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J. Ron Nelson

University of Nebraska - Lincoln, rmelson8@unl.edu

Benjamin Lignugaris/Kraft

Utah State University

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Postsecondary Education for Students with Learning Disabilities

RON NELSON
BENJAMIN LIGNUGARIS/KRAFT

ABSTRACT: Increasingly, students with learning disabilities are attending community colleges and traditional 4-year colleges and universities. This article presents the results of a review of the literature on services available or recommended for students with learning disabilities. The results suggest that postsecondary institutions have begun to provide a wide array of services to these students. There is little empirical evidence, however, on the effectiveness of those services. An agenda for future research is also discussed.

□ Increasing numbers of students with learning disabilities are pursuing postsecondary education in community colleges and traditional 4-year higher education institutions (Adult Committee of the Association of Children with Learning Disabilities, ACLD, 1982; Decker, Polloway, & Decker, 1985; Ostertag, Baker, Howard, & Best, 1982; Ugland & Duane, 1976; White et al., 1982). For example, college officials at 106 California community colleges reported that 7,982 learning disabled students were receiving services through the community college learning disability programs (Ostertag et al., 1982). Moreover, in a survey of adults with learning disabilities, 14% reported they had tried college and dropped out, 32% were currently attending college, and another 9% reported that they had completed their bachelor's degrees (White et al., 1982).

College officials have developed an increasing number of support programs in response to the influx of learning disabled students on college campuses (Mangrum & Strichart, 1983a). The number of support programs has

increased for several reasons. First, the enactment of Section 504 of the Rehabilitation Act of 1973 was a major impetus for establishing postsecondary programs for learning disabled students. Second, the development of services at the college level is an outgrowth of services provided initially in elementary schools and later in junior and senior high schools (Decker et al., 1985; Gray, 1981a; Mangrum & Strichart, 1983a; Sedita, 1980). Third, the ACLD and other national and local organizations have campaigned actively to persuade college and university personnel to develop programs to assist these students on college campuses. These lobbying efforts, combined with student interest in attending college, have brought pressure on colleges to develop programs to assist students with learning disabilities (Mangrum & Strichart, 1983a). Finally, many colleges face declining student enrollments. Learning disabled students with the potential for college success represent a source of new enrollments for colleges (Mangrum & Strichart, 1983a).

The purpose of this paper is to review the literature on the types of services available to learning disabled students and identify additional services needed in postsecondary institutions. In addition, future research needs are discussed.

RON NELSON is Doctoral Student, and BENJAMIN LIGNUGARIS/KRAFT is Assistant Professor, Department of Special Education, Utah State University, Logan.

LITERATURE REVIEWED

The literature examined was identified through a computer search of the *Exceptional Child Education Resources Abstract*, *Dissertation Abstracts*, and *Psychological Abstracts*. Descriptors included learning disabled, dyslexia, disabilities, academic failure, learning programs, postsecondary education, adult education, higher education, and continuing education. In addition, an ancestral search was conducted from the identified articles. Articles reviewed referred specifically to programs or discussed the need for programs for learning disabled students (or other commonly used classification labels, such as dyslexia) at community colleges or traditional 4-year higher education settings and were published following the enactment of Section 504 of the Rehabilitation Act of 1973. Articles not included in this review were those that examined specific characteristics (e.g., written language) of college learning disabled students or referred to postsecondary settings other than community colleges or traditional 4-year higher education institutions (e.g., vocational technical schools). A total of 31 articles were identified: 14 articles were surveys of services (8) to support learning disabled students in postsecondary institutions, or descriptive evaluations of specific programs (6), and 17 articles were discussion papers.

The surveys and program descriptions are presented in Table 1. (A complete listing of the discussion papers reviewed is available from the authors on request.) Respondents were identified as directors or coordinators of college learning disabilities programs, college faculty, or students with learning disabilities. In addition, each article was examined for counseling services, instructional accommodations, and administrative accommodations provided to learning disabled students.

The types of counseling services offered were delineated as personal or social, program or academic, and career or vocational counseling. Instructional accommodations included services provided by colleges and instructional adaptations left to the discretion of individual faculty. Finally, administrative accommodations included alternative admission criteria and the addition of special remedial courses to the college curricula.

IDENTIFYING THE COLLEGE STUDENT WITH LEARNING DISABILITIES

In general, a clear understanding of learning disabilities is lacking in many college programs (Cordoni, 1982a). There is little consensus on appropriate measures for identifying adults with learning disabilities (Blackburn & Iovacchini, 1982; Cordoni, 1982a; Gray, 1981b; Hoy & Gregg, 1986). Moreover, there is a lack of consistency in admission criteria across programs (Ostertag et al., 1982). In some colleges, services are available on request or following student and parent interviews (Blalock & Dixon, 1982; Hoy & Gregg, 1986), whereas other programs require lengthy psychoneurological testing or psychoeducational testing to determine if there is a significant discrepancy between aptitude and achievement (Cordoni, 1979; Gajar, Murphy, & Hunt, 1982; Miller, McKinley, & Ryan, 1979; Ugland & Duane, 1976).

Some of the programs described in this review served only students who were designated as learning disabled according to the definition of learning disability found in Public Law 94-142, whereas other programs served a broad array of low-achieving students. For example, programs that admitted students based on the definition of learning disabilities found in P.L. 94-142 included Pennsylvania State University, Southern Illinois University at Carbondale, Rochester Community College, Metropolitan Community College, and Normandale Community College. In contrast, the program for students with learning disabilities at Kingsborough Community College served students with a broad array of learning difficulties and emotional problems (Siegel, 1979), and admission to the Wright State University program was based on a high-average IQ, evaluations from former teachers, a personal interview, and a 100-word statement by applicants indicating why they had applied for the program (Bireley & Manley, 1980).

SERVICES PROVIDED

Most colleges provided similar types of services to students in learning disabled programs.

Counseling Services

Counseling services were often cited as a necessary component of a program for students

TABLE 1
Surveys and Descriptions of Learning-Disabilities Programs in Postsecondary Settings

Reference	Respondents	Instructional Accommodations			Administrative Accommodations	Results and Recommendations														
		Counseling Services	Provided by College	Provided by Faculty																
Barbaro (1982)	Adelphi University: 22 students with learning disabilities (LD) entered 5-week diagnostic session. 19 were enrolled in the fall. (IQ range was 90-121 with a mean of 101.)	<p>Diagnostic Assessment:</p> <ul style="list-style-type: none">■ 5-week diagnostic session (formal and informal testing).■ Student must sign a contract to participate in all services. <p>Counseling:</p> <ul style="list-style-type: none">■ Academic■ Personal (individual and group)■ Parents (group sessions)	Tutoring by full-time educators		<p>Special Admission Procedures:</p> <ul style="list-style-type: none">■ Untimed SAT scores■ Submission of WAIS or other evidence documenting a handicapping condition■ Letter of recommendation from the LD specialist■ Interview students and parents <p>Funding:</p> <ul style="list-style-type: none">■ \$2,000 tuition surcharge■ Study-skills classes	<ul style="list-style-type: none">■ At the end of the 1st year, 16 (84%) were still enrolled■ GPA of students <table><tr><th>Number</th><th>GPA</th></tr><tr><td>1</td><td>3.3-3.6</td></tr><tr><td>4</td><td>3.0-3.2</td></tr><tr><td>3</td><td>2.7-2.9</td></tr><tr><td>4</td><td>2.3-2.6</td></tr><tr><td>3</td><td>2.0-2.2</td></tr><tr><td>1</td><td>1.7-1.9</td></tr></table> <ul style="list-style-type: none">■ 2nd year, 15 (78%) remained enrolled	Number	GPA	1	3.3-3.6	4	3.0-3.2	3	2.7-2.9	4	2.3-2.6	3	2.0-2.2	1	1.7-1.9
Number	GPA																			
1	3.3-3.6																			
4	3.0-3.2																			
3	2.7-2.9																			
4	2.3-2.6																			
3	2.0-2.2																			
1	1.7-1.9																			
Bireley & Manley (1980)	Wright State University program for LD students: 3 LD students (2 male, 1 female)	<p>Diagnostic services not indicated</p> <p>Counseling:</p> <ul style="list-style-type: none">■ Program advisement, students are placed in 1 difficult course, 2 courses of moderate difficulty, and 1 course of minimal difficulty.■ 2 counseling sessions to relieve anxiety and academic pressure.	<ul style="list-style-type: none">■ Tutoring■ Tape-recorded textbooks	Proctors for exams	<ul style="list-style-type: none">■ 1 participant did not fulfill the terms of the contract established with program coordinator and was dropped; 1 transferred; 1 successfully completed degree															

Note: SAT = Scholastic Aptitude Test; WAIS = Wechsler Adult Intelligence Scale; GPA = Grade point average; PIAT = Peabody Individual Achievement Test; WRAT = Wide Range Achievement Test; PPVT = Peabody Picture Vocabulary Test; ACT = American College Testing; DTLA = Detroit Test of Learning Aptitude; IEP = Individualized Education Plan

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TABLE 1 Continued
Surveys and Descriptions of Learning-Disabilities Programs in Postsecondary Settings

Reference	Respondents	Instructional Accommodations				Results and Recommendations
		Counseling Services	Provided by College	Provided by Faculty	Administrative Accommodations	
Blalock & Dixon (1982)	Telephone survey: Program administrators of college LD programs identified in American Council on Education bulletin and other directories	<ul style="list-style-type: none"> Diagnostic Assessment: <ul style="list-style-type: none"> Suggests using formal and informal assessment tools Counseling programs in interpersonal skills (individual and group) 	<ul style="list-style-type: none"> Remediation of reading, writing, and spelling Tutoring for academic classes by peers and professional staff Tape-recorded textbooks Note takers Typing service 	<ul style="list-style-type: none"> Allow tape recorders for note taking 	<ul style="list-style-type: none"> Provide classes designed specifically for students with learning disabilities Study-skills classes Waive selected program requirements Allow reductions in course load 	<ul style="list-style-type: none"> Barriers to postsecondary education include entrance requirements; number of courses/semester, and GPA requirements Recommends development of assessments that reflect adult norms
Cordoni (1979, 1982b)	Project Achieve at Southern Illinois University at Carbondale: In 1981, 46 students were in the program.	<ul style="list-style-type: none"> Diagnostic Assessment in: <ul style="list-style-type: none"> Language functioning Math: PIAT, WRAT, WAIS Self-concept: Tennessee Self-Concept Scale Social skills Counseling: <ul style="list-style-type: none"> Use of peer advocates to teach social skills 	<ul style="list-style-type: none"> Tutors Advocates Talking books Tape recorders Computerized programs to cover course material Typing lessons Remedial training in identified weak areas 	<ul style="list-style-type: none"> Oral administration of tests 	<ul style="list-style-type: none"> Special sections of regular courses for students with learning disabilities 	<ul style="list-style-type: none"> Program is in the initial stages of development (no specific data indicated).
Gajar, Murphy, & Hunt (1982)	Pennsylvania State University Program for LD students, 12 students: 7 male, 5 female	<ul style="list-style-type: none"> Diagnostic Assessment: <ul style="list-style-type: none"> Formal assessments (WAIS and Woodcock Johnson). Informal assessments also conducted. 	<ul style="list-style-type: none"> Taped texts Typing lessons 	<ul style="list-style-type: none"> Extended exam period 	<ul style="list-style-type: none"> Study-skills workshop. Alternative class provided for foreign language requirement. 	<ul style="list-style-type: none"> 2 students completed degree program. 9 students are receiving passing grades in courses.

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Surveys and Descriptions of Learning-Disabilities Programs in Postsecondary Settings

Reference	Respondents	Instructional Accommodations			Administrative Accommodations	Results and Recommendations
		Counseling Services	Provided by College	Provided by Faculty		
Gajjar, Murphy, & Hunt (1982) (Cont.)		Counseling (Academic): IEP specified long- and short-term objectives, strategies for achieving objectives, and evaluation criteria.				<ul style="list-style-type: none"> Students decrease dependence on services as they progress through school.
Mangrum & Strichart (1983a, 1983b)	Directors of college LD programs listed in a number of national college directories	<p>Diagnostic Assessment:</p> <ul style="list-style-type: none"> Areas assessed included academic skills, language, perceptual processes, study skills, personality, and self-concept. Tests included WAIS, PPVT, Slosson, PIAT, WRAT, Key Math, Woodcock Johnson, DTLA, Wepman Test of Auditory Discrimination, and informal tests. Diagnostic testing to plan remediation and tutoring services. 	<ul style="list-style-type: none"> Most programs use peer tutors who completed or are currently enrolled in class. Note takers. Tape-recorded textbooks. 	<ul style="list-style-type: none"> Allow student to tape record lectures Additional time to complete a course Alternative test procedures: untimed tests; take-home tests; test readers, and special projects 	<p>Special Admission Procedures:</p> <ul style="list-style-type: none"> Open admission Cooperative admission procedure: LD college program staff make admissions recommendations to Director of Admissions. Submission of WAIS or other IQ test to judge students' academic potential. Untimed ACT or SAT scores. Letters of recommendation from subject area teachers. Waive some academic requirements (e.g., foreign language at Curry College; College of the Ozarks). 	

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TABLE 1 Continued
Surveys and Descriptions of Learning-Disabilities Programs in Postsecondary Settings

Reference	Respondents	Instructional Accommodations		Administrative Accommodations	Results and Recommendations
		Counseling Services	Provided by College	Provided by Faculty	
Mangrum & Strichart (1983a, 1983b) (Cont.)		<p>Counseling:</p> <p>Academic:</p> <ul style="list-style-type: none"> ■ Individual education plans to identify goals and objectives for remediation ■ Systematic program advisement that considers: <ul style="list-style-type: none"> a. Reduced course loads b. Balancing courses in regard to level of difficulty c. Enrolling in classes that meet several times a week instead of once a week d. Cooperation between learning-disabilities staff and faculty <p>(Barat College; College of the Ozarks)</p> <p>Personal:</p> <ul style="list-style-type: none"> a. Individual and group counseling to reduce anxiety and promote socialization 			<ul style="list-style-type: none"> ■ Special course offerings in study skills, learning strategies, time and stress management. ■ Withdraw from courses without grade penalty.

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Surveys and Descriptions of Learning-Disabilities Programs in Postsecondary Settings

Reference	Respondents	Instructional Accommodations			Administrative Accommodations	Results and Recommendations
		Provided by College	Provided by Faculty	Counseling Services		
Matthews, Anderson, & Skolnick (1987)	100 faculty at a northeastern university; 65% of sample responded.		<ul style="list-style-type: none"> ■ Majority of faculty will allow: <ul style="list-style-type: none"> a. Extended completion deadlines of class assignments (61% of faculty) b. Partial credit (72% of faculty) c. Alternative assignments (61% of faculty) d. Oral presentation of written projects (65% of faculty) e. Proctors (61% of faculty) f. Alternative form of exams (58% of faculty) g. Extra time to complete tests (79% of faculty) h. Oral responses to exams (66% of faculty) i. Take exams in separate rooms (79% of faculty) 		<ul style="list-style-type: none"> ■ Majority of faculty will allow the student to withdraw from a class after the cutoff date (53% of faculty). ■ Majority of faculty will not allow substitution of course for a required course (40% of faculty). 	<ul style="list-style-type: none"> ■ Develop advisory committees ■ Inservice for faculty and admission staff

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Reference	Respondents	Counseling Services	Instructional Accommodations		Administrative Accommodations	Results and Recommendations
			Provided by College	Provided by Faculty		
Matthews, Anderson, & Skolnick (1987) (Cont.)				<ul style="list-style-type: none"> j. Provide student with a detailed syllabus (87% of faculty) k. Tape-record lectures (87% of faculty) <ul style="list-style-type: none"> ■ Majority of faculty will not allow: <ul style="list-style-type: none"> a. Extra-credit assignments not available to other students (58% of faculty) b. Copies of instructor's lecture notes (45% of faculty) c. Poor grammar without penalizing the student (46% of faculty) 		
Miller, McKinley, & Ryan (1979)	Colorado State University: 3 LD students (2 graduate and 1 undergraduate).	Diagnostic Assessment: <ul style="list-style-type: none"> ■ Conducted to help students understand their learning problems. Counseling: <ul style="list-style-type: none"> ■ Academic (individual) ■ Personal (individual) 				<ul style="list-style-type: none"> ■ All three students successfully completed coursework over a 6-month period. ■ Students required a large number of contacts (30 minutes to 2½-hour meetings).

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Reference	Respondents	Instructional Accommodations			Administrative Accommodations	Results and Recommendations
		Provided by College	Provided by Faculty			
Miller, McKinley, & Ryan (1979) (Cont.)						Bob—2 contacts per month for 2 years Marie—40 contacts in 9 months Max—25 contacts in 4 months <ul style="list-style-type: none"> ■ Advocacy is an important component in LD programs. ■ Inservice to faculty is also needed.
Nelson, Dodd, & Smith (in press)	107 faculty at a Northwestern college; 76% of sample responded.		<ul style="list-style-type: none"> ■ Tape recorders ■ Copies of lecture notes ■ Assignment accommodations include: alternative assignments, extended deadlines ■ Examination accommodations include: extra time, oral instead of written exams ■ Proofreaders 	<ul style="list-style-type: none"> ■ Faculty in Education are more willing to provide support services than faculty in Business or in Arts and Sciences. ■ Faculty in Business are more willing to provide alternative assignments and extend deadlines on assignments than faculty in Arts and Sciences. ■ Need to replicate nationwide and evaluate effectiveness of accommodations. 		

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Reference	Respondents	Counseling Services	Instructional Accommodations		Administrative Accommodations	Results and Recommendations
			Provided by College	Provided by Faculty		
Ostertag, Baker, Howard, & Best (1982)	Surveyed 106 California Community Colleges serving 7,962 LD students; respondents were coordinators of handicapped services, instructors in LD program (41% of programs), and psychologists and counselors, or other faculty (27% of programs).	Diagnostic assessment (95% of programs): <ul style="list-style-type: none">■ WRAT, PIAT, and PPVT-R used by more than 70% of programs; DTLA, Woodcock-Johnson, Wepman Auditory Discrimination, WAIS-R and Key Math Diagnostic Test by more than 50% of programs.■ IEPs maintained on more than 98% of students. Counseling (as part of LD program): <ul style="list-style-type: none">■ Academic (90.9% of programs)■ Personal (84.1% of programs)■ Career (86.4% of programs) Counseling (external to LD program): <ul style="list-style-type: none">■ Academic (85.2% of programs)■ Personal (80.7% of programs)■ Career (81.8% of programs)	<ul style="list-style-type: none">■ Tutoring by: specialist in LD (67% of programs), peer (62.5% of programs), aide (80.2% of programs), and faculty (28.4% of programs)■ Reader (80.0% of programs)■ Note taker (75% of programs)■ Classroom accommodations (85% of programs)	<ul style="list-style-type: none">■ Registration service (80% of programs)■ Extended time to complete degree (23.8% of programs)■ Course substitutions (7.5% of programs)■ Class load reduced (63.8% of programs)■ Extend time to complete course (36.3% of programs)	<ul style="list-style-type: none">■ Academic skills found most difficult by students were reading, writing, spelling, math, and oral communication.	

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			Provided by College	Provided by Faculty		
Parks, Antonoff, Drake, Skiba, & Soberman (1987)	223 graduate and professional schools (32% of sample responded) <ul style="list-style-type: none"> ■ 132 graduate schools ■ 46 law schools ■ 28 dental schools ■ 17 medical schools 	Diagnostic Assessment: <ul style="list-style-type: none"> ■ Diagnostic evaluation (52.5% of schools) ■ Report prepared on results of assessment (40.4% of schools) Counseling: <ul style="list-style-type: none"> ■ 46.6% indicated services available ■ Through institution (44.8% of schools) ■ Specific LD counselors (22.4% of schools) ■ Refer to other agencies (39.5% of schools) 	Support Services: <ul style="list-style-type: none"> ■ Tutoring (61% of schools) ■ Audiovideo resources (46.2% of schools) ■ Writing (48.9% of schools) ■ Word processing (34.4% of schools) ■ Note taking (48.3% of schools) ■ Vocabulary development (35.8% of schools) ■ Listening skills (39% of schools) ■ Exam-taking skills (51.1% of schools) ■ Reading (43.5% of schools) ■ Special instructions on use of library (52.5% of schools) ■ Preparation for exams (48.4% of schools) ■ Use of microcomputers (43.5% of schools) ■ Use of calculators (32.3% of schools) 	Accommodations: <ul style="list-style-type: none"> ■ Extra time on exams (65% of schools) ■ Oral vs. written exams (56.1% of schools) ■ Taped test responses (42.2% of schools) ■ Dictated written reports and assignments (49.3% of schools) 	Specific Admission Criteria: <ul style="list-style-type: none"> ■ Transcripts (18.4% of schools) ■ Special admission tests (11.7% of schools) ■ Unlimited scores accepted (14.8% of schools) ■ Other documentation (e.g., letters) (15.2% of schools) ■ LD specialist recommendations (13.0% of schools) ■ On-site interview (4.5% of schools) ■ Parent interview (3.1% of schools) ■ Additional tutorial costs for program (4.5% of schools) ■ Written plan for serving students with LD (4.5% of schools) ■ Extension of program of studies (51.1% of schools) 	

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Surveys and Descriptions of Learning-Disabilities Programs in Postsecondary Settings

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		Counseling Services	Provided by College	Provided by Faculty	
Siegel (1979)	Kingsborough Community College	<ul style="list-style-type: none"> Diagnostic services not indicated Counseling: <ul style="list-style-type: none"> Personal: to provide emotional support Academic: IEP development 	<ul style="list-style-type: none"> Tape-recorded texts Tutoring to remediate skills 	<ul style="list-style-type: none"> Special classes and courses in study skills, social skills 	<ul style="list-style-type: none"> Students reported liking the program
Ugland & Duane (1976)	<ul style="list-style-type: none"> 3 Minnesota Community Colleges serving 150 students with learning disabilities: Rochester Community College Metropolitan Community College Normandale Community College 	<ul style="list-style-type: none"> Diagnostic Assessment: <ul style="list-style-type: none"> Assessment provided to 73% of students in: <ol style="list-style-type: none"> Basic Skills Study skills Cognitive style Emotional stability Academic and vocational goals Assessment examined reception and expression or performance in each area using a broad number of standardized instruments Counseling: <ul style="list-style-type: none"> Social (30% of students) Vocational (52% of students) Program (54% of students) 	<ul style="list-style-type: none"> Tutorial services in basic skills and course content <ol style="list-style-type: none"> One-to-one (47% of students) Small group (29% of students) Taped lectures Alternative testing Referred to vocational rehabilitation for talking-book services (23% of students) 	<ul style="list-style-type: none"> Copies of lecture notes 	<ul style="list-style-type: none"> Average GPA improvement—0.14. The longer a student was in the LD program the greater the improvement in GPA. Differences between the GPA for a control group were reduced by ½ by the end of the academic year. Cost per student = \$150. Course completion rate in English higher than math at Normandale and Metropolitan. Recommendations: <ul style="list-style-type: none"> Inservice training of faculty. Develop procedures for diagnostic assessment.

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		Counseling Services	Provided by College	Provided by Faculty	
Ugland & Duane (1976) (Cont.)	Surveyed 420 instructors; 24% (101) responded.				<ul style="list-style-type: none"> ■ Develop operating agreements between community agencies. ■ Evaluate why there are differences among departments in course-completion rates. ■ 90% of faculty aware of program. ■ 46% could identify specific services. ■ 63% of faculty were optimistic about LD student's success in their course. ■ 15% of faculty unsure about students' capacity to succeed. ■ 19% believed LD students could not succeed. ■ 8% suggested that students not be admitted until basic learning problems are remedied.

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		Counseling Services	Provided by College	Provided by Faculty	
Vogel & Adelman (1981)	8 college LD programs:	Diagnostic Assessment: College personnel indicated that diagnostic testing was beneficial to planning coursework.	■ Tutoring	■ Proctors for tests	■ Programs need to integrate student with LD into the college environment.
	■ College of the Ozarks	■ Academic	■ Taped texts	■ Taped lectures	
	■ Kingsborough Community College	■ Career	■ Readers		
	■ Barat College	■ Personal			
	■ Metropolitan State College				
	■ Curry College				
	■ Southern Illinois University at Carbondale				
	■ Westminster College				
	■ Wright State University				

Note: SAT = Scholastic Aptitude Test; WAIS = Wechsler Adult Intelligence Scale; GPA = Grade point average; PIAT = Peabody Individual Achievement Test; WRAT = Wide Range Achievement Test; PPVT = Peabody Picture Vocabulary Test; ACT = American College Testing; DTLA = Detroit Test of Learning Aptitude; IEP = Individualized Education Plan

with learning disabilities (Blackburn & Iovachini, 1982; Decker et al., 1985; Stichart & Mangrum, 1985; Vogel, 1982). In 12 of the 14 surveys or program descriptions, college officials reported that students were provided some type of counseling service.

Counseling services typically included (a) personal or social counseling, (b) academic or program counseling, and (c) career or vocational counseling. For instance, in three Minnesota Community College programs, 81 of 150 students (54%) received social counseling, 45 of 150 students (30%) received program counseling, and 78 of 150 students (52%) received vocational counseling services (Ugland & Duane, 1976). In another survey (Ostertag et al., 1982), college officials of 106 California community colleges reported that 96 of the community colleges (91%) provided students academic counseling, 89 provided students personal counseling (84%), and 91 provided students career counseling services (86%).

Personal Counseling. Personal counseling was provided to help students with their social and interpersonal skills and to provide support in coping with the stresses of academia. Personal counseling services differed in how they were delivered (i.e., individual or group) and in who provided the counseling (i.e., specialist or peer). Strichart & Mangrum (1985) suggested that specialists in learning disabilities should provide both individual and group counseling for academic stress. For example, at Kingsborough Community College, a specialist in learning disabilities conducted a social skills training program to teach students how to successfully interact with faculty and friends. In contrast, in the program at Adelphi University, social workers provided personal counseling individually and to groups of students (Barbaro, 1982). Initially a social worker interviewed each student and developed a psychosocial history. Based on the interview, each student received individual counseling. Group counseling sessions, conducted by the social worker, helped students manage their time and improve their communication skills with faculty and peers.

Academic Counseling. In 12 of the 14 surveys or program descriptions, college officials reported that students were provided academic counseling. In a majority of programs, aca-

ademic counseling involved a two-step process. First, diagnostic testing was conducted to determine program eligibility. Second, the test results were used to prescribe an individualized academic plan.

The quantity and quality of diagnostic workups varied widely among college programs. Most programs usually confined their assessment to basic IQ and achievement measures (Cordoni, 1982a; Ostertag et al., 1982). Diagnostic assessment was recommended in a number of academic areas, including receptive and expressive language, reading level, written language, and math reasoning and computation skills (Vogel, 1982). At three Minnesota community colleges, students were diagnostically tested in a number of areas, including oral and written language, academic skills, auditory and visual processes, study skills, and self-concept. Most colleges used standardized measures, such as the Wide Range Achievement Test, the Peabody Individual Achievement Test, the Detroit Test of Learning Aptitude, the Peabody Individual Achievement Test, the Detroit Test of Learning Aptitude, the Woodcock-Johnson Psychoeducational Test Battery, the Wepman Auditory Discrimination Test, the Wechsler Adult Intelligence Scale—Revised, and the Key Math Diagnostic Mathematics Test (Ugland & Duane, 1976). Similarly, in Project Achieve at Southern Illinois University at Carbondale, students were assessed in academic areas, self-concept, and social skills (Cordoni, 1979).

Prescriptive planning, the second step in academic counseling, involved using the diagnostic assessment information to develop individualized education plans (IEPs) that specify long- and short-term objectives, learning strategies, and evaluation criteria. Ostertag et al. (1982) reported that IEPs were maintained for over 98% of the students in learning disabilities programs in California. The recommended components of an IEP at the college level varied across programs. In programs that emphasized support services, accommodations that directly assisted students in the college classroom were identified in the IEP. Typically, it was recommended that the IEP include compensatory strategies. At Southern Illinois University at Carbondale, students' IEPs included course content tutoring, talking books, use of tape recorders for lectures, computerized programs to cover course material, and alternative testing

procedures (Cordoni, 1979). In programs that emphasized remedial services, it was recommended that IEP objectives address basic skill training as well as compensatory strategies.

Career Counseling. A variety of career-counseling services are recommended for learning disabled students (Hoy & Gregg, 1986; Salend, Salend, & Yanok, 1985; Siperstein, 1988; Strichart & Mangrum, 1985). Siperstein (1988) suggested that students be provided career-awareness workshops (i.e., self-assessment, job exploration, and job assessment), job-search-strategy workshops (i.e., preparing a resume, writing cover letters, and interviewing techniques), and job-maintenance-skills workshops (i.e., goal setting, responding to employer feedback, interacting with fellow employees, and employee responsibilities). Career counseling, however, was identified as an important program component in only 3 of the 14 surveys or program descriptions (Ostertag et al., 1982; Ugland & Duane, 1976; Vogel & Adelman, 1981). For example, Ugland and Duane (1976) reported that of 150 students, 80 students received vocational counseling. The Kingsborough Community College program provided a comprehensive career or life planning course that included units in career awareness; job interviewing; resume writing; and evaluating one's own abilities, interests, and values (Vogel & Adelman, 1981).

It is not clear, however, whether career counseling should be delivered in groups or individually, or whether the counseling should be provided by peers or by specialists.

Instructional Accommodations

Instructional accommodations include course modifications or support services to help students in college courses. Two types of instructional accommodations were identified. The first type of instructional accommodation is service provided by the college, such as notetakers, tutors, taped textbooks, interpreters and textbook readers, typists, and computers. The second type of accommodation is service provided by individual faculty, such as allowing students to tape-record lectures and providing alternative testing procedures, self-paced instructional modules, extended assignment deadlines, copies of lecture notes, and alternative assignments.

A majority of the college officials reported that learning disabled students were provided some instructional accommodation by the college. Specific instructional accommodations, however, varied across programs. For example, Ostertag et al. (1982) reported that students were provided tutorial support, textbook readers, and notetakers; whereas Ugland and Duane (1976) reported that students were provided only basic-skills and course-content tutoring. At Southern Illinois University at Carbondale, students received a broad array of services, including tutors, talking books, tape recorders, advocates, and computerized printouts that summarized course content (Cordoni, 1979).

Differences in tutoring services provided by colleges were consistent with their program objectives. College officials who advocated a remedial focus provided students basic-skills tutoring and course-content tutoring. In contrast, college officials who advocated a support-service approach provided only course-content tutoring. Remedial services varied in how they were provided (i.e., individual tutoring, group tutoring, or special remediation courses) and in who provided the instruction (i.e., specialist, peer, or faculty). The College of the Ozarks and Barat College advocated intensive individual tutoring, but at Curry College, two or three students were tutored together (Vogel & Adelman, 1981). Siperstein (1988) suggested that remedial services might be provided through a series of compensatory skill workshops, whereas students in California received tutoring for basic-skills deficits from a peer, from an aide, or from a faculty member (Ostertag et al., 1982). However, the basis for receiving tutoring from peers, aids, or faculty members was not identified.

Instructional accommodations provided by faculty included those classroom adaptations made at the discretion of individual faculty. These accommodations varied across programs. In a survey of directors of college programs, Mangrum & Strichart (1983b) reported that instructional accommodations provided by faculty included additional time to complete coursework and alternative testing procedures. In contrast, Ugland and Duane (1976) reported that the instructional accommodations provided by faculty included allowing students to tape lectures, providing copies of lecture notes, and providing alternative test procedures.

An important consideration was how willing faculty were to provide accommodations in their classes. In only three studies were faculty surveyed concerning their willingness to provide students different accommodations (Matthews, Anderson, & Skolnick, 1987; Nelson, Dodd, & Smith, *in press*; Ugland & Duane, 1976). Matthews et al. surveyed all the faculty at a small northeastern public university. The majority of faculty were willing to provide daily class accommodations, such as tape recording lectures, and assignment and examination accommodations, such as alternative assignments and testing procedures. The majority of faculty were not willing to provide copies of the instructors' lecture notes, nor were they willing to provide disabled students with extra-credit assignments that were not available to other students. In another study, Nelson et al. surveyed all the faculty of a small northwestern university. Nelson et al. reported results similar to those reported by Matthews et al. In addition, Nelson et al. reported there were statistically significant differences among the College of Business, College of Arts and Sciences, and College of Education faculty in their willingness to provide students instructional accommodations. In general, College of Education faculty were more willing to provide course accommodations than were either Business or Arts and Sciences faculty. In addition, faculty in the College of Business were more willing to provide assignment and exam accommodations than were faculty in Arts and Sciences.

The results of these two studies suggest that faculty are willing to provide learning disabled students some accommodation in college classes. The type of assistance, however, is likely to vary based on the college. These conclusions should be viewed cautiously because the small samples in these studies may not be representative of college faculty in general.

Administrative Accommodations

Administrative accommodations include modifications in college admission policies and procedures and program funding mechanisms. Modifications in college admission policies that contribute to identifying students with learning disabilities are advantageous to both the student and the university. Early identification of students requiring services permits the integra-

tion of services into a student's program during academic planning rather than in response to academic problems that develop later (Shaywitz & Shaw, 1988). Strichart and Mangrum (1985) suggested that subtest scores on intelligence tests or on the Scholastic Aptitude Test (SAT) or American College Testing (ACT) college entrance exams should be used to determine college aptitude, and letters of recommendation from learning disabilities specialists should be considered in the admissions process. The admission modifications identified in the colleges reviewed include the acceptance of untimed entrance exams and weighted consideration of letters of recommendation from learning disabilities specialists, high school grades, and interviews with students. For example, Barbaro (1982) reported on 22 students who were admitted to Adelphi University based on untimed SAT scores, a review of a recent IEP, high school grades, and letters of recommendation from the learning disabilities specialist at the students' high schools.

A reduced courseload is also a recommended practice (Patton & Polloway, 1987; Vogel, 1982). In three of the surveys, officials reported that students were allowed to take reduced courseloads and extend the length of their program of studies. In California, college officials reported that reduced courseloads were allowed in 67 of 106 community colleges (63.8%) and extended programs of studies were permitted in 25 of the community colleges (23.8%) (Ostertag et al., 1982). However, the length of time programs might be extended and how much courseloads might be reduced were not indicated.

One administrative function that has not been fully addressed is the funding mechanism for special programs or funding for students in special programs. Funding is an important consideration because the amount of money and the source of funds could influence the types of services included within the program. For instance, funding might affect whether a program provides individual counseling or group counseling; uses peer tutors or specialists; and provides remedial services as well as support services. Cordoni (1982b) reported that the cost of programs designed specifically for students with learning disabilities ranged from \$3,000 to \$10,000 per student per year. In contrast, Ugland and Duane (1976) suggested that a learning-disabilities program at the

community college level might be built on existing services with little additional cost by using peer tutors and existing community resources. In some programs, these costs were met by the institution; in other programs, students were charged additional fees that ranged from \$150 to \$2,000 (Barbaro, 1982; Mangrum & Strichart, 1983a, Ugland & Duane, 1976). Parks, Antonoff, Drakes, Skiba, & Soberman (1987) indicated that in 80% of the graduate and professional programs they surveyed, the costs of special services were met by the institution.

CONCLUSION AND FUTURE RESEARCH NEEDS

It is evident that many learning disabled students attend community colleges and traditional 4-year institutions (ACLD, 1982; Decker et al., 1985; Ostertag et al., 1982; Ugland & Duane, 1976; White et al., 1982). Three factors are associated with how services are provided to these students. First, differences in program emphasis and service delivery reflect differences in program objectives. Some college officials reported that the principle objective of their program was to provide students basic-skills remediation. For example, at Kingsborough Community College, a central program component was remediation of basic skills through peer tutoring and Audio Tutorial Lab (Siegel, 1979). In contrast, some college officials indicated that the objective of their program was to support students in classes rather than remediate their basic-skills deficits. For example, at Wright State University, students were provided course-content tutoring, exam proctors and readers, access to tape-recorded textbooks, and assistance from Vocational Rehabilitation (Bireley & Manley, 1980; Vogel & Adelman, 1981). Still other programs emphasized remediation of skill deficits and support services. For instance, at three Minnesota community colleges, students were provided basic-skills tutoring and remedial courses, as well as course-content tutoring, taped lectures, and alternative testing procedures (Ugland & Duane, 1976).

Provision of remedial services or support services often reflects differences in the expected entry-level skills of students with learning disabilities and differences in how program administrators view the educational

role of postsecondary institutions (Vogel & Adelman, 1981). Kahn (1980) indicated that the teacher's responsibility at the secondary and junior college level is to teach content and not remediate learning problems. Proponents of support services also have argued that most often a university student does not have the time or energy to complete a remedial program in addition to regular coursework (Ingram & Dettenmaier, 1987). In contrast, basic-skills remediation has been viewed as a necessary ingredient for success in college-level coursework (Sedita, 1980).

Second, the mission of the college appears to influence the types of services provided students. Community colleges have provided opportunities ranging from preparation for the general equivalency diploma (GED) to noncredit special interest courses and vocational training courses, whereas traditional 4-year institutions offer students academic training in a range of specific fields. Typically, 4-year institutions have emphasized remedial training less than have community colleges.

Third, the amount of funding allocated to the program may be associated with how services are delivered to students. For example, the funds available to a program might determine whether the tutors are specialists in the field of learning disabilities or peer tutors, and whether a program provides individual or group counseling.

There is little research available that college administrators might use to design a service program for students with learning disabilities (Cordoni, 1979, 1982b; Gajar et al., 1982; Putnam, 1984; Sedita, 1980). First, research is needed on measures to identify adults with learning disabilities. This research should lead to establishing guidelines for determining program eligibility (Decker et al., 1985; Gray, 1981b; Hoy & Gregg, 1986).

Second, descriptive research is needed to identify services provided learning disabled students. In particular, a national survey that addresses the course accommodations that faculty in community colleges and universities are willing to provide students would be useful information for career counselors in secondary schools and academic advisors in universities. In addition, research that describes the setting demands of postsecondary educational environments would be useful in designing learning plans for learning disabled students. Research

in setting demands has provided a foundation for developing a number of intervention strategies for high school learning disabled students (Anderson-Inman, Walker, & Purcell, 1984; Schumaker & Deshler, 1984). Similar analyses of setting demand variables in postsecondary settings would provide a foundation for developing an effective and comprehensive service system in postsecondary education.

Third, little research examines the effect of individual program components on student achievement or the most effective and efficient way to structure program components. For example, Deshler and Graham (1980) suggested that material may be taped verbatim or text may be paraphrased and summarized. It is not clear how these approaches affect students' class performance or if a particular structure of taped material might influence the development of study skills.

Finally, there is a need for longitudinal studies that examine what students do after graduation and that identify the services that students found most useful. This kind of information will provide program administrators with quantitative as well as qualitative data with which to evaluate their learning disabled programs.

Postsecondary careers are composed of transitions that include entering college, adapting to academic and social changes, and exiting college (Siperstein, 1988). It is clear that many postsecondary institutions recognize both the need and the responsibility to provide services that will assist individuals with disabilities to succeed in each transition. It is also clear, however, that we must devote more research resources and expend greater effort in developing programs that are both effective and cost efficient.

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The development of this article was partially supported by Grant #G008780011 from the Office of Special Education Programs, U.S. Department of Education. The authors acknowledge Pamela Hudson and Deborah Smith for their helpful suggestions on an earlier draft of this manuscript. Requests for reprints should be sent to Benjamin Lignugaris/Kraft, Department of Special Education, Utah State University, Logan, UT 84322-6500.

Manuscript received October 1988; revision accepted March, 1989.