counselor were not. Additional research is needed, both to support the findings presented and to evaluate the effectiveness of these factors when incorporated in a transition program for youth who are visually impaired. Until we can identify the factors integral to successful transition and devise and implement transition programs that promote these factors, many transition programs will continue to struggle to meet the needs of youth with visual disabilities. This study represents an attempt to begin this process of providing an empirical base upon which to build transition programs that can positively impact employment success among transition age youth with visual disabilities.

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Table 1

Fisher's Exact Test Results for Categorical Variables

Variable	*N*	*p*-value	φ	Percent: Employed	Percent: Unemployed
Recency of work experience	41	0.07	0.36		
Worked within 2 years				58.3	23.5
Worked at some time				33.3	52.9
Never worked				8.3	23.5
Worked since disability	35	0.04	0.40		
Yes				100	76.9
No				0	23.1
Extent of decision making	39	0.04	0.39		
Great extent				65.2	31.3
Some extent				30.4	68.8
Not at all				4.4	0
Use of assistive technology	23	< 0.01	0.66		
Yes				90.9	25.0
No				9.1	75.0
Need equipment	24	1.00	0.00		
Yes				16.7	16.7
No				83.3	83.3
Quality of relationship	41	<0.10	0.34		
High quality				60.9	33.3

Average quality				39.1	55.6
Low quality				0.0	11.1
Frequency of meetings (past year)	39	0.90	0.19		
More than once a month				4.4	12.5
Once a month				17.4	25.0
Once every 3 months				21.7	18.8
Once or twice				34.8	25.0
Not at all				21.7	18.8
Frequency of phone calls (past year)	39	<0.10	0.46		
More than once a month				21.7	6.3
Once a month				17.4	18.8
Once every 3 months				34.8	12.5
Once or twice				21.7	31.3
Not at all				4.4	31.3
Counselor showed interest	39	0.56	0.24		
Always				73.9	62.5
Sometimes				13.0	6.3
Rarely				8.7	18.8
Never				4.4	12.5

Table 2

Descriptive Statistics for Academic Competence and Locus of Control

Variable	Employed	Unemployed	Cohen's *d*
Academic competence			
Reading level	7.51 (3.52)	3.09 (1.44)	1.58
Mathematics level	7.56 (3.42)	4.09 (3.34)	1.03
Locus of control			
Chance	14.00 (2.78)	11.33 (1.73)	0.80
Internal	20.82 (3.74)	18.88 (2.93)	0.79
Powerful others	20.50 (2.88)	15.56 (4.72)	1.25