Youth with Disabilities in Work-based Learning Programs: Factors that Influence Success

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Abstract

This article presents the findings of a research study on the quality of the learning experiences of youth with disabilities who participated in Wisconsin's Youth Apprenticeship (YA) Program—a rigorous two-year work-based learning program for high school juniors and seniors. The researchers identify key factors that enhance the capacity of youth with disabilities to complete the program and make a successful transition to careers and/or postsecondary education. In addition, the notion of "resilience" in relation to the inclusion and accommodation of youth with disabilities in work-based learning programs is discussed. Specifically, the researchers explore the interplay between the young persons' personal characteristics and program components with a specific eye toward understanding how stakeholders directly involved in the career development and decision-making processes of youth with disabilities can encourage the development of resilience.

Introduction

For several decades the federal government has encouraged education and training efforts that aim to develop comprehensive workforce development systems reflecting local and global needs. *A Nation at Risk* (National Commission on Excellence in Education, 1983) called for major reforms in America's schools designed to improve the competitiveness of U.S. businesses in the global economy. Demands for change in the American high school curriculum have been accompanied by persuasive arguments for greater preparation of all high school students for work and for further education. For example, all youth in the New American High Schools are expected not only to meet challenging academic standards, but also to acquire the technical, communication, and information processing skills necessary to pursue college and careers (Hudis & Visher, 1999).

Concurrently, the federal government has stressed the importance of improving transition services nationally for young people with disabilities, and has assumed a strategic role in supporting state and local efforts to improve transition services through the identification of promising practices, delivery strategies, and policy development. In fact, federal legislation (Individuals with Disabilities Education Act of 1990; IDEA Amendments of 1997) has established regulations requiring state and local education agencies to address the school and postschool transition service needs of students with disabilities through coordinated planning efforts that ensure students greater access to the general education curriculum and assessment systems. Together, the School-to-Work Opportunities Act and the Individuals with Disabilities Education Act outline the career exploration and student support strategies needed to assure that all youth, including those with disabilities, are better prepared to make the successful transition from school to today's technologically challenging and rapidly changing workplace. Moreover, the efforts to reauthorize the Perkins Act have pushed federal officials, workforce development professionals and educators to consider the use of career and technical education as a strategy for learning in the context of improved academic achievement for all students.

Special education has been influenced by several federal education reforms (such as, the School-to-Work Opportunities Act of 1994, the Workforce Investment Act of 1998, and the No Child Left Behind Act of 2001). These reforms (and others) stress high academic and occupational standards; promote the use of state and local standards-based accountability systems; call for broad-based partnerships between schools, employers, postsecondary institutions, and families; support full participation and equal access to the general education curriculum; and emphasize teaching methods that have been proven to work.

Despite significant federal and state investments in improving education, postschool outcomes for youth with disabilities remain uniformly disap-

pointing (Fabian, Lent, & Willis, 1998; Johnson, Stodden, Emanuel, Luecking, & Mack, 2002; NCSET, in press; Phelps & Hanley-Maxwell, 1997; U.S. Department of Education, 2000). Youth with disabilities continue to experience lower academic achievement levels; higher dropout rates; higher levels of unemployment and underemployment; increased economic instability, dependence, and social isolation; and lower levels of participation in postsecondary education and training programs when compared to their peers without disabilities (NCSET, in press).

Fortunately, recent studies examining career and technical education programs and the use of structured work-based learning approaches in education suggest that such approaches are an important aspect of and contribute to better in-school and postschool outcomes such as student achievement; knowledge assimilation and retention; motivation; educational continuation and employment success (AYPF, 2003; National Association of State Directors of Career Technical Education, 2003). Specifically, youth with disabilities who take career and technical education in their last year of high school or concentrate in a career and technical education content area have improved postschool outcomes, such as higher rates of high school graduation, competitive employment, postsecondary education attendance, and advances in earnings or wages (Benz, Lindstrom, & Yovanoff, 2000; Cobb, et al., 1999; Eisenman, 2000; Harvey, 2002; Luecking & Fabian, 2000; Phelps, 1998).

To date, little qualitative research has been undertaken with the goal of understanding the experiences of youth with disabilities in these work-based learning programs. What factors enhance the quality of their learning experiences both in the academic setting as well as in the workplace? What factors contribute to their capacity to complete the program and make a successful transition to careers and/or postsecondary education? In an effort to answer these questions, the Center on Education and Work undertook an exploratory study, funded by the U.S. Department of Education-Office of Special Education and Rehabilitation Services, to examine the quality of experiences youth with disabilities had while participating in Wisconsin's Youth Apprenticeship (YA) Programs.

Using in-depth interviews with former YA program participants—both with and without disabilities—the researchers identified the key factors that contributed to, or detracted from, participants' positive assessment of their experience during and after participation in the program. The researchers were interested, as well, in distinguishing between those factors that were influential in the experiences of all participants from those factors that were critical specifically for youth with disabilities. This article presents the key findings from that study.

In light of the findings, the researchers discuss the notion of "resilience"—defined as the capacity to successfully adapt and thrive despite challenging circumstances—in relation to the inclusion and accommodation of youth with disabilities in work-based learning programs. Understanding risk factors and their relative effects is the subject of a rapidly growing body of research, yet few studies examine the puzzling problem of why some young people are resilient and prevail over great adversity (Fraser, 1997). For example, although disability is a risk factor for poor academic and occupational achievement, not all youth with disabilities fail to thrive in school and in the workplace. What factors operate to mitigate the risks for these youth? Resilience often arises from the strengths, or "protective factors," that are usually incumbent in the environments of high-risk youth. Protective factors are those positive internal and external factors that contribute to adaptive outcomes in the presence of risk (Garmezy, 1993). Specifically, the researchers explore the interplay between the young persons' personal characteristics and YA program components with a specific eye toward understanding how stakeholders directly involved in the career development and decision-making processes of youth with disabilities can encourage the development of resilience.

Wisconsin's Youth Apprenticeship Program: Background

Wisconsin's Youth Apprenticeship (YA) Program is a rigorous two-year school- and work-based learning program for high school juniors and seniors. Youth interested in participating in the program choose a particular career field for which a statewide industry-recognized curriculum has been developed [see Table 1 for YA program options].

For a portion of their high school credits and school-time, participants are placed at a worksite in an entry-level, paid position where they work and receive on-the-job training, on average, 10-15 hours/week, and have access to a trained on-site mentor. In addition, they take technical courses in that occupation for three-to-six hours per week. During the two years they are in the program,

Table 1

YA Occupational Areas (as of 2001)

Auto Collision	Information Technology/Networking
Auto Technology	Insurance
Biotechnology	Logistics
Drafting and Design/Architecture	Manufacturing/Machining
Drafting and Design/Engineering	Manufacturing/Plastics
Drafting and Design/Mechanical Design	Manufacturing/Production
Financial Services	Production Agriculture/Animal Science
Graphic Arts/Printing	Production Agriculture/Soils and Crops
Health Services	Tourism
Hotel/Motel	Welding
Information Technology/Computer Science	

apprentices are rotated through a variety of "competencies" both at the workplace and through their technical courses that introduce them to the breadth of basic skills and knowledge needed to pursue that occupation. At the end of the two years, youth apprentices graduate from high school (with a regular diploma), earn an industry-recognized Certificate of Occupational Proficiency, and are eligible to receive advanced standing credits at a Wisconsin university or technical college.

While participation in Wisconsin's YA program is open to all youth, the occupational choices available at any particular high school vary depending on the local economy and availability of worksites. Typically, youth have access to between one and three YA programs in their high school or district. Health, Auto Technology, Finance, Manufacturing Machining, and Graphic Arts-Printing are the programs enrolling the largest numbers of apprentices. Enrollment numbers may be due to program popularity or availability. Approximately 40 locally-based YA coordinators are responsible for developing employer contacts in their region; placing and monitoring apprentices in their work placements; identifying appropriate mentors for apprentices; and organizing participation in technical classes. Work placements are sometimes found in a young persons' immediate local area, but are often located many miles from the student's high school. Similarly, while some technical classes take place in the apprentices' home school or in the workplace itself; the majority of youth apprentices take their technical classes either at a different area high school or at a local technical college. YA instructors, thus, can be high school career and technical education teachers (who may or may not have extensive experience in the specific technical area of the YA program) or technical college instructors.

Wisconsin's YA program represents the cornerstone of the state's school-to-work initiative. The program began in 1992, with the first 17 apprentices graduating in 1994. Since then, the number of apprentices graduating has grown each year. In 2000, 545 apprentices representing 21 different occupational fields graduated through the youth apprenticeship program. Exit and follow-up surveys (Scholl & Smyth, 2000a; Scholl & Smyth, 2000b) with program graduates have shown that YA graduates continue to fare well in nearly all indicators of success in the areas of employment and education in comparison with high school graduates nationwide. For example, YA graduates have participated in postsecondary education at a higher rate than the national average, and program graduates' employment earnings compare favorably with national statistics. State data shows graduates have consistently cited the following benefits to participation in the YA program: clarification of career goals; acquisition of technical skills; the opportunity to learn in a hands-on manner; and development of transferable or "soft skills" such as good communication and time management skills, increased self-confidence, maturity, and responsibility (Thorn, Mason, & Jonely, 1997; Scholl and Smyth, 2000a; Scholl & Smyth, 2000b).

In 2000, ten percent of youth who graduated from Wisconsin YA programs had disabilities. The vast majority (approximately 84%) of those have learning disabilities as their primary or secondary disability, while other disabilities are represented in much smaller numbers (16%). Compared to youth without disabilities, apprentices with disabilities are overrepresented in the Auto Technician, Auto Collision, Manufacturing/ Machining, and Manufacturing/Production programs. Conversely, they are under-represented in the Finance and Health programs. In addition, youth with disabilities have a higher rate of noncompletion than youth with-

out disabilities. While youth with disabilities comprise 6.2% of the graduates, they comprise 9% of the noncompleters.

Study Methods

As in any research endeavor, the research problem and questions determine the choice of study design (Rubin & Rubin, 1995). In-depth interviewing was employed in this study for two reasons: 1) interviewing provides access to the "context of people's behaviors" and thereby allowed the researchers to understand the meaning of that behavior (Seidman, 1991, p. 4); and 2) interviewing is suitable when researchers want to uncover the nature of someone's experiences concerning a sensitive topic, in this case, the impact of disability (Strauss & Corbin, 1990).

Therefore, qualitative, semi-structured interviews were conducted with former youth apprentices participating in the YA program between 1994 and 2000. Data were collected on both YA graduates with disabilities and program noncompleters with disabilities. The researchers were interested in distinguishing between factors that were common to all YA participants and factors that were particular to the experiences of youth with disabilities. Therefore data were also collected data on two other groups of YA participants: graduates without disabilities and program noncompleters without disabilities.

Study participants with and without disabilities were identified using a "purposeful sampling strategy" (Patton, 1990) that allowed for the identification and selection of apprentices based on characteristics of interest (such as graduation status, year of graduation, YA program and disability status). However, the sampling procedure differed somewhat for those with and without disabilities. While two state-level databases were accessed to retrieve information on the number of youth with disabilities who had participated in the Wisconsin Youth Apprenticeship Program, personal identifying information (student names, addresses, and phone numbers) was not available through this database because of confidentiality concerns. As a result, the researchers requested local YA coordinators' assistance in contacting apprentices with disabilities for possible inclusion in the study. A small number of apprentices with disabilities were identified through these personal contacts. To identify even more YA participants with disabilities, the researchers turned to the Wisconsin Governor's Work-Based Learning Board, the state agency that oversees the YA program, to access their database of all YA program participants from 1994-2000. That database contained a field that identified youth who *self-reported* having a disability that may impact their work ability. Those apprentices were contacted at their last known address for participation in the study.

Using this same database, YA participants *without* disabilities were contacted for participation in the study based on factors that matched the sample of participants with disabilities (e.g., program completion status, gender, YA program area, program year); however, in the end, an exact matched sample was not possible.

The final sample included 31 YA participants [see Table 2]. The group of 19 participants with disabilities included 11 program completers and eight non-completers, two females and seventeen males. There were five participants in Graphics Arts, four in Manufacturing Production, three in Manufacturing Machining, two in Auto Technology, two in Auto Collision, and one each in Hotel/Motel, Finance, and Tourism. Thirteen participants had learning disabilities (68%), three (16%) had multiple disabilities (including learning disabilities), while 16% of the participants had other disabilities (hearing impairment, orthopedic impairment, and cognitive disabilities). The group of 12 participants without disabilities included four females and eight males. Of this group, two participants were in Health, and one each in Hotel/Motel, Manufacturing Production, Manufacturing Machining, Manufacturing Plastics, Auto Technology, Auto Collision, Drafting & Design: Engineering, Graphic Arts-Printing, Biotechnology, and Finance.

Four researchers from the Center on Education conducted in-depth interviews, each lasting approximately 90 minutes. With the written permission of each participant and assurance that personal identities would be kept confidential, each interview was audiotaped. Full verbatim transcriptions were made of each interview along with field notes compiled for review. After each interview, researchers examined the transcripts for emerging themes, ideas, concepts, and events that addressed the study questions (Rubin & Rubin, 1995).

Interview questions focused on participants' reflections about: their decision to enter the YA program, their daily routine at work and at school, the nature of the work placement, the technical classes taken, the participant's disability (if applicable), the nature of the special education services received in school, the extent to which participants disclosed their disability at work and in their techni-

Table 2

YA Study Participants

Gender	YA Program	Program Status	Disability Status
Female	Hotel/Motel	Completer	Learning Disability
Male	Manufacturing/Prod.	Completer	Learning Disability
Male	Auto Collision	Completer	Learning Disability
Male	Graphic Arts/Printing	Completer	Learning Disability
Male	Graphic Arts/Printing	Completer	Learning Disability
Male	Manufacturing/Mach.	Completer	Learning Disability
Male	Graphic Arts/Printing	Completer	Learning Disability
Male	Manufacturing/Prod.	Completer	Learning Disability
Female	Tourism	Completer	Learning Disability
Male	Manufacturing/Mach.	Completer	Cognitive Disability
Male	Manufacturing/Prod.	Completer	Hearing Impairment
Male	Auto Technician	Noncompleter	Learning Disability/ADHD/ Emotional Disturbance
Male	Auto Collision	Noncompleter	Learning Disability
Male	Graphic Arts/Printing	Noncompleter	Learning Disability/ Emotional Disturbance
Male	Manufacturing/Prod.	Noncompleter	Learning Disability
Male	Manufacturing/Mach.	Noncompleter	Learning Disability/ Visual Impairment
Male	Graphic Arts/Printing	Noncompleter	Learning Disability
Male	Finance	Noncompleter	Orthopedic Impairment
Male	Auto Technician	Noncompleter	Learning Disability
Female	Hotel/Motel	Completer	No Disability
Male	Manufacturing/Prod.	Completer	No Disability
Female	Printing	Completer	No Disability
Male	Manufacturing/Mach.	Completer	No Disability
Male	Health	Completer	No Disability
Female	Health	Completer	No Disability
Male	Manufacturing/Plastics	Completer	No Disability
Male	Auto Technology	Noncompleter	No Disability
Male	Auto Collision	Noncompleter	No Disability
Male	Finance	Noncompleter	No Disability
Female	Drafting/Engineering	Noncompleter	No Disability
Male	Biotechnology	Noncompleter	No Disability

cal classes, challenges they faced due to their disability, supports and accommodations received during participation in the YA program, reasons for dropping out of the YA program (if applicable), their postschool employment and education, and overall assessment of the YA program. These questions directly coincided with the purposes of the larger study. The interview protocol allowed for flexibility of response from each participant, yet maintained minimal variation in the interview questions asked by the researchers.

An ongoing process of content analysis (Patton, 1990) was employed throughout the data collection process as interviews were completed and transcribed. The content analysis involved coding and categorizing patterns and themes that emerged from the data. The materials within the categories were examined to identify variations and nuances in meaning, while cross-category comparisons were used to discover connections between the themes. A three-step coding process was used to systematically guide the analysis procedure (Strauss & Corbin, 1990). Patterns and themes evident in each of the four groups of participants (graduates with disabilities, noncompleters with disabilities, graduates without disabilities, and noncompleters without disabilities) were grouped together and compared to determine commonalities and differences in participants' experiences.

The following sampling limitations are acknowledged by the researchers: 1) It was not possible to employ random sampling or even a stratified random sampling approach since randomness is a statistical concept that depends on a very large number of participants. True randomness is prohibitive in an in-depth interview study. Furthermore, interview participants must consent to be interviewed, so there is always an element of self-selection in an interview study. Self-selection and randomness are not compatible (Seidman, 1991); 2) Secondly, several of the participants with disabilities were selected from a database in which disability status was self-reported. Their decision and ability to self-disclose prior to their participation in the YA program may have impacted their progress in the program. Therefore, the generalizability of this study's findings must be examined with caution.

Key Findings and Supporting Research

A number of factors were identified as enhancing the success of all youth apprentices: 1) high levels of program organization and coordination; 2) meaningful and consistent communication between stakeholders; 3) a good "fit" between a young persons' abilities and their chosen YA career field; 4) a quality worksite placement (e.g., adequate rotation through competencies, presence of an experienced mentor); and 5) rigorous and engaging classroom instruction that integrated technical and academic competencies. These factors are consistent with findings from exit and follow-up surveys done with YA program graduates, employers and program coordinators (Phelps & Fulton, 1997; Phelps & Jin, 1997; Phelps, Scribner, Wakelyn, & Weis, 1996; Scholl and Smyth, 2000a & b; Thorn, Mason, & Jonely, 1997).

While these factors were central to all YA experiences, they were particularly critical in the YA experiences of youth with disabilities. For example, in the overall YA program, collaboration and communication between stakeholders has consistently been identified by program graduates (both with and without disabilities) as one of the main weaknesses of the program (Scholl and Smyth, 2000a & b). The study revealed this particular program weakness had a disproportionate impact on youth with disabilities. Limited collaboration or communication about disability-related needs took place between school staff and off-site instructors and workplace employers/mentors. Most special education teachers did not actively address the disability-related needs of youth in their workplace or off-site instructional settings in the IEP transition plans. Most YA instructors and coordinators, while recognizing the importance of communication with stakeholders, did not (or were not able to) adequately implement regular and on-going communication with employers and special education teachers. Low levels of communication between stakeholders often meant that problems at the worksite did not get addressed in a timely fashion. While apprentices without disabilities tended to take the initiative to resolve problems on their own, apprentices with disabilities were more likely to be reluctant to approach a supervisor or advocate for themselves. When such problems persisted, a number of apprentices with disabilities lost motivation to persist in the program.

This need to improve collaboration and systems linkages between the YA program coordinators, instructors, participants, families and school system personnel parallels the need identified by research in the areas of transition planning and promising collaborative strategies (Benz, Johnson, Mikkelsen, & Lindstrom, 1995;

Johnson, et al., 2002; Luecking & Crane, 2002; Mooney & Crane, 2002). Collaborative approaches have been shown to focus collective expertise and bring together resources (knowledge, skills and data) to improve the quality of the transition of young people into the work world, as well as other settings.

Beyond the need for effective collaboration, the researchers identified additional factors that significantly impacted the quality and outcome of participation in the program for youth with disabilities. These included: (a) participants' awareness of their disabilities and abilities; (b) participants disclosure of their disability; (c) participants' self-advocacy skills, and stakeholders' level of advocacy for youth; (d) availability of appropriate supports and accommodations in the classroom and workplace; (e) access to key mentors; and (f) compensatory strategies. Below, a more detailed explanation of each of these factors, specific findings, and supporting research are identified under each theme.

Disability/Ability Awareness

This factor refers to the young persons' own level of understanding about their disability and how it may impact on their academic and technical learning process and/or performance. This study found that three out of four youth apprentices with disabilities were unable to describe in detail the nature of their disability. When asked to describe their disability, participants often had vague responses. For example, one former apprentice said, "I don't know. I'm kind of slow in book reading. In math, I have a hard time. They told me it's 'alexis' or something backwards." In parallel fashion, the study found that most youth poorly articulated their disability-related needs in the context of the YA classroom and the workplace. Beyond using the phrase "hands-on learning," most participants were unable to describe what types of classroom activities and workplace arrangements were particularly useful for them. Significantly, three out of four youth apprentices with disabilities viewed their disability as a purely academic issue, and failed to recognize how disability can play a significant part in workplace performance and success.

In addition, youth apprentices with disabilities lacked a good understanding of their *abilities*, and therefore were less likely to utilize their strengths to compensate for, or overcome, weaknesses.

Research supports the idea that youth benefit from open, supportive acknowledgement and discussion of their disability. In order to direct their own futures, youth need to understand how their disability might affect their academic learning, relationships, employment, and participation in their communities and, in turn, recognize their need for supports. With this knowledge, they are better positioned to develop plans, make decisions, and learn from experiences (Bremer, Kachgal, & Schoeller, 2003). Lack of awareness has been recognized as a dominant characteristic among adults with learning disabilities, and often these individuals do not understand how their specifics deficits impact their workplace performance (Adelman & Vogel, 1990).

Disclosure

This factor refers to whether and under what circumstances the student lets others know about his/her disability. Two thirds of the youth apprentices with disabilities interviewed did not disclose their disabilities to their YA instructors, mentors, or employers. In a number of cases, school staff discouraged youth from disclosing their disabilities to YA employers unless and until problems arose. Apprentices and related stakeholders often viewed disclosure as unnecessary because they did not believe the disability would interfere with the student's work performance. Apprentices also cited a fear of discrimination, stereotyping, and/or lowered workplace expectations as reasons for nondisclosure. Many apprentices with disabilities viewed the YA experience as a chance to prove to themselves and others that they could "pass" as a person without a disability. These participants often wanted to assert their independence and find out what they could do without accommodations. For those 35% of youth apprentices who did disclose to their employers, the employers were receptive, although often uninformed about specific accommodations they were expected to put in place.

Sands and Doll (1996) argue that youth with disabilities have become over-reliant on school staff and other adult stakeholders to define and respond to their learning and transition needs. Many youth believe the conditions controlling their ability to learn are managed by adults, and that they cannot affect their own academic or occupational success. This tendency to rely primarily on adults for decision-making can be detrimental to the young person's ability to make successful transitions to postschool education and work. Additionally, the act of disclosure is often fraught with stress and vulnerability. Youth with disabilities exercise caution in deciding to disclose because they are commonly misunderstood; placed under suspicion; perceived as less than equal;

labeled a troublemaker; or alienated by instructors, employers, and co-workers (Carpenter, 1997).

Self-Advocacy/Advocacy

This factor refers to the extent to which the legitimacy of the student' needs, concerns, and rights is communicated effectively to others. In the study, most youth apprentices with disabilities exhibited low levels of self-advocacy, especially in the workplace setting. The shift from advocacy by stakeholders (e.g., parents, teachers) to self-advocacy had generally not occurred. For example, most did not exhibit the skills needed to report that work experiences were unsatisfying, and to indicate their desire for purposeful activity and greater participation in training activities. Not surprisingly, youth apprentices with disabilities who were able to communicate effectively were better able to take advantage of informal supports at work, to request and receive help from peers and YA instructors, and to solve problems as they arose. Youth apprentices who were self-advocates reported positive changes in employers' attitudes and behaviors toward them. Finally, although most apprentices had at least one adult in their school environment that played the role of advocate, this adult rarely advocated for the student at the YA worksite or with off-site YA instructors.

Research has shown that those youth who have developed strong self-determination skills and are able to advocate for themselves have a better chance of successfully making the transition to competitive employment (Wehmeyer & Schwartz, 1997), and have improved educational outcomes (Perlmutter & Monty, 1997) when compared to their peers who were not self-determined. Izzo and Lamb (2002) suggest the development and implementation of work-based learning programs for all students as a way to encourage self-determined independence and positive postschool outcomes. Self-determination skill building has become an integral part of special education and related services for young people with disabilities (Abery & Stancliffe, 1996).

Accommodations and Supports

This factor refers to the strategies used to help youth with disabilities learn and perform in ways that recognize their particular needs (e.g., curriculum modifications, alternative forms of assessment, comprehensive support services). In this study, all youth apprentices with disabilities received traditional accommodations for academic content courses provided at their high schools (i.e. tests read orally, textbooks on tape, extended testing time). These same accommodations were rarely provided to youth apprentices who received their YA instruction outside their high school (i.e., area technical college). Few formal accommodations were provided to youth apprentices at their YA worksite. This was largely due to the fact that employers were often unaware of the student's disability, and therefore were not required to provide accommodations of any kind. Nonetheless, a number of apprentices who disclosed their disability received informal accommodations and supports (e.g., increased mentoring, extra time to complete tasks). Generally, the vast majority of accommodations that were made for apprentices with disabilities were not systematically planned but occurred after individual problems arose.

Often as not, youth with disabilities are observers of the process of determining educational and workplace assistance and supports, not expected to be initiators, advocates, and active participants in the process of obtaining and maintaining their own assistance (Izzo & Lamb, 2002). In fact, youth with disabilities are rarely encouraged to become knowledgeable about the nature of their disabilities and how their disabilities affect their ability to learn and to work. Youth with disabilities are also seldom encouraged to develop the necessary skills they will need to initiate, advocate for, and manage the accommodations that they will need in order to learn and work in the postschool world (Stodden & Jones, 2002). It is, therefore, not surprising that many youth apprentices failed to request accommodations from their employer, even when the risk of failure was evident. Further, these apprenticeship experiences could serve as opportunities to identify the particular workplace supports that youth with disabilities may require as they pursue later employment and career prospects (Hughes & Carter, 2000).

Key Mentors

This factor refers to individuals who advise the student on a regular basis on how to navigate the challenges of participating in the YA program. Although the YA program assigned an individual apprentice a mentor, youth apprentices with disabilities often selected their own mentors, gravitating to an individual who was willing to take them "under his/her wing." The presence of a mentor played an important role in the success of youth with disabilities in the YA program. Effective mentors provided one-on-one instruction

and practical advice to the student; more importantly, they provided ongoing emotional support and expectations for high quality work. It is important to note the opportunity to "select" a mentor may not be available in adult workplaces.

Research has demonstrated the effectiveness of mentoring in helping youth develop skills, knowledge, and motivation to successfully transition from high school to adult life (Rhodes, Grossman, & Resch, 2000). While this transition is a major goal for youth with disabilities—one supported by federal policy—research on mentoring programs reflects a lack of focus on specific applications of these practices for youth with disabilities (Sword & Hill, 2002). For young people with disabilities, mentoring can impact many of the goals that are part of the transition process such as academic success, career awareness, effective communication, perseverance to overcome barriers, and social skills development (Rhodes, et al., 2000). Successful mentoring provides connections for youth within the world of work and opens possibilities for employment. Mentors, especially those with disabilities themselves, can support youth in understanding the impact of their disability in the workplace by being open to discussion of disabilities in the mentoring relationship (Christ, 2003; Sword & Hill, 2002).

Compensatory Strategies

This factor (sometimes referred to as "self-accommodations") refers to strategies individuals draw on to enhance their own learning process and work performance.

Many youth apprentices with disabilities used a variety of strategies to compensate for their disabilities. These included: asking for help to understand and complete tasks, using good time management techniques, spending extra time on work duties and/or YA coursework, taking their questions to the special education resource room, keeping personalized notebooks containing commonly used technical terms, and using technology that promoted learning and enhanced instruction. Success in the YA program was enhanced by the young persons' willingness and ability to use available support systems. Youth apprentices mentioned gaining such skills as problem solving and time management skills while participating in the YA program. They viewed these as transferable skills that could be used throughout their working lives regardless of their specific occupational field.

Research shows that some of the academic difficulties encountered by youth with disabilities can be overcome, at least partially, by combining effective instructional strategies with compensatory strategies. Also, research suggests that the use of compensatory skills, or "self-accommodating" allows some individuals with disabilities to enhance their performance and minimize the impact of disability on academic and occupational achievement, while maintaining privacy regarding their disability. Self-accommodation is viewed as a good choice for those youth with disabilities who are: a) fully aware of all the effects their disability has on academic and workplace performance and know exactly what accommodations are needed to compensate for them; b) are willing to discuss their disability and its effects with instructors and employers; and c) able to fulfill their accommodation needs fairly readily, without a great deal of difficulty (Lynch & Gussel, 1996; Okolo, 2000).

Overall, the findings generated from this study are supported by existing research. Our study extends the existing research by providing a deeper look into how the above factors are manifested within the context of a rigorous and extended work-based learning program for high school students. In addition, our findings provide compelling evidence of the critical role that stakeholders—through the linkages they create across settings—can play in facilitating the career development process of youth with disabilities.

Discussion

The youth interviewed in this study had a wide range of experiences and outcomes stemming from their participation in the YA Program. While many apprentices—both with and without disabilities—benefited greatly from the experience, others struggled and eventually dropped out. The factors identified above were those that consistently emerged as important influences on the quality of the experiences of youth apprentices with disabilities. Some of those factors could be classified as "personal" (i.e., relating to the characteristics of the individual student and his/her skills), while other factors could be classified as "programmatic" (i.e., relating to the ways in which the YA programs were organized and implemented). Although each factor has been presented separately, it is important to emphasize they are closely interrelated and interdependent. For most apprentices with disabilities, their success or failure in the program could not be reduced to the presence or lack of a single factor. Rather, it was the *constellation* of factors played out within particular contexts that contributed either to positive and productive work-based learning

experiences for youth or to declining persistence and eventual failure to complete. Looking deeper at the variability of YA experiences and the array of personal and programmatic factors that played into the quality of those experiences, the researchers began to frame their understanding of the findings under the general construct of resilience.

Resilience has generally been defined as the capacity to successfully adapt and thrive, despite challenging circumstances where success is not predicted. There is an abundance of literature on resilience beginning with Werner and Smith's (1982) groundbreaking study on resilience in children and youth. The construct of resilience has since been theorized and studied in multiple contexts within which risk factors and protective factors are identified. Risk factors are understood to be a "multitude of conditions that may lead to negative outcomes" (Morrison & Cosden, 1997, p. 43), while protective factors moderate a person's reaction to stressful experiences or adversity (Werner, 1995) and reduce the probability of negative outcomes.

Concern about the development of resilience is particularly pertinent to learners with disabilities because of their disappointing postschool outcomes (Spekman, Herman, & Vogel, 1993). The presence of a disability can have an ongoing impact on an individual's personal and professional growth and sense of accomplishment across the life span. Youth with disabilities have an increased likelihood of risk factors such as academic struggles, difficulties in social adjustment, grade retention, dropping out of school, and chronic low self-esteem (Miller, 1996). Other risk factors associated with the presence of a disability include depression, lack of verbal and social finesse, low commitment to school, denial of disability, underemployment, job difficulties, and high levels of dissatisfaction with life (Kavale, 1988). The emerging literature on resilience among youth with disabilities points to a number of protective factors: a positive temperament, self-awareness, supportive family milieu, meaningful support of adults in schools and communities, and engagement in academic tasks (Reiff, Ginsberg, & Gerber, 1995; Morrison & Cosden, 1997). As is evident from this literature, most researchers view the development of resilience as a complex interplay between the individual and his/her environment. Individuals draw on their inherent strengths, talents, and personal characteristics to meet and respond to challenging situations. However, the environment in which they find themselves also influences what responses and approaches are possible and desirable (Todis, Bullis, Waintrup, Schultz, & D'Ambrosio, 2001).

The study's findings clearly support this view of resilience, as they identified both personal characteristics and program components that were integral to a young person's success and satisfaction with their work and learning experience. Youth apprentices find themselves in a demanding program in which instructors, coordinators, and employers have high expectations for performance. Apprentices are expected to manage an often-complicated class and work schedule in which they move between their school, an off-school worksite, and an instructional site. They must continue to take general academic coursework required for graduation, while learning new technical skills and performing well in a job setting with adult coworkers. Youth utilize their own inherent strengths when undertaking the challenges of participation in YA, yet resilience also can be fostered when programs and stakeholders are organized and coordinated with a keener understanding of the specific needs of apprentices with disabilities. Particular program components, then, play a vital role in supporting the development of resilience.

Findings from this study indicate that personal characteristics of youth apprentices with disabilities who demonstrate resilience are: (a) a thorough understanding of one's disability and one's strengths, (b) the ability to articulate needed supports and accommodations in the workplace and classroom, (c) the ability to put compensatory strategies in practice, (d) successful negotiation of work environments, (e) maintaining a high level of motivation and persistence, (f) autonomy combined with the ability to ask for help, and (g) communication and problem solving skills.

Qualities of youth apprenticeship programs that appear to foster resilience in apprentices with disabilities include: (a) effective communication networks between all stakeholder groups, (b) the availability of appropriate supports and accommodations both at the worksite and at the instructional setting, (c) the presence of knowledgeable, experienced, and supportive mentors at the worksite, and (d) supportive adults who foster trust and confidence and advocate for youth.

This study suggests that personal characteristics that promote resilience can be *developed and strengthened* through participation in high quality youth apprenticeship programs, and through positive interaction with program staff, instructors, employers, and mentors. Clearly,

youth enter the program with differing personal resources and areas of strength and weakness. The role of the program is to provide mechanisms and support through which youth learn to capitalize on their strengths, compensate for their limitations, and develop positive strategies for responding to challenging circumstances. For example, interpersonal skills can be developed in youth when YA stakeholders model strong communication and collaboration among themselves. Compensatory strategies can be actively taught in both educational and workplace settings. Careful planning of supports and accommodations helps youth become more knowledgeable and articulate about their disability-related needs in a variety of environments. Self-advocacy skills can be developed and practiced within school settings and then transferred to off-school settings with appropriate support. Disclosure issues can be addressed through direct and open discussions with young people with disabilities about potential risks and benefits of disclosure.

For many apprentices, their YA learning experience provided opportunities to become resilient. When asked to reflect on the value of their YA experience, many former apprentices with disabilities mentioned the same benefits of program participation that apprentices without disabilities mentioned: increased clarity about their career goals and the development of both technical and "soft" skills. Graduates with disabilities mentioned the latter skills most strongly. They indicated an increased knowledge of and confidence in their abilities. They valued the opportunity to be placed in an adult world with adult expectations. As a result, many reported feeling more autonomous and competent in an adult working environment.

Nonetheless, there are a number of areas in which the YA program could be doing a better job of meeting the needs of youth with disabilities and encouraging the development of resilience. Supports and accommodations should be planned in advance of a young person's entry into the program, and then monitored closely and modified as the student progresses through the program. In addition, self-advocacy training for youth with disabilities and collaboration between stakeholders are key program components that need to be improved. With these improvements, more youth with disabilities would have the opportunity to participate in and successfully complete this valuable work-based learning program.

With appropriate and consistent programmatic support and the presence of personal protective factors, youth with disabilities can and do perform well in the YA program. When participants, such as those in this study, develop resilience, they have greater self-awareness and a sense of competence in being able to meet and respond to the challenges of creating meaningful transitions to life and work after high school. These skills will have value for youth with disabilities far beyond their YA setting. When youth learn to meet and successfully respond to new changes, they are developing skills that they will use throughout their lifetime in many different contexts. Work-based learning programs can play a critical role in that process by fostering the development of resilience among youth with disabilities and thus providing them with improved preparation and access to work and postsecondary education.

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