This literature review discusses supported employment as one aspect of the transitional linkage between school and work that can augment the quality of life for individuals with moderate and severe disabilities. It then focuses on job matching, one aspect of supported employment training programs within public school settings, with an emphasis on related variables that should serve as a foundation for future transitional planning. Active variables, which are those variables supported in the literature as either being research-based or nonresearch-based, include a detailed job analysis, worker productivity, assessment of specific social skills, placement specialist support, employer/supervisor support, positive high school experiences, and client assessment. Implied variables, which refer to factors that have not been specifically mentioned but are implied in the literature as being related to successful employment outcomes, include transportation, support services, and factors that promote job satisfaction. (Contains 30 references.) (JDD)
Job Matching in Supported Employment: Variables Related to Transitional Planning for Students with Moderate and Severe Disabilities

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Abstract

Supported employment is one link of the transitional chain that can augment the quality of life for individuals with moderate and severe disabilities. Within supported employment training programs, job matching has been identified as a key component. This paper explores variables related to job matching through a comprehensive, though not exhaustive, review of the supported employment literature. This review supports an argument for emphasizing job matching as part of the placement process. Future directions for the use of these variables are suggested.
Job Matching

Job Matching for Supported Employment: Variables Related to Transitional Planning for Students with Moderate and Severe Disabilities

"How do special education students fare after they leave school?" (Edgar, 1985 p. 470)

This question is germane to the goals of PL 94-142 which guarantees a free and appropriate public education for individuals with disabilities so that many may become productive members of the community. Unfortunately, the question Edgar (1985) posed prompts some disconcerting answers. For example, the U.S. Commission on Civil Rights (1983) reported that unemployment rates among individuals with disabilities are much higher than for persons without disabilities. Further, the Commission also reported that approximately 50% to 75% of adult workers with disabilities are unemployed. This is disturbing news considering that the latest figures show that 200,000-250,000 students with disabilities leave publicly supported education programs each year (U.S. Department of Education, 1989, 1990). Among individuals who received special education services, those with mental retardation appear to have the greatest difficulty attaining post-secondary employment, due in part to their disability being more obvious to the employer (Keystone Area Education, 1983). According to Rusch and Hughes (1989), individuals with mental retardation have traditionally been considered unemployable.

As children with disabilities grow into adolescents, then adults, their disabilities do not disappear. Educators recognize that the years between adolescence and adulthood are a time of transition. The purpose of this paper is to discuss one aspect of the transitional linkage between school and work that can augment the quality of life for individuals with moderate and severe disabilities: supported employment. The discussion of supported employment will begin with an overview of the literature. The focus will then switch to job matching, which is one aspect of supported employment training programs within public school settings, with an emphasis on related variables that should serve as a foundation for future transitional planning.
Two categories of job matching variables will be discussed: active and implied. Active variables are supported in the literature as either being research-based or non-research based. Research-based variables are those components of job matching that are supported empirically in the literature. Non-research based variables, in turn, are components that are discussed in the literature through model programs, position and issue papers, and conceptual/theory articles. On the other hand, implied variables are components of job matching that are not specifically mentioned in the literature, but are implied through discussions of other critical elements of supported employment. Lastly, future directions for the use of these variables within supported employment training programs will be suggested.

Overview of Supported Employment

Supported employment is much more than a job, however. In many ways, it personifies a national civil rights movement on the part of people with severe disabilities who have been excluded, devalued, and disenfranchised on the basis of their perceived lack of vocational competence...supported employment represents serious social change. (Wehman, 1988, p. 357)

This account reflects a progressive attitude towards persons with moderate and severe disabilities that is beginning to be espoused in the literature (Cole, 1987; Culver, Spencer, & Gliner, 1990; Rochlin, 1985; Rusch & Hughes, 1989; Steere, Wood, Panscofar, & Butterworth, 1990). Rusch and Hughes (1989) argued that recently, supported employment has proffered individuals with moderate and severe disabilities new vocational opportunities, by facilitating successful participation in integrated settings. Hence, it has provided an alternative to the sheltered workshop.

The traditional sheltered workshop is a restrictive environment that is usually selected for adults whose severe learning and/or behavioral disabilities preclude them from placement in a less restrictive setting (Masters & Mori, 1986). The sheltered workshop has often been the option for individuals who cannot be placed on regular job sites after
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graduation (Patton, Beirne-Smith & Payne, 1990). Although it provides skill development and other work adjustment training, Patton et al. (1990) raised several concerns regarding the sheltered environment as an employment option, including issues of segregation, human dignity, and low wages. Similarly, Brown, Nietupski, and Hamre-Nietupski (1976) recognized that if students with severe disabilities are to integrate successfully into society (i.e., live in the community as adults), they need to interact with peers without disabilities. However, human dignity and self-worth are not enhanced through participation in a segregated setting particularly settings fraught with meaningless activities for little or no pay (Patton et al., 1990). Similarly, Hasazi and Clark (1988) reported that despite genuine efforts of schools to educate adolescents with mental retardation in becoming productive members of the community, many students continue to have limited opportunities to acquire the skills necessary for postsecondary employment and, therefore, are unemployed following graduation. Through transitional planning, a planned process for the implementation of employment upon graduation, supported employment can provide these much-needed opportunities (Wehman, Kregel, & Barcus, 1985).

Bellamy, Rhodes, Mank, and Albin (1988) outlined three major components of supported employment: (a) paid employment, (b) ongoing support, and (c) integration, which together provide the conceptual underpinning of supported employment. Discussing the need to re-evaluate present services for persons with disabilities to ensure that meaningful integrated employment opportunities are provided. Shafer, Wehman, Kregel, and West (1990) recommended the following elements be stressed in service delivery systems: (a) pay for real work, (b) long-term support that facilitates job retention, (-:) placements for individuals with severe disabilities, (d) integration among co-workers without disabilities, and (e) interagency cooperation and funding.

An important aspect of these elements is the provision of supported competitive employment within these delivery systems. Thus, Shafer, Hill, Seyfarth, and Wehman (1987) recognized competitive employment as an enhancement of supported employment.
Specifically, competitive employment programs actively participate in screening and selecting jobs that match client characteristics. In addition, placement and training are provided at the work-site by employment specialists (Shafer et al., 1987). Therefore, on-site training and follow-along services can facilitate long-term employment for individuals with minimal skills.

Steere et al. (1990) added to the literature by addressing an issue that underpins the theoretical base of supported/competitive employment: quality-of-life outcomes. Steere et al. (1990) saw employment as the vehicle for attaining quality-of-life outcomes. As such, employment is a goal, not a final objective. Rather, employment opens the door for acquisition of such benefits as self-esteem, wages, friendships, and self-direction (Steere et al., 1990). However, in order to facilitate quality of life, employment must be a positive experience. Therefore, job matching, as a key feature to competitive employment (Shafer et al., 1987) is subsequently a key feature to quality of life outcomes.

**Job Matching**

Within the parameters of a supported work approach to competitive employment, job matching refers to the process of assessment (Wehman & Kregel, 1985). Assessment involves evaluating an individual's abilities as they relate to a specific job task. That is, the strengths and weaknesses of an individual's repertoire are taken into consideration prior to job placement. However, it is necessary to evaluate a wide array of specific jobs in order to make proper options available to the student. Assessment of specific job tasks allows the employment specialist to compare student information with job requirements. Based on an analysis of job, the best fit may be identified.

In the next two sections, many of the variables involved in the job-matching process will be discussed within the context of how they were supported in the literature. For this purpose variables were classified as either active or implied.
Active Variables

Variables germane to the job-matching process were supported in the literature as either research-based or non-researched based. Both types will be discussed in this section.

Research-based: An emergent body of empirical literature is devoted to the study of supported employment. This literature, which includes empirical components related specifically to job matching, offered insight into which variables would have the most influence upon successful outcomes.

In an eight-year longitudinal study focusing on supported competitive employment, Wehman, Hill, Wood, and Parent (1987) described the experiences of 21 persons with severe mental retardation. One of the major recommendations of this study was that a more extensive job analysis be conducted prior to placement. This conclusion was based on descriptive data consisting of supervisor evaluations (i.e., worker strengths and weaknesses), job task, hours of on-site staff intervention, and job retention. Job retention ranged from a little more than one week to over seven years, with a mean of two and half years.

Overall, the placements were reported as being successful. However, Wehman et al. (1987) noticed that the reasons for separation were incongruous with the positive supervisor evaluations, leading to a theory of a halo effect. That is, an absence of negative comments may be due to the employee's disability.

Wehman et al. (1987) further speculated that deteriorating work performance may be due to a reduction of on-site staff follow-up hours, even after the employee appears to be doing well. However, Wehman et al. (1987) noted, that the supported employee's weaknesses or obstacle to a good job match were not always the reason for termination. For example, though one of the subjects lacked adequate social skills, the reason for termination was given as a seasonal change at the work site (i.e., change in the amount of work available). Empirically, this study was unable to single out variables for success, or lack thereof. However, based on the inconsistencies of the evaluations versus the reasons
given for job separations, it was concluded that a more detailed job analysis would enable a better fit of student characteristics to job characteristics.

Salzberg, Agran, and Lignugaris-Kraft (1986) addressed the question of social behaviors that affect successful employment outcomes. A questionnaire relating to the importance and frequency of 27 work-related social behaviors was completed by 30 supervisors randomly selected within three cities in Utah. The supervisors were in charge of services that have been recognized as obtainable for persons with mental retardation, including janitors, motel maids, dishwashers, food service workers, and kitchen helpers. Statistical analyses were used to determine the mean importance and mean frequency ratings by and across job types. By examination of the data, the authors found that the perceived importance of specific social behaviors was related directly to their association with productivity. That is, the social behaviors that related to productivity were rated significantly higher than those that were not. For example, arriving on time, asking for assistance, following directions, and responding to job emergencies were related to work performance and, thus, were rated high. In contrast, arguing, using objectionable language, and using social amenities (i.e., appropriate salutations and saying "please" and thank you") were not related to productivity and, thus, received lower ratings. Therefore, individual characteristics that might interfere with performance will influence supervisors' perceptions of the social behavior.

Thus, assessment of specific social skills is supported in this research. Further, it would be useful if job analyses included a frequency estimate regarding the number of social interactions that may occur on the job, and those related to production.

In a study that corroborates Salzberg et al.'s (1986) conclusions, Heal, Gonzalez, Ru, Copher, & DeStefano (1990) compared successful and unsuccessful placements of 54 matched-pairs of high school students and young adults with mental retardation. The matched pairs design involved having job coaches or project supervisors respond to surveys that paired a successful placement with an unsuccessful placement. Using two-
tailed statistical measures to analyze the data, Heal et al. (1990) identified indicate those variables that appeared to influence successful placements the most. Specific factors included individual ability, quality and production, social skills, and support. Also, support was reported as a common variable throughout the successful placements, including follow-up, placement specialist, and employer/supervisor support.

No single variable was responsible for successful or unsuccessful experiences. This finding supports a conclusion of the study that a sensitive job match may have contributed to the success of a placement. Therefore, factors in this study that were found to influence, may be important variables to look at when matching worker to job. As Heal et al. (1990) stated, "...actual placements based on a good job match and managed by well-trained staff may facilitate successful transition into competitive work..." (p. 194).

Hudson, Schwartz, Sealander, Campbell, and Hensel (1988) conducted a statewide survey of 50 adults with disabilities who were employed. The interview instrument consisted of educational, employment and personal components. The age range of respondents was 19-25 years old. Twenty of the participants had mild to moderate mental retardation, while the remainder were diagnosed as either learning disabled, multiply disabled, emotionally disabled, visually impaired, physically impaired, or hearing impaired.

The purpose of the study was to investigate factors that might have influenced successful employment. Within the educational domain, 94% of the subjects considered their high school experiences useful to their current employment. This finding has practical implications for specialists placing high school students on the job by showing that if students are to achieve postsecondary success their work experience during high school must be positive and gainful. Although no specific variables related to high school experience were discussed, it is important to note that 82% of the respondents attributed social skills preparation to their success, and only 48% attributed job training. Thus, based
on the results of this study, social skills or the lack of asocial behaviors, and a positive high school experience were key ingredients to long-term success.

Results of a study by Culver et al. (1990) supported the argument that employee assessment is important to job placement. The study suggested specific assessment procedures that would help detect an employee's skills and interests. Forty-seven job developers responded to a survey related to specific job development activities for the purpose of determining the combination that best predicted job placements. Job placement was defined as the number of employers who hired clients as a result of the job developer's activities.

Out of 18 independent variables, which included demographic and job development activities, only five were identified as having contributed to the prediction of job placements. One of these was client assessment. Culver et al. (1990) reported that the relationship between job placement and the use of client assessment demonstrates the importance of developing jobs that match the client's skills and interests. The specific areas of assessment included medical and psychological reports, parental concerns, client interview, and observation of client behavior across community settings. Areas of assessment found to be inadequate were standardized tests, interest inventories, and evaluation through simulated job tasks.

In view of the empirical research, it appears that client assessment, job analyses, and ongoing support are recurrent themes. More specifically, within client assessment, social skills evaluation seemed to be a priority. Though supported in the literature as an important aspect to job matching, job analyses, were not explored fully. That is, specific elements of the job analyses were not discussed in this body of research. Lastly, ongoing support was shown to be an influential factor in employer satisfaction and job retention.

Non-research: The majority of discussions of supported employment fall in the non-research classification, which has been designated to any literature that is nonempirical.
This vast body of literature contains a wealth of practical knowledge, suggestions, and insight that may lead to empirical foundations.

Job analysis, which was empirically supported though not fully explored, is a common variable among the non-research literature, where it is subsumed under job placement. Goodall, Wehman, and Cleveland (1983) identified three phases to job placement: job development, client assessment, and placement.

Within the job development phase, Goodall et al. (1983) elaborated on job analysis. Specifically, the specialist should assess the characteristics of the job duties at the work site. Such duties should be within the parameters of what a person with mental retardation is able to perform. This requirement coincides with being able to recognize jobs that can be tailored at the work site to best fit the client. That is, if several work options are available, the specialist should select, or possibly create, the job that demonstrates the best match (J. Nietupksi, personal communication, May 2, 1991). In addition, Goodall et al. (1983) suggested the specialist acquire the following information: (a) general knowledge about the position (e.g., work schedule, pay rate, benefits), (b) a detailed description of the task as told by the employer and co-workers, and (c) specific job requirements that might otherwise be taken for granted (e.g., amount of public contact, physical stamina needed to perform task, amount of reading and writing involved, volume of work, availability of supervision, etc.). The authors stressed that a job match is accomplished when, "...a job seems appropriate for a particular client (i.e., skills and abilities of the client match the specific requirements of a job)" (1983, p. 272). It appears then, that in order to complete a job match, a comprehensive job analysis is required.

Alper (1981) offered additional insight into job analyses, stressing that certain conditions in the work environment may warrant specific attention, including noise levels and presence of workers. These circumstances may be unyielding, in which case the supported employee may have to learn to tolerate the existing conditions. Alper (1981) also
emphasized the need to evaluate related skills that may be required as part of the overall job experience (e.g., telling time, asking for assistance, and mobility skills).

As part of job analyses, the literature (Alper, 1981; Gemmel & Peterson, 1989; Goodall et al., 1983; Rusch & Hughes, 1989; Wehman & Kregel, 1985) provides support for the use of a community analysis. A community analysis involves determining which jobs in the community meet the goals for supported employment (cf. Alper, 1981; Rusch & Hughes, 1989; Wehman & Kregel, 1985). Typically, community surveys consist of phone calls, correspondence, and personal contacts (Rusch & Hughes, 1989). Once specific businesses have been targeted, a comprehensive analysis of each follows. The more available jobs, the more opportunities for a good match.

Rusch and Hughes (1989) proposed that after a prospective employer has been contacted, the job site should be observed to determine the necessary vocational and social skills. Conversely, if vocational and social skills are analyzed at the work site, they should also be part of the client assessment. Alper (1981) suggested in addition to vocational and social skills assessment, that other behaviors need to be evaluated, including interfering or excessive behaviors, motor problems, communication skills, and self-help deficits. Another important aspect of client assessment, as suggested from the literature, is assessment of the client's interests (Alper, 1981; DiLeo & McDonald, 1991; Goodall et al., 1983; McDonnel, Hardman, & Hightower, 1989; Wehman & Kregel, 1985). Thus, the student should be informed of the different jobs that are potential work sites.

Lastly, in reviewing other evaluations that may be subsumed under client assessment, the literature suggests looking at the student/client's official records. Such records include: (a) educational/academic, (b) psychological, and (c) medical files (Alper, 1981; Gemmel & Peterson, 1989; Goodall et al., 1983). Analyzing records may be beneficial in assessing present levels of performance, strengths/limitations, and any specific conditions unique to the individual. For example, medical records might indicate a respiratory ailment, which may preclude the client from working in a dust-filled environment.
To summarize the non-empirical literature, the most common major variables were job analyses, client assessment, and job placement. By analyzing a client's skills and comparing them with requirements of the job, an appropriate match may be facilitated (Wehman & Kregel, 1985). An emerging technology has attempted to incorporate computer software in the process of job matching. For example, the Client-Job Compatibility Match Program created by the Virginia Commonwealth University-Rehabilitation Research and Training Center is a high-tech facilitator in determining best fit matches. However, the literature on the efficacy of such programs remains scarce.

Implied Variables

Implied variables refer to factors that have been suggested in the literature as being related to successful employment outcomes. Such variables are subsumed under this category, because they represent a nondirect reference to the process of job matching. Though job-matching components are discussed in much of the supported employment literature, certain elements with implications for job matching are found in broad discussions of job placement and job development. These discussions are worth mentioning.

Several articles (Gemmel & Peterson, 1989; Steere et al., 1990; Wehman, 1988; Wehman & Kregel, 1985) considered transportation an important variable in the job placement process. Though transportation per se is not part of the direct client assessment and job analyses compatibility match, it nonetheless must be considered when matching clients to a job. Thus, arrangements for transportation and location accessibility are points to consider, as they might be barriers to employment. For example, Steere et al. (1990) identified transportation as a potential challenge that specialists should address. Similarly, Wehman (1988) stressed that lack of transportation either precludes the employment option, or greatly hinders efforts to secure appropriate jobs, by creating lengthy time delays.

Another implied variable related to job matching is on-going support. This variable is innate to supported employment, and has been studied empirically (cf. Heal et al., 1990;
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Shafer et al., 1987). Ongoing support and follow-up services have been placed in the category of implied variables because the literature has not directly referenced support services with procedures linked to job matching. However, the literature does acknowledge that support services are crucial to job satisfaction and retention (Bellamy et al. 1988; Culver et al. 1990; Goodall et al., 1983; Hasazi et al. 1988; Wehman & Kregel, 1985; Wehman et al., 1987). Thus, several of these aspects (e.g., vocational performance, productivity, social behavior/work compliance) are directly related to an assessment of the worker's current skills. The implication then is that specialists in charge of matching clients to jobs should be aware of the availability of support services. If available, such services may enhance skills that may be otherwise lacking. Even so, the following questions should be addressed: what form will it take? and can support services augment the possibility of a successful job match?

Other implied variables found in the literature relate to job satisfaction, which is a targeted outcome of supported employment. Several factors relating to job satisfaction were recognized by Moseley (1988), including autonomy (i.e., control over one's task), integration with co-workers as part of a work team, higher pay, and performance of job tasks that are complex enough to hold the client's interests. When weighing options for the best placement, these variables are worth analyzing.

Based on the literature, several variables bear significance to the process of job matching, including transportation, support services, and factors that promote job satisfaction.

Implications

In the quest for jobs through the process of job matching, one should not be blinded by the notion that there must always be a perfect match. For example, Wehman and Kregel (1985) suggested that the client's inability to perform specific skills should not preclude the client from placement. In their words, "failure to incorporate persons with moderate and severe handicaps into the labor force wastes a valuable human resource" (p. 3). Thus, the
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placement of individuals with disabilities into the work place ought to override ardent concerns of attaining a perfect match. This concern, coupled with issues of quality of life and normalization, should be further enhanced to afford the individual the most positive work experience.

Discussion

This paper attempted to present an overview of the many variables that can be associated with job matching, including active and implied. Active variables were either investigated in the empirical research or suggested in the non-research-based literature. Implied variables, on the other hand, were referenced in the supported employment literature as being important to outcomes, though not unique to the process of job matching.

From the research-based literature, several investigative outcomes are worth mentioning. For example, it was found that worker productivity and specific social skills (i.e., following directions, and providing assistance to co-workers) were perceived as key ingredients to job success (defined as employer satisfaction and job retention). Ongoing support was another empirical factor that influenced the employer's perception of satisfaction. Lastly, job analysis and client assessment were demonstrated as being important for job matching. However, the specific components of these two variables were not detailed in the studies. Therefore, it is not known which aspects of these variables are the most or least effective.

The non-researched-based literature offered many suggestions for what a job analyses or client assessment might entail. Specifically, within a job analysis, the first step consists of conducting a community analysis of potential job sites. This involves locating cooperative employers and possibly re-educating reluctant employers about the value of individuals with disabilities (Goodall et al., 1983). After sites have been selected, a job analysis is conducted that might include (a) inventory of job task(s), (b) related tasks performed at work, and (c) ecological assessment of work environment. To conduct a client assessment,
the literature suggested the following components (a) evaluating vocational and social skills, (b) recording student's interests and preferences, and (c) reviewing academic, psychological and medical records. Other job-matching suggestions included tailoring a job to best fit the client and employing computer software to calculate the best match.

Variables suggested in the literature as being unique to job placement often had strong implications for job matching. Hence they were designated as implied. The most common of these variables included transportation, ongoing support, and factors related to job satisfaction. Transportation is a primary consideration, because without it, even the "perfect" job will not work out. If available, ongoing support may provide the ancillary backing needed for success. Some of the factors associated with job satisfaction were employee autonomy and complexity of task completion. Knowledge of job satisfaction variables might be useful when evaluating client aptitude. A specialist may want to include these variables in the wider scope of the analyses to ensure that all factors have been considered prior to placement. Though the implied variables do not directly relate to the compatibility analysis (i.e., match of client skill to job requirement), they should relate to job/client considerations, which constitutes an integral part of the matching process.

The literature reviewed in this paper presents a strong argument for job matching as part of the placement process. Recurrent themes in the supported employment literature are the promotion of normalization and quality of life through competitive employment. These themes can be enhanced through comprehensive job-matching procedures also discussed in the literature. The literature offers much insight into the way supported employment can be implemented for success. However, job matching and placement are too individualized to offer any guarantees. It is suggested that a larger empirical base is needed to expand our understanding of what makes a good match. It is hoped that the confluence of variables presented here can help shape future trends in the area of supported employment, particularly that of job matching.
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