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**A Systematic Review of Transition Interventions Affecting
Employability of Youth with Visual Impairments**

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Abstract

Introduction: The purpose of this study was to identify and synthesize published studies of transition interventions improving employability and employment outcomes of youth with visual impairments.

Methods: An a priori protocol was followed in conducting a systematic review of the literature, including criteria for selecting studies, search strategies, and synthesis of findings.

Results: Fifteen studies of interventions to improve employability of youth with visual impairments were identified. Four studies used two-group designs with control or comparison groups, four studies used single subject multiple baseline designs, and seven used single-group designs (no control or comparison groups). Of the four two-group designs, two reported statistically significant relationships between the transition intervention and factors related to employment. Meta-synthesis indicated efficacy of several interventions to improve career awareness, job seeking skills, independent living, and social skills of participants.

Discussion: Interventions were found to enhance employability skills and self-constructs also identified in correlational research as predictors of successful employment of youth with visual impairments. There was an absence of studies of interventions that directly resulted in employment. Only three of the 15 studies used designs with random assignment to groups—the most rigorous in evaluating effectiveness of interventions.

Implications for practitioners: There is a critical need for information on evidenced-based practices affecting successful transition of young adults with visual impairments. Practitioners are encouraged to implement rigorous evaluation methods to evaluate transition practices and to publish findings as a basis for public policy and the development of high quality programs.

A Systematic Review of Transition Interventions Affecting Employability of Youth with Visual Impairments

Transition-age youth with visual impairments (those who are blind or have low vision) have long experienced barriers to successful transition from secondary school environments to work. Recent data from the Current Population Survey support earlier findings (e.g., Kirchner & Smith, 2005; Wagner & Blackorby, 1996) indicating a substantial gap in employment rates between youth with visual impairments (VIs) and their sighted peers in the general population: 19.8% of youth with VIs ages 16 to 19 are employed compared with 29.2% of their sighted peers; the gap widens for youth ages 20 to 24 years—39.5% vs. 63.8% are employed (McDonnall, 2011).

Concerned about the low employment rates of youth with VIs, the blindness field over the years has implemented specialized programs to improve transition outcomes. The first school-to-work program opened in 1840 on the campus of what is now the Perkins School for the Blind to assist graduates in finding work. Today blindness agencies/organizations across the U.S. offer specialized transition programs to enhance future employability of youth with VIs. Researchers and practitioners have also implemented interventions to enhance employability skills. Given the ongoing employment gap between youth with VIs and their peers, there is a critical need for scientifically-based evaluation of these programs to inform policy and practice.

With passage of the No Child Left Behind Act of 2001, the U.S. Department of Education (Education) began a major push to identify evidenced-based programs, i.e., those that have been demonstrated effective using scientifically-based research (Test, et al., 2009). The What Works Clearinghouse was funded by Education in 2002 and charged with development of a systematic literature review process to identify the best scientific evidence from educational research. Initially used in health fields, systematic reviews became the method of choice for identifying, reviewing, and synthesizing educational research. Education's National Institute on

Disability and Rehabilitation Research (NIDRR) followed with initiatives to identify evidenced-based disability research through its National Center for the Dissemination of Disability Research (NCDDR), including maintaining a registry of systematic reviews of disability research and providing technical assistance to NIDRR grantees conducting systematic reviews (NCDDR: Registry of Systematic Reviews, 2012).

The systematic review process is considered empirical research and, as such, is approached with the same level of rigor used in conducting primary research. A formal research process is developed a priori to avoid biases in identifying, reviewing, and synthesizing results. The process can include formulating the research problem, developing research questions, defining the scope of the review, selecting sources for identifying studies, developing inclusion/exclusion criteria, and determining methods to synthesize studies (Schlosser, 2007). Although systematic reviews are quickly replacing traditional narrative reviews in identifying evidenced-based practices in disability research, we were unable to identify any systematic reviews and only one narrative review (Nagle, 2001) specific to transition of students with VIs. Education's What Works Transition Research Synthesis Project has synthesized research conducted in the last 20 years on transition of secondary students with disabilities (National Secondary Transition Technical Assistance Center, 2011), but studies included in these reviews generally have not disaggregated results for disability subgroups.

In summary, young people with VIs transitioning from secondary school to work historically have been employed at substantially lower rates than their sighted peers. Although a variety of programs have been implemented to enhance transition outcomes of youth with VIs, a systematic review of their efficacy has not been conducted. Therefore, the purpose of this study is to use the systematic review process to identify and synthesize published studies of interventions improving employability and employment outcomes of youth with VI. Further, the

study is intended to encourage use of more rigorous designs in evaluating effectiveness of programs and to promote publication of evidenced-based practices.

Method

Criteria for Inclusion in Review

The target population for this review was students with VIs in secondary school settings. If a study included elementary or college students, results must have been reported separately for secondary school students to be included. Education considers experimental designs using randomization and quasi-experimental designs the most rigorous in assessing effectiveness of programs (Scientifically Based Evaluation Methods, 2005). Therefore, we initially proposed to include only published intervention studies using control or comparison groups. A preliminary review indicated a paucity of such studies, resulting in expanding the selection criteria to include all published intervention studies (i.e., single group designs with no control or comparison group and single subject designs). Articles that were not empirical (e.g., conceptual, expert opinion) were excluded. Finally, only English-language studies published after January 1987 were included.

Literature Review

The review protocol was initiated in collaboration with university library instructional staff to identify relevant databases and clarify use of Boolean operators to more effectively access specific electronic databases. Selected databases were ERIC, PsycINFO, and Dissertation and Theses (Proquest). Reference lists of published literature reviews and other articles collected in the review were also used to identify studies.

Search terms. In developing a list of search terms, we reviewed (a) skills and self-constructs considered important for students with VIs to be successful in school and at work using the Expanded Core Curriculum (Huebner, Merk-Adam, Stryker, & Wolffe, 2004) as a framework and (b) Kohler's (1996) Taxonomy for Transition Programming. Full and truncated

search terms included blind, visually impaired, or low vision paired with the following: school, work, employment, job, transition, communication skills, independent living, technology, self (identified any endings, such as advocacy, determination, esteem, efficacy, and concept), social skills, secondary, summer program, camp, leisure, recreation, mentor, career, rehabilitation, internship, social skills, braille, and orientation and mobility.

Initial review. From the database search, two reviewers examined abstracts and determined need for review of the complete manuscript. Reviewers then examined full copies of studies and categorized each as an intervention or non-intervention study. Non-intervention studies were further categorized as data-based (i.e., descriptive, correlational, and causal comparative) or descriptions of blindness-specific transition programs/practices. Intervention studies were designated for further review.

Data Extraction/Analysis

Two independent coders reviewed intervention studies using a protocol developed by researchers at the National Secondary Transition Technical Assistance Center (NSTTAC, n.d.). Coding sheets included descriptions of the interventions, participants, method/research design, independent variables, and dependent variables/outcomes. A third reviewer, a research professor with extensive experience in research methodology, doubled-checked the procedure when there were coding discrepancies between primary reviewers. Several studies did not include data that allowed for calculation of effect size. Rather than excluding those studies from our results, a meta-synthesis (Hemingway & Brereton, 2009), rather than meta-analysis, was used to describe and assess studies.

Results

Review of the literature was completed July 2010. Eighty-three studies were identified and categorized as intervention (pre-, quasi-, or true experimental) or non-intervention (non-experimental) designs. The 15 intervention studies were coded using the NSTTAC protocol. The

remaining 68 included 13 studies describing transition practices/programs, 5 qualitative studies, and 50 quantitative studies. Of the 50 quantitative studies, 19 were findings from nationally-representative databases with results exclusive to, or disaggregated for, youth with VIs.

References for the non-intervention studies and an annotated bibliography of intervention studies are available at <http://www.blind.msstate.edu/publications/download/>.

Salient features of the 15 intervention studies are provided in Tables 1 and 2. Each study is categorized by outcome variable, i.e., career exploration/job seeking skills, independent living (IL) skills, social skills, and self-concept. Table 1 includes information on study sample size, participant characteristics, and intervention characteristics. Table 2 includes information on research design, outcome variables, analytic techniques, and findings.

Participant Characteristics

Participants were youth in secondary school settings. In 9 studies all participants were legally blind (this includes totally blind); in 2 studies participants were both legally blind and low vision (VI but with acuities greater [better] than legal blindness); and in 4 studies participants were identified as VI but level of VI was not reported. Three studies included participants with legal blindness plus mild intellectual disabilities. Participants in three studies were all males; the remaining included a combination of males and females. Ages of participants ranged from 12-21 years.

Research Designs and Methodological Review

Two- group designs. Three of the 15 studies used randomization procedures to assign participants to treatment and control groups (Howze, 1990; Kim, 2003; & McConnell, 1994). In a fourth study (Johnson & Johnson, 1991), comparison group participants were selected (based on having similar characteristics as treatment participants) from a larger pool of volunteers. Experimental methods using random-assignment is considered by many as the “gold standard” in evaluating intervention effectiveness (e.g., Cook, 2002), followed by use of carefully-matched

comparison groups when random assignment is not feasible (Scientifically Based Evaluation Methods, 2005). Such designs are essential to establishing cause and effect.

Single subject designs. Four studies were single subject multiple baseline designs. Single subject designs are especially relevant in demonstrating causal relationships with low incidence populations when sufficient numbers of participants are not available (Scientifically Based Evaluation Methods, 2005) and when applied over multiple studies, can further demonstrate efficacy and generalizability of practices (Horner et al., 2005).

Single-group designs. Seven studies used single-group designs—the least rigorous of the included designs. All but one used a pre-test measure to assess treatment gains: Miller (2001) evaluated program efficacy using a post-only assessment. Single-group designs are often used in evaluating interventions when small numbers of participants or ethical/legal concerns preclude the use of random or comparison groups. Interpreting findings is difficult due to multiple validity threats inherent with these designs (e.g., Meltzoff, 1998). In efforts to lessen such threats, one study included data collection of outcome variables on three occasions: pre-, post- and follow-up (Leonard, D'Allura, & Simpson, 1997).

Psychometric properties of measurement tools. Little or no information on the psychometric properties of instruments was included in some studies, particularly those using single-group designs. For data to be useful it must be valid, accurate, and reliable. If an intervention is evaluated using an invalid instrument, one cannot be sure that the instrument will detect treatment success even after a successful treatment.

Interventions and Outcomes

Our review resulted in identification of several interventions designed to improve employability skills (e.g., job seeking, assertiveness, IL, self-constructs) also found in correlational research to be predictors of employment. We did not identify any studies of interventions leading directly to employment outcomes.

Career awareness and job-seeking skills. Using a single-subject design, Howze (1987) found evidence supporting social skills training to enhance verbal skills in job interview situations. She later used a two-group randomized design to compare two approaches (instruction, role modeling, and feedback vs. instruction-only) for training assertiveness and verbal/non-verbal social skills in job interviews (Howze, 1990). No differences were found between groups on outcome variables, although verbal and non-verbal interview behaviors of both groups improved at post-test and follow-up. Using a pre-post single-group design, Whitman (1990) found evidence that students participating in a 2-week orientation and 8-week work experience had improved knowledge of work. McConnell (1994), using a pre-post two-group crossover control design, found that students using the Partner's Program curriculum (Cochran, 1985) along with blindness-specific job information and with parental involvement, had improved career certainty, salience, and reduced career indecision. Using a pre-post single-group design, Leonard, D'Allura, and Simpson (1997) reported that participation in career development activities along with training in daily living skills resulted in increased career awareness at post-training. Using a pre-post single-group design, Mitchell and Zampitella-Freese (2003) did not find evidence that students participating in a 1-year employment readiness program had gains in work adjustment abilities on a vocational skills inventory.

Independent living skills. Single-subject multiple baseline designs were employed in studies concluding that behavioral training approaches were effective in teaching grocery shopping skills (Gumpel & Nativ-Ari-Am, 2001; Trask-Tyler, Grossi, & Heward, 1994) and leisure skills (Taras, 1992). Miller (2001) used a post-only single-group design in reporting efficacy of teaching IL skills in a residential summer camp.

Social skills and self-concept. A pre-post single-group design was used to show that students participating in a four-day drama workshop had improved social skills at program completion (Bieber-Schut, 1991). Peavy and Leff (2002), also using a pre-post single-group

design, found that students with VIs participating in group trust-engendering and thought-provoking activities with sighted peers had improved social skills and acceptance by peers. Using a pre-post single-group design, Shapiro, Moffett, Lieberman, and Dummer (2005) reported that students participating in a 1-week summer sports camp had improved perceived social acceptance and physical appearance scores but slightly lower athletic competence scores. Johnson and Johnson (1991) using a pre-post two-group design reported that participants receiving group counseling had greater gains in self-concept, more favorable attitudes toward blindness, and more internal locus of control than participants in the comparison group. Kim (2003) employed a randomized pre-post two-group design to assess efficacy of training in assertiveness, social skills, and cognitive strategies in enhancing social skills of participants but failed to find group differences on outcome variables.

Discussion

To our knowledge this is the first systematic review addressing secondary transition of youth with VIs. Fifteen intervention studies were identified. A synthesis of results show efficacy of interventions to improve career awareness and job seeking skills, including social skills, involvement in career development activities, parental involvement, and work experience. Evidence was also found for the efficacy of behavioral interventions, especially for students with mild intellectual disabilities, in improving IL skills. Several interventions were found to improve social skills/acceptance and self-concept of youths with VIs, including participation in drama games, group activities with sighted peers, sports, and group counseling. Moreover, interventions were found to enhance outcomes that have been identified in correlational research (e.g., career awareness/job seeking skills, IL skills, social skills) as predictors of successful employment of transition-age youth (Erin, Dignan, & Brown, 1991; McDonnall, 2011; McDonnall & Crudden, 2009; Shaw, Gold, & Wolffe, 2007).

Possibly the most salient finding from this review was the lack of published studies in the 23 year period meeting our selection criteria. Of the 83 empirical studies identified, less than 20% (15) were intervention studies, and only four of these were two-group designs. Further, only in two of the four studies were significant differences reported between groups on employability factors (McConnell, 1994; Johnson & Johnson, 1991). From an internal validity perspective, only experimental studies using random assignment to groups can be used to infer causality. The four studies using single-subject designs included multiple measurements of the dependent variables before, during, and after the intervention and thus, provide a basis for establishing cause and effect. Although all but one of the studies using single-group designs reported positive treatment effects, such designs cannot be used to make causal inferences. Nonetheless, use of single-subject, pre-experimental, and correlational research methods can be an effective way to identify evidenced-based practices when applied over multiple studies. Different research designs contribute different kinds of information and should be determined by the questions being asked and use of research. Moreover, ethical issues and other restraints may preclude implementation of randomized studies in public-funded educational and rehabilitation settings.

Limitations

Although this review identified several promising practices, application to the population of students with VIs should be made with caution. Most studies included small samples, many did not provide information regarding measurement validity, and almost half used single-group designs with weak internal validity. Although attempts were made to identify published studies meeting the selection criteria, relevant studies may have been overlooked. Further, our selection criteria excluded studies of college students and cross-disability studies that did not disaggregate results for secondary-age students. Neither did we search the grey literature (material not formally published such as institutional reports), and given the long history of blindness-specific transition programs, it is probable that these interventions have undergone some evaluation.

Implications and Recommendations

Descriptions of transition programs for youths with VIs were first reported in the professional literature in the early part of the 20th century (e.g., Hayes, 1929). Given the prevalence of transition programs today, we believe there are exemplary programs throughout the country. Professionals are encouraged to implement rigorous evaluation methods to evaluate programs and to publish findings in peer- and non-peer reviewed journals and on organizational websites.

It is critical that policymakers, administrators, and practitioners have access to evidenced-based practices that can be used in the development of public policy and quality programs. Further, consumers need information in order to make informed decisions in planning their own transition programs. Although this review included some studies that had weak designs or lacked details on measurements, our findings can provide a basis for public policy and service delivery. We identified successful interventions for improving employability skills, but a glaring omission is the absence of intervention studies directly resulting in employment. Our review demonstrates the urgent need for research using scientifically-based strategies to design, implement, and evaluate interventions with employment outcomes. Additionally, because our body of research is largely non-experimental, it is recommended that a systematic review of data-based non-intervention studies be conducted. With the continued gap in employment rates between young adults with VIs and their sighted peers, the demand for more and improved use of scientific evidence as a basis for transition programs will continue to grow.

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