School-to-Work Experiences: Curriculum as a Bridge

Bobbie Gale Bonds

➡ *For additional information about this article*
https://muse.jhu.edu/article/42289

School-to-Work Experiences: Curriculum as a Bridge

Because workers must be prepared to constantly update their skills and reeducate themselves for new skills, lifelong learning must be a goal for every teacher and student. The curriculum provided during educational experiences should pave the way for attainment of this goal. This is particularly true for deaf and hard of hearing students. *School-to-work* (STW) has become an umbrella term for activities, experiences and opportunities that prepare students for the world of work, such as youth apprenticeships, mentoring, internships, job shadowing, career exploration, and integration of academic and vocational curriculum. This article provides historical background on STW, laws shaping requirements for STW programs, and research supporting STW components. Recommendations are provided for curricular elements of an STW program, and trends in STW are forecast.

Bobbie Gale Bonds

Bonds is a doctoral student in the Department of Education, Gallaudet University, Washington, DC.

The transition from school to work can be difficult. Job seekers must have well-developed literacy, communication, and technology skills to enter a vocation and remain on the job. Schools that give students meaningful preparation can ease this transition to the world of work. For students who are deaf or hard of hearing, achieving skills that will give them entry into an increasingly technological and competitive workplace will require the assistance of transition teams.

The school-to-work transition is complicated by hearing loss. The reduced exposure to conversational partners and the general lack of meaningful social interactions, along with limitations on acquiring information incidentally, often cause children who are deaf or hard of hearing to begin school with poor conversational skills, limited vocabulary, and restricted conceptual knowledge (Luckner, 2002).

The manner and pace of curriculum delivery create additional external challenges for deaf students. Teachers in the upper grades tend to use more symbolic language about things that are removed from the context of specific experience. In these grades, students are required to perform academic tasks at metalinguistic levels. Hearing loss can significantly affect an individual's life, in particular communication, socialization, learning, and work. The challenge for teachers is to render deaf and hard of hearing individuals more successful at overcoming these effects and thus enable them to find meaningful work, a crucial factor in leading a fuller life.

Why transition planning? During the developmental years, adolescents shape their identities, gain independence, and prepare for adulthood (Luckner, 2002). Furthermore, federal legislation requires transition planning, given students' need to

prepare for increasingly complex work environments.

The transition from school to work may be a lifelong quest for a deaf student. The effects of deafness can include problems with communication access or the lack thereof. Whatever their level of communication, deaf students face impediments to full integration into American working society because they lack the same level of English literacy as their hearing peers. Deaf education's primary goal should be to narrow the English-literacy gap between deaf and hearing students entering the workplace (Allen, Rawlings, & Schildroth, 1989).

Other effects of deafness may include social skills unlearned or not taught; a lack of the information needed to benefit from training and then get and keep a job; a lack of knowledge of accommodations necessary to perform certain jobs; and reading, mathematics, and reasoning skills insufficient for competing in the job market (Allen et al., 1989). Curriculum must directly address these challenges.

Students who are deaf are expected to "overcome" barriers of communication and limited access to language, and to become working citizens to the greatest extent possible. Traditionally, deaf workers were expected to be able to find work that required labor or repetition, without heavy language requirements. Now, most are educated in mainstreamed environments and have acquired expectations similar to those of their hearing peers.

Research has been conducted on this group of deaf mainstreamed students. According to this research, recurring factors in the success of deaf students include family involvement, self-determination, extracurricular activities, social skills and friendships, self-advocacy skills, communication with and support from general education teachers, preteaching and postteaching of content and vocabulary taught in the general education classroom, collaboration with early identification and early intervention service

providers, reading, and having high expectations (Luckner & Muir, 2001). For their study, Luckner and Muir asked teachers of the Deaf to nominate deaf mainstreamed students to participate in research into factors that contribute to deaf students' academic success. The 20 nominees who participated in the study were identified by their teachers as successful on the basis of these students' academic achievement, social skills, and self-perceptions. Opportunities must be plentiful for students to acquire these characteristics of success during their transitional school years.

Researchers have concluded that college-bound students have greater salary potential than those who do not attend college. In a survey by Schroedel and Geyer (2000), 240 deaf and hard of hearing alumni of the National Institute for the Deaf (NTID) completed a survey that showed that 85% of them were in the labor force. (During the same period, 90% of people without disabilities were in the labor force.) Sixty-four percent of the survey respondents said they were satisfied with the money they received. Seventy different occupations were represented, with most in the fields of computer programming, counseling, computer operation, teaching, business management, engineering, social work, bookkeeping, postal work, and child care. (Approximately 49% of the alumni were in 10 different occupations.) Forty-five percent of the respondents had received promotions in the past 4 years. The promotions seemed to depend on whether the employee had worked a long time for the same employer, had a mentor, requested workplace accommodations, had a college education, had high-quality communication with work colleagues, had a supportive supervisor, used personal assertiveness, and knew how to make requests. Eighty-one percent were financially self-sufficient. Annual salaries (1998) for holders of vocational degrees were $15,000 to $20,000; associate's degrees, $25,000 to $30,000; bachelor's degrees, $20,000 to $25,000; and

master's or doctoral degrees, $35,000 to $40,000. These salaries were significantly lower than hearing peers' compensation. By 1999, about 16% of NTID alumni held master's or doctoral degrees. Gender was a big factor. More women were in the lower-salary positions (clerical vs. professional, managerial, and technical). Men had gains over the years while women's pay leveled off, even though women were more highly educated as a group than men. Schroedel and Geyer recommended that professionals should encourage deaf and hard of hearing youth

- to think more about careers instead of jobs
- to focus on career productivity
- to work in a sequence of related jobs so as to become professionally multidisciplinary
- to require increased communication and collaboration among professionals in schools, vocational rehabilitation programs, and colleges to ensure success

Schroedel and Geyer also recommended career counseling before college entry. (They noted that 70% of deaf students drop out before completing college.) They added that students should be advised of their earning potential, and encouraged to enter fields tagged for success. Students need to make some of these choices as early as ninth grade, they said. Schroedel and Geyer also noted that to continue making career progress, workers need to develop certain skills. These include using interpersonal competencies to strengthen the quality of on-the-job communication, expanding workplace networks in order to become good at requesting accommodations, gaining access to mentors, and acquiring the capabilities needed for success in seeking promotions. Schroedel and Geyer also emphasized the importance of obtaining the training needed to get a license or certificate, learning new work skills, improving current work skills,

39

and augmenting reading and writing abilities to enhance prospects for career enhancement.

The Terminology of School-to-Work

Terms related to school-to-work (STW) are defined in laws requiring STW transition preparation. *Transition* involves service routes in the individual's movement from high school to employment, a comprehensive approach to educational program development, and an alignment of student goals with educational experiences and services (Warger & Burnette, 2000). *Transition services,* as defined by the Individuals With Disabilities Education Act (IDEA) Amendments of 1997 (popularly known as IDEA '97), are seen as coordinated sets of activities for students with disabilities. These services must be designed within an outcome-oriented process, promoting movement from school to postschool activities such as postsecondary education, vocational training, integrated employment, supported employment, continuing and adult education, adult services, independent living, and community participation. These services must be based on the individual's needs, preferences, and interests. They can include instruction, related services, community experiences, development of employment and other postschool adult living objectives, and acquisition of daily living skills and functional vocational evaluation, where appropriate. This *transition planning* must be part of the individualized education program (IEP), beginning when a student reaches age 14 years. By age 16 years, each IEP should contain a statement of transition services, including a statement of interagency responsibilities or other needed linkages. Students should be invited to attend their IEP meetings if the purpose is to consider transition needs.

Baltes and Staudinger (1999) have observed that even at an early age, children learn to plan within their everyday routines. They learn and serve ap-

prenticeships in the domain of social knowledge. Children benefit from the guidance of adults and expert peers more than from collaboration with unskilled peers; benefits are most strongly felt when children are allowed to interactively take some responsibility for task completion during practice (a process known as *guided participation*). As adults, they feel even more pressure to plan together with others, and are expected to work productively with others and for others. Within the workplace and the community, students need to be prepared during school for the real-world collaboration involved in planning for common future goals. Students can participate in mentoring, a system of guided participation as a prototype of adulthood, in which individuals engage in joint planning about life.

The Office of Special Education Programs (OSEP) supports IDEA '97 and its 1999 regulations with research facilitating *student-centered transition planning.* Self-determination skills are considered fundamental to students' participation in their own IEPs (Kohler, 1998). This ensures that goals for transitional services are valued and attainable, with student motivation and involvement. Martin, Huber, and DePry (in press) suggest lesson units on several topics that will help practitioners guide students in developing appropriate education programs based on individual goals: how to choose goals (identify early interests, skills, and limits); how to participate in and lead their IEP meetings (self-determination, self-advocacy, and meeting skills); how to accomplish goals (develop a plan to attain their goals, take action on the plan, and evaluate and adjust their plan of action).

School-to-Work Curricular Influences

Opportunities for career preparation can make the transition from school to work easier for high school students. In America, the success of the STW

program depends on national and state funding in coordination with local business and community opportunities. Students who are deaf and hard of hearing can benefit from STW programs if appropriate support services are in place to smooth the transition between school and the workplace. Work is understood to include college and trade school placement.

STW is a system that provides career awareness, career exploration, and career preparation. This system can coordinate STW programs for an entire state or be limited to a single school district, coordinating activities for students from elementary school through high school. STW partnerships consist of collaborative efforts among schools, employers, and the community to provide a variety of work and school opportunities, up-to-date resources, and hands-on experiences. Area businesses participate in a variety of capacities, ranging from elementary school mentorships to high school/community college collaborative programs.

The STW initiative has revived an interest in educational reform. These reform efforts have been supported by the School-to-Work Opportunities Act (STWOA) of 1994 (Public Law 103-239), a federal law executed by both the U.S. Department of Education and the U.S. Department of Labor. STW has become a part of a broader, national movement for educational reform, which has also included the Goals 2000: Education America Act and the National Skill Standards Act of 1994. The STWOA allows access to funds to develop and establish statewide STW Opportunity Systems.

STW is for all students. Activities should begin in kindergarten and continue through 12th grade. STWOA makes specific references to students with disabilities, individuals from minority groups, and women. It recognizes the importance of including these individuals in STW initiatives by increasing opportunities for them to prepare for careers that are not traditional for their race, gender, or disability.

STW has become an umbrella term for many activities, experiences, and opportunities that prepare students for the world of work. Some activities include youth apprenticeships, mentoring, internships, job shadowing, career exploration, and integration of academic and vocational curricula. School-based instruction and experiences focus on academic and occupational skills standards. Work-based instruction focuses on the workplace experience, structured training, mentoring, and apprenticeships at various job sites. Connecting activities are a variety of activities that build and maintain bridges between school, work, and other adult environments.

America's STW systems incorporate principles of flexibility, high academic and skill standards, and wider opportunities for all students. They are designed to provide equal benefit to a wide range of youth, including students with disabilities, school dropouts, and academically talented learners. This is a challenge for all states, and changes occur slowly. Misunderstandings about STW for "non-college-bound" students stunt progress. States receive program reports and site visits from federal representatives to ensure that appropriate programs are in place. Trade school or college placement should be considered full- or part-time employment.

As part of the STW initiatives, all students choose a career major by the start of 11th grade. The system builds incrementally, becoming richer and more challenging as the student matures. Linkages occur with postsecondary education in 2-year institutions, with dual enrollment and credit for attending classes at community colleges. Linkages to 4-year colleges are just beginning. Perhaps this is because few teacher preparation institutions include STW concepts in their program of study.

School-to-Work Laws

The Education for All Handicapped Children Act of 1975 (Public Law 94-142) guaranteed a free and appropriate public education for all children with disabilities, permitting children never before served in public schools to receive instructional experiences there. But more was needed.

A Nation at Risk: The Imperative for Educational Reform (National Commission on Excellence in Education, 1983) defined high school graduates as unprepared to meet the basic problem-solving demands of college or work. America wanted its graduates to be first internationally in science and mathematics achievement, and for all students to be prepared for productive employment in the modern economy, by 2000. Toward this end, *A Nation at Risk* focused on raising standards and graduation requirements, eliminating a "curriculum smorgasbord" in favor of a common core curriculum for all students, and increasing the amount of time students were expected to spend learning "basics." Cummins and Sayers (1995) advocated that students develop their literacy skills by means of analysis and resolution of local and global problems. According to these authors, students need to be multilingual, with computer literacy one of the language skills to be achieved. Critical thinking and problem-solving skills, along with basic literacy and numeracy skills, are as necessary as citizenship and research and analysis skills in encouraging students to engage in learning in ways that will promote productive engagement in society in the future.

In 1994, as part of the national movement for educational reform, Congress passed STWOA, which recognized the importance of including every student from kindergarten through grade 12, with special focus on the needs of women, minorities, and disabled individuals. Linked with IDEA— the successor to the Education for All Handicapped Children Act—STWOA requires that educational programs have STW transition plans for all disabled students 16 years of age and older. STWOA also stipulates that, in addition to work, trade school or college placement is to be considered em-ployment. Transition plans can ensure better preparation for both college and work. Alumni surveys by Gallaudet University (Lam, King, Skilton, Galvan, Rawlings, & Johnson, 2000) and the Rochester Institute of Technology (Simone & Davila, 2000) suggest that salaries and career opportunities for deaf individuals improve with continued education. A student's choice may be to enter the world of work. Transition opportunities are state- and locally based and are seen as incorporated into school, family, business, and community partnerships. These partnerships, along with effective staff development for teachers, professionals, and industry participants, and willing and motivated students, promote successful transitions into the world of work.

IDEA has helped to promote academic and career development of students who are deaf or hard of hearing. Individualized education programs (IEPs) are required under this act for all students with a disability who are receiving services in school. An IEP outlines all the academic services a student will receive, including the transition plan for students age 16 years or older. Transition plans detail specific programs, activities, and services that address the obstacles that youth with disabilities face as they make the transition to work.

The Need for School-to-Work Planning

Effective transition programs include longitudinal planning, emphasis on careers rather than disability labels, work-based learning, connections to community resources, and sustained involvement of employers. There is wisdom in beginning early. Planning must begin early and continue throughout the academic experience. The IEP transition plan can begin as early as age 14 years. This process is effective when influenced by students, as well as families and other significant adults at home, school, and work. One tenet of the program is that rather than concentrate on the disability label, students focus on

career majors, and as result tend to achieve better employment outcomes. Career exploration, assessment, job shadowing, internships, and paid work experiences at employer work sites are all a part of work-based learning. Paid work is especially critical. Family support, living arrangements, income, peer interactions, and other factors can significantly affect postschool outcomes.

Strategies for serving youth with disabilities, including students who are deaf or hard of hearing, focus on partnerships, clearly defined roles and responsibilities, and student self-determination. Programs for youth with disabilities work best when treated as part of the existing STW system. Full integration within the school offers these students access to the same range of services and opportunities provided to all students.

STW is most effective when individual planning and career development activities are considered. When student preferences are the focus of the transition plan, students experience the process of decision making directly. This builds their self-esteem and helps them develop their ability to work and live independently.

STW is not a series of yearlong programs. The transition plan in the IEP can sharpen the focus on how services today can apply to the workforce demands of tomorrow. High standards must guide transition programming and be used to assess individual and program performance. An array of interpersonal skills are required for success at work. Youth should be allowed to develop these skills in order to become actively engaged in all aspects of community life and to continue to focus on lifelong learning and social integration. The same opportunities should be offered to students who are deaf or hard of hearing as are available to all other youth.

Transition Teams

The transition plan is a result of teamwork, with student involvement, family support, and collaborative teams including the student, family, special education teacher, transition specialists, service providers, vocational rehabilitation (VR) counselors, adult service providers, employers, postsecondary education program representatives, and community supporters or advocates. Within the STW program, all partners are responsible for the student's success.

Employers and labor groups can have a part in STW programs. Unions, businesses, and governments can work together as equal partners with the education system. They are charged with transforming workplaces into active learning environments, thus enabling all systems to offer work-based learning to all students.

STW allows for opportunities for staff development that permits teachers and other education professionals to experience internships with outside employers. Such experiences enable education professionals to share information about contextual learning, portfolio assessment, and new uses of technology.

Employers are willing to invest time and resources if they perceive direct benefit. They can be afforded opportunities to influence curriculum, directly train prospective employees, and receive effective consultation in workforce preparation. Parents, teachers, counselors, service providers, and students themselves are equal partners in the development of the IEP and the transition plan. Having continual contact with each other allows partners to prevent duplication of services, coordinate services, and foster support from all partners.

STW programs often require the services of a transition specialist. This person can offer career guidance and counseling to students and their parents. She or he can provide assistance to businesses that require aid in adapting their workplaces to meet the needs of these youth. Teachers have to learn how to teach advanced skills while holding students to high standards, and parents must be taught how to help their children take advantage of this wider range of options. The transition

specialist can help each in turn. This specialist can also work with the VR counselor, when needed, to provide background information and support in the STW process.

The role of the VR counselor varies with every state and locality, but minimally the role should include early interaction. This can benefit the student in the transition process. The VR counselor needs to be able to sign directly to students. Although initial contact should occur earlier than 11th grade, about half of visits occur during that year (Allen et al., 1989).

Community ties are a must; representatives of the community can serve as role models, networking resources, mentors, and apprenticeship sponsors.

College-Bound Planning

College-bound planning can be an important part of any transition plan. Deaf and hard of hearing students have major choices to make before leaving high school. Opportunities are available to enter college or trade school, or to go straight to work. Many choose to continue their education, and two of the most popular college choices are Gallaudet University and NTID, at the Rochester Institute of Technology.

In a 1999 alumni survey (Lam et al., 2000), Gallaudet University found that when deaf high school graduates enter college or another postsecondary educational institution, they do so with the expectation that they will enjoy higher earnings and greater job satisfaction after college. From 1990 to 1999, 28% of Gallaudet University's graduates earned bachelor's degrees in either business administration, economics/finance, or psychology. While only 25% of alumni of private colleges receive advanced degrees, 43% of Gallaudet undergraduates continue on to attain an advanced degree. The median salary for Gallaudet graduates with a bachelor's degree was estimated at $39,000 a year.

In its annual report for fiscal year 2000 (Simone & Davila, 2000), the

Rochester Institute of Technology estimated that NTID graduates earn 36% more in their lifetimes than people who are deaf who leave college without completing a degree or who do not attend college. No specific salary estimates were reported. More than one third of NTID graduating students were reported to enter jobs in science and engineering, and one quarter each in business and visual communications. According to the annual report, NTID alumni were also employed as counselors, teachers, and social workers. Seventy-three percent of male graduates held degrees in business, science, applied science, and technology and engineering, while about 42% of women had graduated in these same four areas of study. Among female graduates, 58% had earned bachelor's degrees in imaging arts and liberal arts; 27% of male graduates had.

Even without college degrees, students who are deaf or hard of hearing find opportunities for employment in numerous fields of work. Based on the results of a 1994 survey, Holt, Hotto, and Cole (1994) reported that approximately 8 million of the 20 million deaf and hard of hearing adults in the United States were employed. Twenty-nine percent of survey respondents listed their occupation as "professional and managerial," while 34% listed it as "sales, service, and administrative support"; 37% listed it as "other." Of the group between 18 and 44 years of age, 79% reported that they were employed. Nearly 85% of deaf adults in the early 1960s were in unskilled or semiskilled jobs, according to Rochester Institute of Technology records (Simone & Davila, 2000). By contrast, in a similar but smaller survey of deaf and hard of hearing New England school leavers completed in 1964, 66% listed their occupation as "semiskilled or unskilled"; 34% said they were in "technical, trade, or communication" occupations. Twenty percent said they were unemployed (Boatner, Stuckless, & Moores, 1964). Boatner and colleagues also found that 56% of deaf and hard of hearing New

England high school graduates proceeded to college. The average deaf or hard of hearing student in the study finished the ninth grade. In 1992, 34% of those leaving high school went into technical, trade, or communications fields (Foster, 1992).

Approximately 54% of people who were deaf or hard of hearing were not in the labor force in 1994 (Holt et al., 1994). In 1992, only 2.2% of deaf and hard of hearing people who were leaving high school were unemployed, down significantly from the 20% reported by Boatner and colleagues in 1964. Thirty-four percent of deaf and hard of hearing people had vocational career jobs when leaving high school in 1964; in 1992, only 29% were entering career positions. After leaving NTID, 94% of 1999 graduates who chose to enter the work force found employment (Simone & Davila, 2000). Only 4% of Gallaudet University alumni with bachelor degrees and 2% of those with graduate degrees reported themselves as unemployed in 1999 (Lam et al., 2000).

It was projected that 50% to 55% of deaf and hard of hearing people with high school diplomas would be entering the job market or college by 2000 (Foster, 1992). The other students would receive certificates (10% to 20%) or drop out of school before graduation (25% to 30%). STW programs are designed to ease the transitions of students like these.

School-to-Work Assessment

Some form of testing is a part of every curriculum. Teachers and counselors need to be sure to use testing appropriately. Formal and informal tests can be used.

Two vocational tests are commonly used with students who are deaf or hard of hearing. The Transition Competence Battery for Deaf and Hard of Hearing Adolescents and Young Adults, or TCB (Reiman, Bullis, & Davis, 1993), is a standardized test used to measure

the work and social skills necessary to work and live successfully in the community. It was designed for deaf or hard of hearing individuals who primarily use sign communication or who possess limited English-reading skills. This test assesses job-seeking skills, work adjustment skills, job-related social skills, money management skills, health and home skills, and community awareness skills (Luckner, 1999). Also used is the Transition Planning Inventory, or TPI (Clark & Patton, 1997), which includes forms concerning the student and the student's home, as well as a school profile and a form for recommendations of further assessment.

Other instruments include achievement tests, interest surveys, and social-emotional tests. Because of the availability of norms for students who are deaf, the Stanford Achievement Test is used by many counselors and teachers as an academic achievement test. The Valpar Component Work Sample System and the Wide Range Interest-Opinion Test (WRIOT) measure vocational skills and interests. With videotaped standardized instructions, both the Valpar series of tests and WRIOT can be administered nonverbally. (Deaf norms are available for the Valpar series.) For social-emotional assessment, the Meadow-Kendall Social-Emotional Assessment Inventory for Deaf and Hearing Impaired Students was developed specifically for use with deaf students, and validated on a national representative group of deaf youth (Allen et al., 1989).

Curriculum Strategies

Many feel that the purpose of contemporary American schools is to prepare young people for their future economic roles (Engel, 2000). Curriculum has been devised that reflects this goal, with very specific skills and knowledge sets.

New scientific discoveries transform jobs, lives, and the shape of public issues. Preparations for the future must link to the economy, technologies, and the kind of education needed by a

43

rapidly changing workforce. In 1999 alone, employers spent more than $62.5 billion on upgrading basic skills of their employees. These skills should have been acquired during school years. It is projected that jobs in the health sciences and computer industries requiring mathematics and science skills will increase by 5.6 million by 2008 (National Center for Education Statistics, 1998). Curriculum must be adopted, similar to general education curriculum, that offers deaf and hard of hearing students opportunities equal to those of their hearing peers. Instruction must occur to better prepare deaf and hard of hearing students and workers for work, and for life. Efforts need to focus on ensuring adequate education and job training so that deaf and hard of hearing students can make the school-to-work transition to more satisfying lives.

Curriculum must be influenced by individual student needs. The ERIC/ OSEP Special Project (2000) suggests beginning instruction as early as possible, even in elementary school; being prepared to support students with sensitive issues (reading about one's disability can be unsettling, but working through it can be beneficial); ensuring that students know what their disability means (i.e., encouraging them to talk about it, and thus to become comfortable with it); scheduling time to develop skills related to participation on a regular basis (i.e., through IEP training); teaching IEP participation skills as a semester course (students need sufficient time to master the skills in order to take an active role); using motivational techniques to interest students (e.g., asking adult role models to make classroom presentations); and communicating with families and letting parents know the school's intentions. With informed participation in the IEP and transition planning process, students should feel accomplished and empowered.

Pressley and Woloshyn (1995) outlined specific curriculum strategies that work when teachers are getting started on something new. They suggested selecting only a few cognitive strategies to teach, maybe just one at a time. Teachers should make sure scientifically validated strategies are used. These are procedures that students can use to help them understand and address higher-order tasks in areas such as reading comprehension and writing. Teachers should try to ensure that the skill or knowledge being taught is presented in tandem with other areas of the curriculum to provide reinforcement and applicability in other thinking areas. Teachers should begin with materials already provided in the regular classroom and work slowly, providing students with plenty of information about very specific contexts, with many opportunities to experience guided practice. Teachers should model the strategy being taught, explain extensively how the skill or learning can be applied across the curriculum, question for student understanding, and re-explain to ensure that no misunderstandings occur. The students should have the chance to learn cooperatively, in groups. This way, individuals have the chance to explain their thinking skills and to benefit through interpersonal interaction mirroring their intellectual skills. A range of materials should be used in teaching different skills and knowledge sets.

Motivation is a key element that must be present for students to apply recently acquired skills. If students are encouraged to try, even if they fail they can learn that even failures can be an investment in future successes. All students must be convinced that they can be efficient information processors. They need to be able to believe they can grow up to be engineers, scientists, and business leaders, fulfilling important roles in the community. One way they can become these successful people is to learn the academic strategies used by them, to acquire the reading, writing, and problem-solving strategies these people know. They need to know that what is being taught in school is important to know now and in the future.

What is taught? When is it taught? Early in the STW process, field trips and career fairs introduce students to the world of work. In junior high school or middle school, the focus shifts to career exploration, working with guidance counselors and teachers to focus on career options, job shadowing, and mentoring experiences. Apprenticeships and internships integrate STW into the high school. School districts can work with postsecondary institutions to refine the skills of both students and teachers.

In STW, students explore all aspects of the industry of their choosing. This means exposure to each component of an industry, to include areas such as sales and marketing, management and finance, technical skills, labor and community issues, health and safety, and environmental issues. Career majors help guide students, allowing for maximum exposure to an industry, but students can change majors during high school. Career majors can include arts and communication, business and management, health occupations, human services, manufacturing and engineering technologies, and natural resources.

Some suggested activities, by school level, are provided in Display 1.

A guide to apprenticeships or internships can be helpful. For development of STW transition apprenticeship programs that are both equitable and excellent, five criteria must be met:

1. Apprenticeships should be accessible to all youth, regardless of their postsecondary goals or the absence or presence of conditions of disability.
2. Apprenticeships should be individualized according to the needs, interests, and abilities of each student.
3. Instructional content in STW apprenticeships should prepare all students to meet the generic problem-solving demands of college or work.
4. A combination of classroom, community, and job environments will work well to produce graduates

Display 1
Suggested School-to-Work Objectives and Activities, by School Level

Preschool
 Objective: appreciate all types of work
 Activity: career trips

Elementary school
 Objectives: develop positive work habits, learn about different jobs people have, develop independence skills at home and school
 Activities: explore technology, read books about different jobs that are available

Middle school/junior high school
 Objectives: career exploration and transition planning, to understand the school-to-work transition process; to develop interests, aptitudes, and preferences; and to explore work, independent living, and community opportunities
 Activities: visit high school, vocational-technical schools, career fairs; begin learning about money and budgeting; begin job-shadowing opportunities; explore local transportation availability; practice conflict resolution strategies; generally broaden experiences in the community

High school
 Objectives: career exploration and transition planning, developing realistic employment goals, working in the community, using assistive technology and community support services
 Activities: develop the individualized education program (IEP) and transition plan, participate in work experiences, explore job placement services, practice independent living skills, take standardized tests, develop academic skills, explain one's disability and the accommodations needed for particular situations, explore options for postsecondary education, involve adult services, practice interviewing, complete résumé, use online services, develop job-seeking skills, register to vote, get driving license, increase community partnerships

who are mature, responsible, and motivated.

5. Successful completion of apprenticeships should lead to receipt of recognized credentials authorizing entry into career opportunities or postsecondary education programs, placement or acceptance in post-secondary vocational and education programs, placement in competitive or supported employment, or participation in continuing and adult education, adult services, and independent living in community settings (Mithaug, 1994, p. 2).

Each task should be taught visually, communicated clearly, related to ex-periences where the student is currently operating, then made more challenging in order to raise the student's skill level. Education and training for a job should occur in situations like those that will be experienced in the real world, with frequent feedback and opportunities for improvement. Work experiences should include field trips, job shadowing, school-based learning, apprenticeship and internships, cooperative education, work-study or part-time job placements, and technical preparation in community or vocational-technical schools. Students also need to prepare for postsecondary education, distance learning, community programs, and other options.

Successful adult functioning includes many domains. Work involving these domains should be included in the high school curriculum. Daily living, physical and emotional health, relationships and social interactions, employment, further education, transportation, finances and money management, leisure, and community participation are all important enough to be included in the STW curriculum at almost every level.

Teachers cannot develop responsibility in students, but they can teach them about responsibility and how to make decisions, and assist them in developing an awareness of their values and how to develop and achieve personal goals, teach them the skills they need to continue to learn independently, work with their families, and provide positive reinforcement when they exhibit responsible behaviors (Luckner, 1999). A list of the numerous skills that need to be emphasized within the STW curriculum appears in Display 2.

Students who are deaf and hard or hearing are often lacking in interaction skills, responsible behaviors, mediated experiences, and independent learning skills; these may become barriers to employment after high school.

Communication is the key if deaf and hard or hearing students are to be able to learn, compete, and work to their highest capacity. Communication must be the cornerstone for all transition preparedness programs. "It is incumbent upon us to increase our efforts to ensure that deaf children can grow up to enjoy all of the benefits of literacy" (Moores & Miller, 2001, p. 80). Deaf workers often use a language that is different from that of their English-speaking co-workers and supervisors. Currently, the world's language of commerce is English. "Students who ... write in English are thinking in English" (Mayer & Akamatsu, 2000, p. 399). Either workers must be competent in reading, writing, and speaking English, or they must be supported with on-the-job compensations for the differences in language. Often a worker must be able to read, write,

45

Display 2

Skills Requiring Emphasis in the School-to-Work Curriculum

Personal and professional development
Learning throughout life
Information processing
Computer literacy
Reading
Mathematics
Problem solving
Basic skills
    Reading and writing
    Basic arithmetic
    Effective listening
    Clear speaking
Thinking skills
    Creative thinking and decision making
    Problem solving
    Knowing how to learn
    Reasoning
Personal qualities
    Responsibility
    Self-esteem
    Social skills
    Self-management
    Integrity and honesty
Resource allocation
    Time
    Money
    Material and facility resources
    Human resources
Information
    Acquires and evaluates information
    Organizes and maintains information
    Interprets and communicates information
    Uses computers to process information
Systems
    Understands systems
    Monitors, and corrects performance
    Improves and designs systems
Technology
    Selects technology
    Applies technology to tasks
    Maintains and troubleshoots technology
Interpersonal
    Participates as a member of a team
    Teaches others
    Serves clients/customers
    Exercises leadership
    Negotiates to arrive at a decision
    Works with others of culturally diverse backgrounds (Luckner, 1991, p. 11)

and understand reports, manuals, forms, e-mail, written communications, educational materials, safety brochures, and many other information materials, or there may be an increased risk of danger on the job. Some texts are frozen—that is, they can be learned and used in different situations. By learning and practicing these texts, workers can become competent users of the forms and sentences included in them.

The worker who is deaf or hard of hearing may attempt to avoid careers that involve a lot of reading and writing. In this capacity, she or he becomes underutilized and underemployed, and faces a decreased potential for a good quality of life as a result. Recent (1991–1999) bachelor's degree recipients from Gallaudet University were surveyed for literacy skill requirements on the job. Over 70% reported that writing skills (formal and informal) were very important in their job; over 80% reported the same of reading skills (Lam et al., 2000).

Without a college education or training, people who are deaf or hard of hearing often must take unskilled or semiskilled jobs. But with continued education, they tend to enter into professions similar to those of their hearing peers. Literacy requirements on the job heavily influence job retention and promotion of deaf and hard of hearing workers. Salary differences were noted in the 1999 Gallaudet University alumni survey (Lam et al., 2000) and the 2000 Rochester Institute of Technology annual report (Simone & Davila, 2000), specifically, in careers of equal duration, hearing workers tended to earn more salary than peers in the same job who were deaf or hard of hearing. If literacy skills are not strong, perhaps support services such as interpreting and note taking can be provided to help eliminate language barriers. Deaf and hard of hearing workers would feel a great difference in job self-confidence and workplace acceptance if they could teach sign language classes for coworkers and supervisors. Hearing workers would also benefit from learning about Deaf culture, and the door would be

46

opened to greater mutual understanding and greater assistance for the deaf or hard of hearing worker.

Recommendations

The five recommendations provided here focus on curricular elements of a STW transitional program. Using appropriate assessment methods, following the strengths and interests of the student, taking advantage of every opportunity, keeping expectations high, and maintaining a sense of reality can all help during the STW transition process.

First, schools should ensure that testing is appropriate for deaf students, and that these students are adequately tested on the desired competencies. Tests should measure students' goals and current levels of functioning, and provide insights into how to bridge the two. Informal assessments should be used such as person-centered planning based on the preferences and strengths of the student, developed specifically so that the IEP goals, objectives, and action statements can easily be implemented (Luckner, 2002). To optimize student performance, test-taking skills may need to be taught.

Second, the interests and strengths of the student should be followed. The transition plan should be the result of teamwork, with collaborative teams including the student, the family, the special education teacher, transition specialists, service providers, VR counselors, adult service providers, employers, postsecondary education program representatives, and community supporters or advocates. Interest surveys, parent surveys, and skill surveys can be used to determine and update student interests. Flexibility should be built in to allow for changes in the transition plan that permit exploration of new avenues of career interest.

Third, whether in elementary school, middle school, high school, or beyond, students should be enlisted in every meaningful opportunity to learn job skills. Activities outside school and

Display 3
Internet Resources for School-to-Work Transitions

Center for Self-Determination
http://www.self-determination.org

ERIC Clearinghouse on Disabilities and Gifted Education
http://ericec.org

Model Transition Projects: The Transition Institute
www.ed.uiuc.edu/sped/tri/projwebsites.html

National School-to-Work Office
www.stw.ed.gov

National Transition Alliance for Youth With Disabilities
http://www.dssc.org/nta

National Transition Network
http://www.ici.coled.umn.edu/ntn

Quintessential Career and Job-Hunting Resources Guide
www.stetson.edu/,rhansen/careers.html

School-to-Work Site Devoted to Students With Disabilities www.ici.coled.
umn.edu/schooltowork/default.html

Showing the Children of Today the Possibilities of Tomorrow!
www.iwc.com/careertv/

So You Want to Be A ...
http://student.studentcenter.com/inside/bea/bea.htm

Transition Research Institute
http://www.ed.uiuc.edu/SPED/tri/institute.html

school alternatives should be used if available.

Fourth, expectations should be kept high. With low expectations, one can expect low results. Emphasizing the high status of deaf people who are in the workforce may raise the self-expectations of students who are deaf. Teachers should open students' eyes to future needs in technical, scientific, and medical fields to help prepare them to win jobs in those areas. Curricular supports can be built in that can help students meet these high expectations. Effective transitions are based on mastery of fundamental academic skills. Teachers should begin with that.

Fifth, teachers need to maintain a sense of reality. An appropriate work ethic is rewarded, but there is no free

lunch. Working toward a meaningful career leads to dignity and a more enriched life, and will also result in better-prepared future generations.

Conclusion

Education today must prepare citizens for the future. With technological change constantly affecting people's lives, teachers working with students who are deaf or hard of hearing must be particularly diligent in preparing these students. Through emphasis on the need for cooperation in a global economy, students can be better integrated into the world of work. Workers must be prepared to constantly update and reeducate themselves for the acquisition of new skills. Lifelong learning must be a goal for every teacher and student, and the curriculum pro-

47

vided during educational experiences should pave the way to attainment of this goals. (A list of STW Internet resources, including lesson plans, projects, and units, is provided in Display 3.)

References

Allen, T. E., Rawlings, B. W., & Schildroth, N. N. (1989). *Deaf students and the school-to-work transition.* Baltimore: Brookes.

Baltes, P. B., & Staudinger, U. M. (1999). *Inter-active minds: Life-span perspectives on the social foundation of cognition.* Cambridge, England: Cambridge University Press.

Boatner, E., Stuckless, E., & Moores, D. (1964). *Occupational status of the young adults of New England and the need and demand for a regional technical-vocational training center.* West Hartford, CT: American School for the Deaf.

Bullis, M., Davis, C., Bull, B., & Johnson, B. (1997). Expectations versus realities: Examination of transition plans and experiences of adolescents who are deaf and adolescents who are hearing. *Rehabilitation Counseling Bulletin, 40*(4), 251–264.

Clark, G., & Patton, J. (1997). *Transition planning inventory.* Austin, TX: Pro-Ed.

Cummins, J., & Sayers, D. (1995). *Brave new schools: Challenging cultural illiteracy through global learning networks.* New York: St. Martin's Press.

Engel, M. (2000). *The struggle for control of public education: Market ideology vs. democratic values.* Philadelphia: Temple University Press.

ERIC/OSEP Special Project. (2000, Spring). New ideas for planning transitions to the adult world [On-line]. *Research Connections in Special Education, 6.* Available: http://ericec.org/osep/recon6/rc6sec1.html

Flexer, R. W., McMahan, R. K., & Baer, R. (2001). Transition models and best practices. In R. W. Flexer, T. J. Simmons, P. Luft, & R. M. Baer (Eds.), *Transition planning for secondary students with disabilities* (pp. 38–69). Upper Saddle River, NJ: Prentice Hall.

Foster, S. (1992). Accommodation of deaf college graduates in the work place. In S. Foster & G. Walter (Eds.), *Students in post-secondary education* (pp. 210–235). London: Routledge.

Holt, J. A., Hotto, S. A., & Cole, K. (1994). *Demographic aspects of hearing impairment: Questions and answers* (3rd ed.). Washington, DC: Gallaudet University.

Individuals With Disabilities Education Act Amendments of 1997, Pub. L. 105-17, 20 U.S.C. §1400 *et seq.* (1999).

Kohler, P. (1998). Implementing a transition perspective of education. In F. Rusch & J. Chadsey (Eds.), *Beyond high school: Transition from school to work* (pp. 179–205). Belmont, CA: Wadsworth.

Lam, K. S., King, J., Skilton, J. C., Galvan, D., Rawlings, B., & Johnson, R. C. (2000). *Gallaudet University alumni survey 1999.* Washington, DC: Gallaudet University.

Luckner, J. L. (1991). *The SCANS report.* Washington, DC: U.S. Department of Labor, Secretary's Commission on Achieving Necessary Skills.

Luckner, J. L. (1999, July). *Seeking access to the global community: Students with additional disabilities.* Paper presented at the annual meeting of the Convention of American Instructors of the Deaf, Los Angeles.

Luckner, J. L. (2002). *Facilitating the transition of students who are deaf or hard of hearing.* Austin, TX: Pro-Ed.

Luckner, J. L., & Muir, S. (2001). Successful students who are deaf in general education settings. *American Annals of the Deaf, 146*(5), 435–446.

Martin, J., Huber, L. H., & DePry, R. L. (in press). Participatory decision-making: Innovative practices that increase self-determination. In R. Flexer, T. Simmons, P. Luft, & R. Baer (Eds.), *Planning transition across the lifespan.* Columbus, OH: Merrill.

Mayer, C., & Akamatsu, T. (2000). Deaf children creating written texts: Contributions of American Sign Language and signed forms of English. *American Annals of the Deaf, 145*(5), 394–403.

Mithaug, D. E. (1994). *Equity and excellence in school-to-work transitions of special populations* (Center Focus No. 6). Berkeley, CA: National Center for Research in Vocational Education, University of California. Also available: http://ncrve.berkeley.edu/Center-Focus/cf6.html

Moores, D. F., & Miller, M. S. (2001). Literacy publications: *American Annals of the Deaf* 1996 to 2000. *American Annals of the Deaf, 146*(2), 77–80.

National Center for Education Statistics. (1998). *Projections of education statistics to 2008.* Washington, DC: U.S. Department of Education.

National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform.* Washington, DC: U.S. Government Printing Office.

Pressley, M., & Woloshyn, V. (1995). *Cognitive strategy instruction that really improves children's academic performance* (2nd ed.). Cambridge, MA: Brookline Books.

Reiman, J., Bullis, M., & Davis, C. (1993). *Transition competence battery for deaf and hard of hearing adolescents and young adults.* Santa Monica, CA: James Stanfield.

School-to-Work Opportunities Act of 1994, Pub. L. No. 103-239, 20 U.S.C. §6161 *et. seq.* (1994).

Schroedel, J. G., & Geyer, P. D. (2000). Long-term career attainments of deaf and hard of hearing college graduates: Results of a 15-year follow-up survey. *American Annals of the Deaf, 145*(4), 303–313.

Simone, A. J., & Davila, R. R. (2000). *Rochester Institute of Technology, thirty-fourth annual report (fiscal year 2000).* Rochester, NY: Rochester Institute of Technology.

Warger, C., & Burnette, J. (2000). *Planning student-directed transitions to adult life.* (Report No. E593). Reston, VA: ERIC Clearinghouse on Disabilities and Gifted Children. (ERIC Document Reproduction Service No. EDO 00 2)