COMPETE: A Model for Vocational Evaluation, Training, Employment, and Community for Integration for Persons With Cognitive Impairments

William C. Mann, Susan Braun Svorai

Key Words: brain injuries • learning disorders • mental retardation

This paper describes a job skills training program for young adults with cognitive impairments called COMPETE, an acronym for Computer Preparation: Evaluation, Training, and Employment. Participants in COMPETE trained in use of information-age machines, e.g., computers, fax machines. The 3-year demonstration project resulted in successful placement of 17 of 27 persons who were unemployed before entering the program.

COMPETE was established as a demonstration program to offer vocational evaluation, training in office-related work, and job placement support for persons with cognitive impairments. The program was funded in 1989 as a 3-year project to address the United States Department of Education's (USDE) goal to “develop, operate and disseminate specially designed model programs of post secondary, vocational, technical, continuing or adult education for individuals with handicapping conditions” (Federal Register, 1988, p. 218). COMPETE is an acronym for Computer Preparation: Evaluation, Training, and Employment. Persons with cognitive disabilities, including traumatic brain injury, learning disabilities, and mental retardation, were served by COMPETE.

The program used an interdisciplinary approach, with close coordination with the New York State Office of Vocational and Educational Services to Individuals with Disabilities (VESID), the Western New York Independent Living Center (ILC), the State University of New York (SUNY) — Buffalo, and the New York State Office of Mental Retardation and Developmental Disabilities. The evaluation and planning team included a vocational counselor, occupational therapist, special educator, rehabilitation engineer, physical educator, and nutritionist. The team assessed both vocational and other community integration needs.

The COMPETE program was developed and directed by occupational therapists and housed at SUNY — Buffalo in the Center for Assistive Technology. The occupational therapists specifically evaluated perceptual, motor, daily living skills, and community needs for transition into the workplace and to the community; provided task analysis and job-specific training before placement; and participated in equipment and work station adaptations, job development, placement, and coaching. This paper describes the COMPETE program.

Need for Vocational Training for Persons With Disabilities

From two studies, the International Center for the Disabled (ICD) determined that 67% of persons with disabilities of working age were not employed, although most of these persons expressed an interest in employment (Taylor, Kagay, & Leichenco, 1986), and that these persons were “much less likely to be working than any other demographic group under age 65, including black teenagers” (Taylor, Kagay, & Leichenco, 1987, p. 1). The authors of the studies concluded that the major barrier to increased hiring of persons with disabilities was a lack of qualified applicants and suggested that the applicant pool be increased through education and appropriate training. The findings of the 1986 survey are similar to those of the 1982 U.S. Bureau of the Census, which reported that 50%
to 80% of adults with disabilities in the United States were unemployed.

The problem of underemployment for persons with disabilities has been studied in students who are making the transition from secondary school to work. Burnett and Yerxa (1980) suggested that, in addition to vocational needs, other needs must be addressed in this population, including housing, self-care, leisure, and transportation, primarily because young persons with disabilities have difficulty with independent living and therefore rely more on family members. To address these needs, as well as the problem of underemployment of transitioning students with disabilities, Wehman, Moon, and McCarthy (1986) suggested that interventions include job placement assistance, training in independent or supervised living skills, and assistance and training for use of community resources.

The COMPETE program addresses one area identified by the above authors, that of training in work skills for information-age jobs—that those that require an ability to use computers and other office equipment. Focusing job training on meaningful jobs is important (Ellien, 1985), because it helps prepare persons for future labor markets.

Description of COMPETE Model

The COMPETE program responded to priorities of the USDE (see Table 1). There are seven components of the program.

1. Identify Persons with Special Needs

The COMPETE program was developed for persons with cognitive impairment including traumatic brain injury and learning disabilities, where full-scale IQ score fell between 65 and 100. Adaptations in the work stations were made for those participants with cognitive impairments who also had a physical disability such as cerebral palsy, hemiplegia, and wheelchair bound paraplegia. Potential participants were referred by VESID counselors, the rehabilitation center, or the local head injury support group. Referrals from the latter two sources were directed through VESID for formal processing.

2. Individualized Evaluations

The intake process included discussion with the VESID counselor by phone to determine the potential applicant’s interest in vocational training. Potential applicants visited the COMPETE program site to observe, ask questions, talk to other job trainees, and to meet with the project coordinator. If interested in pursuing training, the person was given a program application to complete at home. The application included personal and medical information, pertinent job and volunteer experiences, and nutritional and physical activity questionnaires. Many potential trainees required assistance from a counselor or family member in completing the application. After receipt of the completed application, the program staff members scheduled a 1½-hr interview with the applicant. Criteria for acceptance were based only minimally on previous work history or knowledge of computers. Emphasis was on the applicant’s attention span, readiness to train for work, ability to handle the application and interview process, and basic level of self-care skills (feeding and toileting). Applicants with TBI were also judged on completion of an intensive rehabilitation program.

The assessment of the applicants accepted into the program lasted 6 weeks or 30 working days and encompassed physical, motor, and sensory components (when necessary); perceptual testing and determination of preferred learning style; a standardized computer test for information processing; and observations of work-related behavior, motivation, interest, and aptitude for computer and clerical work. Motivation was measured by the interviewer’s subjective impressions. Behaviors indicative of high motivation were (a) contact with the program made by the potential applicant (not a parent), (b) completion

<table>
<thead>
<tr>
<th>Table 1</th>
<th>COMPETE Approaches to USDE Priorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority</td>
<td>COMPETE Approach</td>
</tr>
<tr>
<td>Establish strategies for use in locating and serving youth and adults with disabilities who need continued educational services</td>
<td>Work with NYS VESID, NYS OMRDD, and WNY ILC for referrals.</td>
</tr>
<tr>
<td>Establish or make use of existing formal cooperative relationships among and between schools (public secondary and higher educational institutions), vocational rehabilitation agencies, and potential employers</td>
<td>Work with VESID; establish employer task force</td>
</tr>
<tr>
<td>Develop individualized programs that detail the goals and objectives necessary for students to obtain the requisite skills for securing competitive employment</td>
<td>Individualized evaluations; develop COMPETE curriculum</td>
</tr>
<tr>
<td>Achieve appropriate job placements for persons with disabilities served by the project through short-term post-secondary educational interventions</td>
<td>Provide COMPETE: Identify jobs with employer task force; adapt or modify job</td>
</tr>
<tr>
<td>Provide follow-up and follow-along activities for persons with disabilities placed in jobs by the project</td>
<td>Provide on-the-job training: offer job club</td>
</tr>
<tr>
<td>Propose training of project participants in relevant aspects of adjustment to the community as well as the workplace</td>
<td>Evaluation, counseling, training in independent living, leisure, transportation, work closely with WNY ILC</td>
</tr>
</tbody>
</table>

of the application in a timely manner (within 2 weeks), (c) punctuality and neatness at interviews, and (d) previous efforts to look for work. Specific assessments used included the Test of Visual Perceptual Skills (Gardner, 1982; Gardner, 1988), the Assessment of Individual Learning Style—The Perceptual Memory Task (McCarron, 1984), activities of daily living observation, and daily behavioral observations. This 6-week evaluation period allowed for the establishment of baseline levels for job readiness as well as potential projections for work performance. Once admitted to the program, applicants were called job trainees, emphasizing COMPETE’s goal of preparation for competitive employment.

3. Employer Task Force: Job Identification

Because of the recession, it became clear that other jobs besides computer-related jobs had to be targeted. Therefore, COMPETE established the Western New York Employer Task Force (ETF) for Individuals Disadvantaged or Disabled to identify appropriate jobs and adaptations to the work environment for the special needs of the job trainees. The ETF provides a database of information on the types of jobs available in western New York as well as information to employers on how persons with disabilities can become productive employees through special training, special technology, and special adaptations and accommodations.

4. Vocational-Focused Education and Training with Devices as Needed

Training materials were developed for three levels of computer skills: basic keyboarding and data entry (level 1), basic word processing (level 2), and advanced word processing and computer communications (level 3). Training consisted of a combination of individual instruction, small classes to reinforce basic concepts, and use of specially designed manuals and audiovisual presentations. Assistive devices and work station adaptations were provided as needed.

Three software programs were used for learning keyboarding. Type to Learn 1 for Apple, IBM, and IBM-compatible computers, Typing Tutor IV, and Keyboarding by Ability 3 for either left-handed or right-handed typing. These software programs include self-paced lessons, summary reports of each lesson or test, and optional games.

Topics of small classes covered MS-DOS (disk operating system), hard drive management, floppy drives, and printers. The information was presented through lectures, videotape, written material, and class discussion. The job trainees reinforced learning by keeping a daily computer log in which they recorded their experiences in the program. Trainees used Microsoft Word 5.01 and Word Perfect 5.12 to prepare their logs and daily schedules. Trainees practiced data entry through entering daily typing records into a database with DBase III Plus. The Attainment Company Data Entry tutorial was also used to improve speed and accuracy of data entry work.

5. Job Modification and On-the-Job Training

Part-time internship experiences were provided in actual work settings selected to meet the needs and goals of the trainee. For some trainees these internships offered an experience of the real work world while continuing SUNY—Buffalo-based training and contact with the COMPETE staff members and counselors.

Some internships were established within the Center for Assistive Technology (CAT) where COMPETE was housed, providing an opportunity for program staff members to more closely supervise the job trainees. Internship in the community had the potential to lead to competitive employment. Program staff members assisted trainees with transportation needs, meal preparation, work-related recreational activities, and work station and equipment adaptations.

Placement of job trainees followed a series of steps: observation and job analysis of potential site, job development by the project coordinator, a 2-week to 2-month trial internship period, paid employment with presence of a job coach (job coaches from other agencies were trained by COMPETE staff members in computer skills) until skills were refined, and competitive work.

6. Other Community Integration Needs

Success in training and placement often related to the level of independence that the job trainee had attained within the home and the community. To maximize independence, the program employed the services of the Independent Living Center (ILC), a community organiza-

1Manufactured by Sunburst Communications, 59 Washington Avenue, Pleasantville, New York 10570.
3Manufactured by Teachers Institute for Special Education, 2947 Bayside Court, Wantagh, New York 11793.
tion for persons with disabilities. The ILC provided counseling for job trainees during their initial adjustment period to a new job or to a more independent role in the family. Job trainees with limited experience to resources in the community were encouraged to attend a recreational or peer group at the ILC. Because transportation to and from work is essential to securing and maintaining employment, the ILC also provided information and training on bus routes or driving evaluation.

7. Job Club

The Job Club covered work-related skill training ranging from the development of appropriate work-related behaviors such as hygiene, interactions with coworkers, consistent attendance, and punctuality to specific work skills such as preparing a résumé and developing interviewing skills. Job trainees participated in the Job Club only during the initial week of the program and before job placement, due to time and schedule restrictions of the working world.

Description and Outcomes of Job Trainees

Out of 52 referrals, 27 persons were accepted and participated in COMPETE: 8 in the first project year (1989-1990), 8 in the second year, and 11 during the third and final year. Length of training was determined by the trainee's need and ranged from 5 months to 18 months. All 27 trainees had cognitive impairments and 15 (55%) also had physical disabilities. Fourteen trainees (52%) had experienced traumatic brain injury 2 to 7 years earlier. Eight (30%) trainees were classified as learning disabled, and 5 (19%) were classified as mildly retarded. The average reading level for the group was seventh grade and the average math level was sixth grade, as determined by information provided in the YES!D report. Motivation and interest to secure employment was a primary factor for acceptance in the program, more than standardized aptitude test scores. Motivation was measured through trainees' initial interviews with the program counselor, by their consistency in keeping appointments, and by their demonstration of realistic work attitudes, realistic expectations, and readiness to work toward employment. Seventeen of the 27 job trainees completed their training. Of the 10 persons who withdrew, 4 stated that computer training in data entry did not interest them, 3 withdrew due to illness, 1 withdrew because the training interfered with a part-time job she held, and the other 2 persons withdrew because of moderate to severe behavior problems. All of these persons had been initially identified as poor candidates for the program but were accepted to test the program's effectiveness with a wide range of persons. All 10 job trainees who could not meet the basic demands of the program chose to discontinue their participation themselves.

Of the 17 job trainees who completed the program, 14 (82%) are employed and 3 are enrolled in college. Of the 14 employed, 7 receive no additional assistance, and 7 required additional short-term to longer-term job placement or coaching services. More than half of the 14 persons employed are in computer-related work. Four job trainees work in data entry at a bank, 1 works in a mail room, 1 in quality control, 1 in chemical lab analysis, 2 as microfilm developers, 1 as a ticket taker, 2 at the Internal Revenue Service, 1 in telemarketing, and 1 in computer repair.

Case Studies

The programs of two trainees are described below. The first case study illustrates the interdisciplinary team approach in overcoming the obstacles created by the trainee's physical and cognitive disabilities in applying her marketable skills to a competitive work environment. The team included the trainee, the occupational therapist, the rehabilitation engineer, and the job coach. The second case study highlights a person who continued academic training after exposure to the university setting through COMPETE. College training was appropriate for this person and the long-term benefits were seen as a successful placement. The case also demonstrates the unique role played by COMPETE's exercise science and nutrition components, two areas not often included in a work training program.

Subject 1

This 25-year-old woman's condition was diagnosed as mild mental retardation with mild cerebral palsy affecting her right side. She had attended several college courses for business studies, receiving poor grades. She walked without assistive devices and had limited use of her right hand. She was referred to the program to improve her skills and behaviors to a level sufficient for competitive employment.

The occupational therapist adapted this trainee's work station in the training program to accommodate her special needs. Her work station was positioned at the quietest area of the room, with wall partitions to screen out noise because she was easily distracted. Her table, chair, and computer equipment were positioned for optimal comfort. She used a file folder system to help her organize her work station and an accordion folder to carry papers with one hand. The trainee relearned the keyboard for typing with one hand with centrally located home keys. Her final typing rate of 15 words per minute was applied to an internship at CAT, where she performed general office duties and updated a medical database on a computer. The trainee was referred to supportive services to assist her with job placement and coaching. She currently performs data entry in a carpet.
factory, relying on weekly check-in visits from her job coach. She had been adamant about working in an office setting and not in food service, which she had experienced before.

The trainee was evaluated at her work site by an occupational therapist and rehabilitation engineer for equipment recommendations and organization of her work station. Adaptations to her chair were provided for better posture and to enable her to endure an 8-hr work day.

**Subject 2**

This 30-year-old man had a moderate cognitive disability from an automobile accident that left him with extreme fatigue and difficulty with memory and organization. He was referred to the program for training in a new vocation. His former job as a glass specialist was unsafe. This trainee had no computer experience and was unsure about working in information processing. He had identified office work as women’s work because his wife worked as an accountant.

The trainee was evaluated for recreation and exercise with the goal of improving his level of energy and endurance for work. He received a weekly program of activities. His work day allowed for short rest periods and a nap at lunch. Because his taste sensation was diminished due to the accident, a nutritional evaluation was completed to provide him with an appropriate food plan to decrease the risk of inadequate nutrition. An ergonomic plan for his work station was completed to ensure efficient use of energy and motion and to prevent further neck or back strain.

The trainee quickly learned keyboarding and achieved a typing speed of 25 words per minute. He took advantage of all that was available to him in this program, working with staff members, manuals, and instructional videos to learn about word processing, databases, and spreadsheet programs. He participated in small classes on these topics and was assisted in organizing information into easily retrievable folders and notebooks. The trainee was encouraged to carry a small notebook with him at all times to compensate for his memory loss. An internship within CAT allowed the trainee to learn more about the mechanical aspect of computer maintenance. Another internship at a government office gave him additional experience using his learned skills.

The trainee remained uninterested in office work. He decided to pursue computer repair through studies at a community college. When a job opened at CAT, he was hired as a technical assistant. He is currently working and studying part time.

**Discussion**

Job trainees’ IQ scores ranged from 68 to 102. Basic levels (approximately fifth grade) of reading, spelling, and language comprehension were critical in learning to use the computer. Prior experience and knowledge of computers were not important. Trainees with physical disabilities did as well as other job trainees. The need for additional follow-up support on the job was high. Nutrition and exercise were helpful in the initial evaluation and training process as they dealt with critical issues relating to health.

Computer-assisted instruction, small classes, and individualized instruction were appropriate methods for improving keyboarding skills and increasing accuracy for data entry work. For the majority of the trainees, learning word processing required much time and only the basic level was achieved. Although there is no aptitude test for predicting success in computer-related work, we found that a good indicator was the person's ability to process more abstract concepts. The higher the language ability of the job trainee, the more success he or she had with using word-processing packages. Tools available within software such as spell checkers and grammar checkers require a high level of understanding to choose the right answer.

In using data entry and word-processing software, job trainee memory deficits could be compensated by use of stick-on notes at strategic places, organizing key information in individually designed notebooks, and placing a series of keystroke sequences into macro memory.

A university setting for the program allowed opportunities for community integration, both with students attending the university and through the on-site internships. The setting may have influenced 3 of the trainees who are now enrolled in college. The university was viewed as both school and job training. For many of the trainees who had never worked before, an important goal was to develop and improve work behaviors and habits before or in addition to development of specific work skills. There were also inherent advantages in the social opportunities provided on a day-to-day basis, as trainees worked with students and staff members. Trainees participated in university sponsored events such as the annual walk-a-thon and attended conferences and lectures. Job trainees were also able to secure internship experiences in many places within the large university setting. The university also has many students eager to volunteer, providing additional personnel to work with job trainees. Location of the training site on a university campus also contributed to self-esteem for trainees whose previous experience was limited to home or sheltered workshop settings. The improvement in self-esteem was verbalized and evidenced through increased attention to dress, hygiene, and social interactions. The university setting provided a range of informal encounters and positive role models for appropriate appearance, dress, and behavior.

Although the funding for the COMPETE program has ended, various components of the project continue under a different name and programmatic structure. VESID is now funding, on a fee-for-service basis, a program.
called EXPLORE in which persons receive up to 6 weeks of computer evaluation and training, a shorter and more intensive experience than COMPETE. Those persons with TBI are eligible for a new 3-year federally funded demonstration project called ETPS – Evaluation, Training, Placement and Support. Having learned from COMPETE the importance of job development, placement, and on-the-job support, ETPS will test a refined model for persons with TBI that provides more intensive job placement and support services. In addition, the project coordinator is now applying the model within a rural school district serving young adults making the transition from special education to the workforce.

The total cost of the COMPETE program was slightly more than $300,000. Seventeen previously unemployed persons are working now or will be completing college. Although we have calculated neither the reduced costs burden for social services for these persons if they were not working nor the positive effect of their tax contributions, we think that an average cost of approximately $18,000 per successful job trainee is modest given the positive personal and societal effect.

Acknowledgment

This project was completed with funding from the U.S. Department of Education Post Secondary Education Programs for Handicapped Persons, Non-directed Demonstration 84 078C1.

References


---

**Scleroderma: Caring for Your Hands and Face**

Jeanne Melvin, MS, OTR, FAOTA

This consumer guide is written for clients with systemic sclerosis and sclerodermia to help them maintain, monitor and improve their mobility. Suggestions on how to use heat to decrease swelling and stiffness and exercises to improve hand and finger dexterity are also included. Contains helpful suggestions on dealing with Raynaud’s phenomenon, arthritis, facial, and other related disorders. Exercises are illustrated with ample room for the OT to make specific suggestions for the client. 28 pages, 1994.

**Order #1111**

$4.50 AOTA member, Units of ten $40.00
$5.50 nonmember, Units of ten $50.00

To order by phone, call 1-800-SAY-AOTA (AOTA members) or (301)948-9626 (nonmembers). TDD customers use 1-800-377-8555.