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ABSTRACT

The research on literacy practices for adults with learning disabilities was reviewed. A computerized search of four databases--Dissertation Abstracts International (DAI), ERIC, Psychological Abstracts (PA), and Social Sciences Citation Index (SSCI)--yielded more than 500 pertinent publications that were published during the past 14 years. Of the studies selected for analysis, 56 examined characteristics of adult education programs and adult education staff or students, 14 examined screening, and 19 examined interventions. The most frequently corroborated implications were that reading is a primary topic of literacy intervention and remediation is overwhelmingly the most common approach to intervention. Positive self-affect was frequently reported among successful adult literacy students; however, it was not established that promoting positive affect will lead to literacy success. Few assessment tests were identified as appropriate for assessing aptitude or achievement in community college populations, and those that were deemed susceptible to bias for certain populations. Nearly all studies of interventions reflected an orientation towards a skills-based approach to reading. (The bibliography contains 101 references. Seven tables devoted to the following constitute approximately 50% of this document: search terms, categories, and subcategories of the literature review; college, university, and community adult education programs; adult education staff and students; screening; and intervention.) (MN)

What we know about literacy practices for adults with learning disabilities: A review of published research

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Running Head: Adults with LD research

What we know about literacy practices for adults with learning disabilities:
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Abstract. Adults with learning disabilities (LD) are commonly assumed to be highly represented in the population of adults who have significant literacy learning needs. Many adult educators are not fully informed on how best to serve this population. Among the factors contributing to their lack of information is (a) a presumed paucity of research on best practices and (b) that the research-based information that does exist is not easily accessed. This research review includes published research from a 14 year period that is accessible to adult educators. General implications from the research found include that little research has been done on any one aspect of literacy education for adults with LD, most research on service delivery practices is descriptive, and reading is the primary focus of intervention research. This review should be helpful to adult educators seeking to compare their own practices to what has been researched, as well as to those concerned with identifying what further research is needed.

What we know about literacy practices for adults with learning disabilities:
A review of published research

Many adult educators are frustrated by a lack of information concerning what practices work for teaching literacy to adults with learning disabilities (LD). This frustration stems from several factors. These factors include insufficient and confusing information regarding the condition of learning disabilities and their manifestations in adults, and uncertainty as to what constitutes best practice in literacy education for adults with LD. Also, many adult educators experience professional isolation due to being trained in other areas of education. Many of these literacy practitioners do not receive the levels of professional support their K - 12 counterparts do. Underlying all of these factors is the limited amount of research related to effective practice and that what information there is is not easily accessible.

By cataloging research that has been published on literacy education for adults with LD, we provide adult educators and others concerned with adult literacy with some of the information they need to interpret existing knowledge about best practices. This literature review can also be of use in identifying what knowledge and practices we as a field need to develop.

Most of the adult literacy practices considered to be effective have been "proven" not in research, but rather in practice in adult education programs around the nation. By studying this literature review, practitioners will have an opportunity to compare what they "know to work" with what research has indicated to be sound practice. Practitioners can then evaluate their own practices in comparison to published research findings.

Effective practices are performed by skilled professionals. Those professionals combine their beliefs and knowledge about effective practice with an understanding of the demands of the setting in which they implement the practice (Richardson, 1996). By "practice" here we man the full gamut of how adults with LD are served. Those

skills practitioners often employ trial and error strategies to facilitate the fit between practice and context.

As often as not, professionals employing a practice can be duped into looking at the wrong factors when judging effectiveness and seeing what they want to. By asking the wrong question one can get answers that provide little information about what should be sought. There are at least two types of wrong questions that are commonly asked in practice. One type is to literally ask the wrong question, for example, asking *does the student enjoy this approach to learning?* When you want to know if the approach helps the student to decode words in print. While student motivation is very important, this question does not directly address the effectiveness of the practice being used. The second wrong question type is asking the right question but looking for the wrong information to answer it. For example, looking at recall of main ideas when assessing the effectiveness of a procedure for decoding words.

Practitioners who ask wrong questions operate on an assumption of having satisfied appropriate research questions. For example, many adult literacy educators believe in the importance of providing instruction consistent with their adult student's preferred learning styles (i.e., strongest or most enjoyed learning modalities). They also believe there is research evidence to support their beliefs (see Arter & Jenkins, 1977). While there is evidence that learners infact have particular learning styles and that they even have preferred learning styles (Dunn, 1990), there is no clear evidence that education based in preferred learning styles and that neglects other learning styles has any particular benefit for a learner (Barr, 1984; Chall, 1978; Kavale & Forness, 1990; Stahl, 1988). Yet, scores of practitioners will respond that despite what research has or has not investigated and regardless of what it does or does not support, they "know" that learning style-based instruction is effective. This may be so and research may need to catch up with practice. Or, by investigating the research that does exist -to answer the right questions, practitioners may come to understand how what they

believe to know can be differently understood. Thus, at a minimum it is important for practitioners to become consumers of research. It is also important that they and others concerned with adult literacy education are aware of what has and has not been researched, so that decisions can be made about what is best practice and what must be learned before more best practices can be determined.

Even positive findings from exemplary research have limited practical utility, however. Ample evidence exists to indicate that education practices that have been validated by research do not routinely produce similar positive results in daily practice (Kaestle, 1993; Kennedy, 1997). The results of research can be biased or nonreflective of the typical contexts in which a practice is normally implemented. Among the reasons for this are that research is sometimes carried out in artificially controlled situations. Some research projects are carelessly biased when they are set out to "prove" or "disprove" hypothesized findings. This may influence what data is collected and how it is interpreted. Also, the unique context of any education setting (e.g., teacher and pupil prior knowledge, physical surroundings) places one-of-a-kind demands on a practice. Those researched practices that are effectively translated into daily practice further support this point. Effectively translated practices are effective precisely because a generic researched practice is "translated" in order to make it fit a unique context. The conclusion to be drawn is not that research is irrelevant in determining what is effective. Rather, research provides a vital contribution to practitioners determining what is effective. Research evidence can be used by practitioners to inform what practices they try and how they apply those practices in their unique context. Hence, we present this review of accessible research.

Method

Search Procedure

Four computerized data bases were searched for this literature review, Dissertation Abstracts International (DAI), Education Resources Information Center

(ERIC), Psychological Abstracts (PA), and Social Sciences Citation Index (SSCI). These databases were selected because they have comprehensive cross listings of publications relevant to adult literacy and learning disabilities, and they and the majority of materials they reference are easily accessed through libraries around the nation. The search in each database was inclusive of all posted materials dated from 1982 to September, 1995. The search was conducted over the twelve month period from January, 1995 to January, 1996. (Due to the delay in posting time for some indexes, some eligible publications may not have been identified during the search period.)

The descriptors listed in Table 1 were searched individually and in combination with descriptors that included the term "adult" (e.g., *adult + literacy + learning disabilities*). Specific descriptors were searched in multiple tenses when not an automatic function of the database search procedures (e.g., *learning disability, learning disabled, learning disabilities*). The majority of search descriptors were identified by the researchers before the literature search was begun. The descriptors listed with each eligible entry found were reviewed and additional relevant descriptors revealed by the search were added to our search list.

Insert Table 1 about here

Selection criteria

The search yielded over 500 references. The following criteria were used to determine which references were eligible to be represented in our literature set. First, the publication had to be identified in at least one of the four data bases. These data bases are available to the public in computerized and print formats. Second, eligible references had to be from research studies. All forms of research were accepted, including quantitative, qualitative, quasi-experimental studies, and research reviews. Third, the studies had to address some aspect of literacy and adults with learning disabilities. Examples of the variety of eligible studies include literacy profiles of

adults with learning disabilities, attitudinal surveys of literacy service providers, or investigations of specific screening, support, or academic interventions for adults with LD. The referenced materials did not have to present the eligible study as its sole or primary focus in order to qualify for inclusion. In a few cases, a single publication reported multiple distinct studies. And fourth, the materials had to be published in a format available to the public. Thus, we use the term "published" to signify materials that may be secured through libraries, clearinghouses, or purchases available to all. "Published" also includes those materials that are available only in microfiche or computerized formats, as well as professional journals, newsletters, books, etc. Unpublished research (e.g., drafts in preparation for publication, research in progress) have been excluded because they are not readily available and their content may not be in its final form.

A total of 85 studies were found that satisfied our eligibility criteria. The 85 were found in 81 publications. Three additional studies were possibly eligible but their publications could not be located through interlibrary loan services. A larger number of published studies than were eligible according to our criteria pertain to adult literacy education and learning disabilities. For example, a search of *adult students* on the ERIC database for the same time period as our search yielded a total of 2,846 publications. A portion of those publications would be accessible research studies with relevancy to our topic. They were, however, not accessed in our more focused search for information specifically related to research on literacy education for adults with LD.

Data Analysis

Each publication that satisfied the eligibility criteria was reviewed to identify content of interest to those concerned with adult literacy and learning disabilities. These stakeholders include adult educators, literacy and learning disabilities specialists, adult learners, and educational researchers. Content were organized into

several categories. First, the general area of each study was identified as addressing screening[1], *intervention*, or *adult education staff, students*, or *programs*. The number and type of study participants were noted (e.g., 10 adult basic education [ABE] students and 73 traditional ABE/literacy program coordinators). Also, the type of research design employed was noted, or if it was a review of research. The topic of each study was determined by reading the published research and identifying its primary focus. Thus, the list of research topics emerged from reading the eligible studies. Topics include *transition, reading, writing, functional skills, academic skills, other*, and *research review*. Subtopics were similarly identified for each topic. Subtopics for *academic skills*, for example, include *assistance & motivation, guided note taking*, and *communication & assertiveness skills training*. The topic *other* was used for publications that did not clearly fit any of the other topics. The *other* category included such subtopics as *pronunciation* and *computer assisted instruction*. Specific research findings were also noted for each study. Lastly, the duration of the study was recorded.

Findings

The collective findings from this literature review provide insight into practices in adult literacy education for adults with LD. More specifically, they reflect what has been addressed through research and published. This review should not be considered an exhaustive resource on practices or participants in literacy education for adults with LD. We do not endorse any of the findings presented in the literature included in this review. The integrity of the information provided is the responsibility of the publication's authors.

As informative as the eligible publications are, where they were and were not found is also informative. Those that were published in professional journals were

[1] Distinctions were not made for this review between those studies that appeared to address screening versus assessment for LD. Use of terminology in the publications and descriptions of practices indicate that the two procedures were not clearly distinguished by some authors or program staff.

almost all from disability related journals such as *Learning Disabilities Research and Practice* and *Journal of Learning Disabilities*. Very few were from literacy or adult education related journals, unless they had a combined focus on disability (e.g., *Journal of Reading, Writing, and Learning Disabilities International*). (The few literacy and adult education journals included *Community Junior College Quarterly of Research and Practice* and *Journal of Reading*.) Eligible publications in the form of research reports or ERIC documents also tended to be from projects and research programs devoted to disability-related issues. What this trend in publication outlets indicates is that of the small amount of research devoted to literacy education for adults with LD, almost none is published in outlets directed toward adult and general educators. Or, said another way, where education researchers commonly submit reports of their work on adult literacy are not the same outlets for disability-related reports. Hence, those publishing on adult literacy may lack exposure to disability related issues in their fields and apparently do not include examination of disability related issues in their own reporting.

Also interesting is the small number of eligible publications from all sources in the 14 year span of this review. Notable among the journals that did not contain any eligible publications are *Adult Education Quarterly* (formerly *Adult Education*), *Educational Gerontology* and *Adult Learning* (formerly *Lifelong Learning: The Adult Years*). Because it was possible that some articles in these journals were pertinent to adult literacy and learning disabilities but were not identified by our search procedures, the tables of contents of each were searched. No eligible entries were found. A more positive implication from the list of sources of eligible publications is that it included dissertations and theses. The 18 eligible studies that were published as dissertations were all published between the years 1988 and 1995. This may serve as an indication that scholars in the field are taking increased notice of the importance of research in literacy education for adults with LD.

Of the 85 eligible published research studies, 56 were studies of characteristics of adult education programs, staff, and/or students (4 were also identified as screening studies), 14 were categorized as primarily addressing screening (4 were also identified as adult education studies), and 19 primarily addressed interventions. Five of the studies of characteristics qualified as containing contributions to two categories. The categories to which individual studies were assigned represent the major focus of the study (for example, only a few studies were categorized as primarily addressing screening, however, other studies had screening as one topic of their focus, e.g., Ostertag, Pearson, & Baker, 1986a). Seven of the publications reviewed included more than one study that qualified for inclusion, each study was counted separately.

Some of the eligible publications presented only a single design and data collection method, others presented multiple designs and measures. The studies of adult education staff, programs, or students were predominately survey or interview (n = 42), followed by case study or observation (n = 8), three involved record reviews, nine were experimental/quasi-experimental studies and three were literature reviews, nine had multiple designs, and one had an unspecified design. The 14 screening studies included two survey, nine experimental/quasi-experimental designs, one instrument review, and one expert consultation. The intervention research included three survey and six interview studies, one naturalistic, nine case study or observations, nine experimental/quasi-experimental designs, eight multiple design studies, and one record review. Six of the studies included in the review were based on literacy programs in foreign nations.

Findings by Category

Adult Education Programs

Research on adult education programs was overwhelmingly focused on describing the services programs offer. More specifically, their purpose was to identify either which services are offered or the appropriateness of those offered. For the

majority of these studies, this involved survey research in which program staff or administrators were asked to describe services in a defined area. For example, Pollack (1991) surveyed education directors in one state's adult correctional facilities to determine the types of education services offered to prison populations and whether or not services are differentiated for those prisoners with LD. As might be expected, the studies in this category all focused on specific types of service providers (e.g., community colleges, adult literacy programs in a single state). For only one study (Gerber, 1984) was the purpose to compare services from different types of programs. Findings from this set of adult education program studies are diverse and, therefore, not easily summarized. At one level of categorization, the studies may be divided between those focused on postsecondary programs in colleges and universities, and those programs that are community based (e.g., adult basic education).

College / University programs. Nine of the eighteen adult education program research studies investigated community colleges or 4-year degree college and university programs (Table 2). These particular studies focused mostly on services that may best be described as "related" to literacy interventions for students with LD. In all, they provide a representation of the types of services postsecondary institutions consider important for their students with literacy needs. While services for directly building literacy skills were identified in some instances (e.g., remedial reading classes), more commonly identified services were in the spirit of accommodation. Accommodative education services help to reduce disability-based barriers to participation and success (Mellard, Hall, & Leibowitz, 1997). If this is an accurate profile of how community and 4-year colleges and universities address the unique needs of their students with basic literacy needs and/or an LD, it might indicate that those in need of developing basic skills would be wise to do so before entering one of these settings. Programs that teach basic skills and compensatory strategies are unavoidable in building adult basic literacy performance.

Insert Table 2 about here

Findings from studies such as those by Ostertag, Pearson & Baker (1986b) and Woods, Sedlacek, and Boyer (1990) indicated that a large variety of accommodative services are available both for navigating colleges and universities (e.g., registration assistance) and succeeding on specific academic tasks, (e.g., course selection, tutoring, teaching of literacy skills and strategies). In a nationwide survey of two and four-year college programs affiliated with the Association of Handicapped Student Services Programs in Postsecondary Education (AHSSPPE), Bursuck, Rose, and Cowen (1989) found those programs tended to be in compliance with Section 504 regulations, and that, in fact, many schools offered services in addition to those required for compliance. Hunt (1990) conducted a survey of public two-year community colleges in one state analyzing their then current services and projected needs. Her findings were catalysts for (a) development of special needs departments, (b) seeking assistance to improve assessment practices and (c) planning for professional development for college staff. Similarly, Marcus (1990) compiled a report of 15 programs receiving funds from the Funds for Improvement of Post Secondary Education program (FIPSE). Both what was considered to work and not to work has been reported by the individual projects' directors. Descriptions of each program include what was done and what has become of the program since ending of the FIPSE funding. Findings from these studies should be informative at least to those providing services at similar institutions. The studies of college and university programs tended not to specifically address the adequacy of the service programs offered, however.

Of the nine studies that focused specifically on services for students with LD or at-risk provided by vocational college, community colleges, or 4-year colleges and universities, all indicated that the majority of the institutions they studied offer some

special services for students with LD. The different purposes of the various studies led to different levels of specificity in describing those services.

Four of the nine studies specifically addressed learning disabilities assessment-related services. From these studies it would appear that LD is often taken into account in the admissions process, but that assessment for LD practices varies among programs. There was variation in terms of whether programs conducted assessments and whether they used assessment results to guide admission or placement and service decisions. Just over half of 13 state universities queried in one state indicated that they had special admission criteria for applicants with an acknowledged LD (Woods et al., 1990). Ninety-two percent of those universities require documentation of the learning disability; what portion of those institutions provide assessment and disability certification services was not reported. Fifty-four percent of respondents indicated that they use some form of standardized diagnostic indicator to describe learning disabilities (most often the WAIS-R or Woodcock Johnson Psycho-Educational.

Of the 13 schools in the Woods et al. (1990) study, 47 % use a preadmission interview as part of the admission process. Only 33 % of those same institutions indicated that they use assessments for class placement decisions. Less than three-quarters of 4-year college and university programs surveyed in another study indicated that they use assessments in making placement decisions (Beirne-Smith & Deck, 1989). Still, in a study of 106 of a state's community colleges (Ostertag et al., 1986a), 89 % were found to accept assessment results from other agencies for use in making placement decisions. (Discussion of eligible publications on the practice and implications of screening and assessment may be found in the *Screening* section ahead.)

Seven of the nine studies of college and university programs named specific examples of support services offered to students with LD or recognized as needed to be offered. These include support in reading, writing, spelling, math, oral communication, note taking, test taking and vocational, personal living and

independence skills. In addition, they identified support services offered including assessment, priority registration, tutoring, remedial classes, special testing situations -- including alternative formats and extra time for class exams, extra time to complete class assignments, referrals for services related to disabilities, consultations, counseling, faculty consultation, and faculty and staff training on the characteristics and needs of students with LD. One of the studies of community colleges in a single state (Ostertag et al., 1986b) indicated that "most" of the colleges in the state provide at least some of the special services identified. There is no evidence based on the small number of publications identified that services provided markedly differ among vocational, community, and 4-year colleges or universities.

Other studies investigated services in terms of who provides them. For example, Woods et al.'s (1990) study of 13 state universities indicated that 69 % of program services are offered under the auspices of a disabled student services-type program. In the one survey of vocational college faculty (Nelson, Smith, & Dodd, 1991), the faculty indicated both a need to provide support services to students with LD and their own willingness to provide instructional adaptations. There was little correlation, however, between the adaptations faculty indicated they were willing to provide and those they actually did provide. Consistent with this finding, Hunt's (1990) survey of needs in two-year community colleges revealed a need for faculty and staff professional development in the area of disability-related services.

In the studies reviewed, only limited information was offered about the qualifications of persons and / or departments that offered special services. Of the 13 state universities Woods et al. (1990) studied, only 47 % employ a full-time specialist in learning disabilities. And, in a survey asking nearly 300 postsecondary personnel what qualifications such a specialist should have (Norlander, Shaw, & McGuire, 1989; Norlander, 1990), the qualities identified include having skill at assessment - including skill in interpreting standardized tests, and having knowledge of cognitive

interventions and instructional skills appropriate for students with disabilities. Skill at affective interventions and research were identified as not very important.

What emerges from a review of the topics of these studies is an emphasis on identifying what is offered, with much less attention to impact of the offerings. Only three of the college/university publications made reference to a program's evaluation of the impact of the special services they offered. Woods et al. (1990) found that slightly more than half of the 13 state universities they surveyed could not identify the number of graduates from the previous year who had a learning disability. Bursuck et al. (1989) made similar findings in their survey of 197 AHSSPPE programs. On a more positive note, Ostertag et al. (1986b) found that 89 % of the community colleges studied in one state did conduct standardized assessments of their "LD Average" programs.

Community adult education. In the nine studies of community-based adult education programs (see Table 3), the common focus was on sources of program funding and the types of services provided. In regards to types of services, both those related to providing education (e.g., financing, accommodative services) and specific literacy interventions (e.g., basic reading instruction) were subjects of study.

Insert Table 3 about here

A study of adult literacy programs across one state (Gadsden, 1989) revealed that the majority of program funding is from state and local resources. Only 3 % of those programs charge their students directly for services; twenty-eight percent of those enrolled were working toward (General Educational Development diploma) GED attainment and 21 % were studying reading and writing at basic to advanced levels.

Using surveys to adult education centers in another state, Nurss, Campbell and Hiles (1991) found somewhat parallel information. The materials staff are most likely to use concern funding sources for their programs, and recruitment and retention. Other most likely used materials address literacy for adults -including those with LD,

workplace literacy, family literacy, and materials for beginning readers. The materials reported as least used shed further interesting light on populations served at the centers and on the nature of intervention practices. Literacy materials concerning the homeless and elderly, as well as computer software and materials used in training literacy volunteers were all identified as among the least used. What materials are and are not used are potentially influenced by the students and missions of the programs. In Gadsden's (1989) survey study of adult literacy programs, 74 % of the materials identified as used were published materials.

In a study of 50 literacy education programs in adult correctional facilities in one state, Pollack (1991) identified similar information to that from other community based program studies. Thirty-four percent of the facilities budget education funds specifically for remedial education efforts. (Eighty-two percent of the programs sponsor college degree programs.) They reported that, on average, more than 25 % of the inmates enrolled in education have a learning disability. (Of the facilities responding, 18 % report that more than 10 % of their general inmate population has a learning disability.) Just over one quarter of their special education teachers do not have special education teaching certification. More than half of the programs use tutoring as a form of instruction; sixty percent of those programs use volunteer tutors and 86 % rely on inmates as tutors. In the opinions of the responding administrators, most inmates see the education programs as a chance to improve their personal skills, a smaller number consider enrollment as important for impressing parole boards and a minority are enrolled because they consider it the easiest program option in their facility. This is consistent with other findings indicating most inmates seek education for betterment (Haigler, Harlow, O'Conner, & Campbell, 1994). Eighty percent of inmates participate in education programs between 11 and 30 hours per week; this is the amount of participation for 58 % of those with LD enrolled in education programs.

In another study of programming services for adults with LD, Ramsey and

Ramsey (1983) studied the effects of a specialized academic curriculum on Job Corps participants with LD. Participation in the curriculum resulted in greater retention and academic success than for those with LD who instead took part in the traditional curriculum. Those from the specialized curriculum also had better starting salaries and job retention at the conclusion of instruction. Comparisons were made to underachievers.

Adult Education Staff

The nine eligible published studies of adult education staff can be broadly grouped by those that describe characteristics of various staff and those addressing staff training (see Table 4).

Insert Table 4 about here

Characteristics. All nine studies included research on characteristics of adult education staff, each of those focused on staff preparedness to serve students including those with LD. Each of these studies concerned those with direct responsibility for educating adult students. In surveys that asked the educators or their administrators to report on staff qualifications, there was a strong indication that the educators were prepared to meet the needs of their adult students with LD. Interestingly, none of these studies sought the views of students with disabilities.

Staff at 77 % of the literacy programs studied in one state by Gadsden (1989), are required to have at least a bachelor's degree and teaching certification. And, a study of 510 postsecondary service delivery providers for students with LD found most have a Masters degree but less than five years of postsecondary experience with students with LD (Yost, Shaw, Cullen, & Bigaj, 1994). More than two-thirds of them have an educational background in an area other than special education.

Ross and Smith (1988) found that ABE and GED educators (teachers, counselors and administrators) generally have confidence in their ability to serve students with

learning disabilities, and that they welcome having these individuals as students. These same educators, however, desire more training on LD and LD service provision. Nelson, Smith, and Dodd (1991) likewise found in a survey of vocational community college faculty that they consider themselves prepared and willing to serve their adult students with LD. There was little correspondence, however, between what adaptive instructional practices these instructors reported as providing and the practices they self-identified as willing to provide. Nelson, Dodd, and Smith (1990) found college faculty differed by discipline in their willingness to supply specific accommodations. The faculty were surveyed on their willingness to supply 18 identified accommodations.

Norlander et al. (1989) and Norlander (1990) found that postsecondary educators identify competency in the areas of assessment and intervention as most desirable for someone in their profession. Saeteo (1990) made similar findings from surveying functional literacy teachers and administrators in Thailand.

A general conclusion drawn from the studies of characteristics of adult education teachers is that they are willing to accept the challenge of teaching adults with literacy learning needs, including adults with LD. Further, they consider themselves prepared to teach this population. And, indeed, they do generally have some degree of training specifically in adult education or learning disabilities. The publications in this review that investigated staff training found staff are generally trained adult or special educators (e.g., Gadsden, 1989; Yost et al., 1994). Still, many of these staff themselves identify a need for more training. Few of the qualifying studies sought to independently verify staffs' preparedness (e.g., observing or otherwise measuring actual interactions with learners with LD).

Staff development. In several studies, adult educators identified needed areas of professional training or staff development. Adult educators are decidedly in favor of learning about literacy interventions in their staff developments.

The 205 adult educators Ross and Smith (1988) surveyed identified their most desired in-service topic as intervention methods for meeting the needs of students with LD. More than two-thirds of those surveyed want to know more about characteristics of students with LD and appropriate teaching methods. More than half of them want information on appropriate materials to use in their teaching. The survey results also indicate a need for more information on legal protections and discrimination in light of Section 504 of the Vocational Rehabilitation Act. Thirty-one tutors in one state's adult literacy programs reported on a forced choice survey that they are not interested in participating in training on appreciating cultural differences and applying that appreciation in their tutoring, whereas they would be interested in learning about academic tutoring skills, planning, and reviewing materials and resources (Center County Vocational-Technical School, County Development Center for Adults, 1994).

In all, the findings from the studies of adult education staff reflect educators who are confident and prepared for the challenge of serving adult students with LD. Both their qualifications and desires for professional growth reflect a professional orientation toward their teaching of students with LD. The study's findings also indicate that the staff, by their own admission, could learn more about serving adult students with LD.

Adult Education Students

A total of 29 published studies were focused on characteristics of adult education students (see Table 5). These studies may be grouped by their primary emphasis on student affect, participation in education, quality of life, and medical or cognitive profiles.

Insert Table 5 about here

Affect. Johnson (1994) and Graff and Coggins (1989), among others, reported that adults with LD in adult education or rehabilitation programs often have negative self-

affect that likely contributes to poor literacy learning. For example, the adults report lack of self-confidence about their academic abilities, as well as general personal dissatisfaction in such areas as personality, capabilities, and sociability. They have also reported high levels of anxiety that may interfere with their education (Gregg, Hoy, King, Moreland, & Jagota, 1992). The nature of an adult's self-affect can contribute directly to the quality of her/his education experiences. College personnel report that in addition to having some adequate academic skills, positive affect and motivation are essential for success as a college student (Fadale & Winter, 1990; McGuire & Bieber, 1989). In interviews with both adults who had and had not earned external degrees, Graff and Coggins (1989) found those who were completors had distinctly more positive self-affect as they worked on those degrees. The completors reported confidence in their abilities and indicated that they had been personally resourceful in seeking out the assistance they needed to be successful.

Reiff, Gerber, and Ginsberg (1992) interviewed 71 vocationally successful adults. They found key commonalties among the successful in terms of internal and externally controlled factors. Both the internal and external factors concerned orientation for success and strategies for accomplishing goals. All of the internal and external factors identified are potentially alterable in most adults with LD. In a similar study, Gerber, Reiff, and Ginsberg (1994) had 40 successful adults with LD recount "critical incidents" related to their learning disabilities and success. Most of the incidents were positive. Also, most critical incidents were from their adult years and occurred in educational settings.

Roulstone (1990) reported that British Further Education school SLD course leaders, responding through a survey, perceive social competence and communication skills education as contributing to their students' independence (group discussion and role playing were reported as the most effective approaches for teaching these skills). McGuire and Bieber's (1989) study reported survey results from community college

students, some of whom had an LD. They too reported the need for positive affect. They specifically cited the need for self-confidence and realistic goals.

Negative self-affect was found to be related to limited successes. Ziegahn (1989) found in interviews with "low literate" adult residents of a Native American reservation that complacency can contribute to not engaging in literacy education. For example, contentment with work or relationship status was self-reported as a reason to not participate in literacy education, whereas dissatisfaction and a desire for change was reported as a reason to participate. Johnson (1994) reported that in addition to lacking a sense of personal control over their self-perceived weaknesses, the three adult males he studied were likely to employ avoidance strategies.

Participation. In a survey of 108 four-year college or university learning disabilities support programs (Beirne-Smith & Deck, 1989), the majority of students served are undergraduate males. Most of the students are self- or parent-referred to the support program.

A high proportion of high school students with LD drop out instead of completing (Texas Education Agency, Austin Division of Program Evaluation, 1991; Wagner, 1990). Following that trend, students with LD are generally less likely than their nondisabled peers to participate in- and complete postsecondary education (Levine & Edgar, 1995). In a survey of teachers and LD support staff for college students with LD, Adelman (1992) found that those students most at-risk for failure have high levels of absenteeism for both their classes and disability-related support sessions. These same students, when they do attend, were reported to frequently be unprepared and to display disinterest. Similarly, their assignments are commonly turned in late, often incomplete. Gadsden's (1989) study findings, however, contradict the common perception that most adult education students do not stay in programs long enough to attain their goals. Ninety-one percent of program administrators she surveyed reported that more than half of their enrollees remain in the program long

enough to achieve their objective. These same administrators reported that the primary reasons for students attending the programs are developing reading skills and achieving short term goals. Less than a quarter of the students are known to pursue further education once leaving the programs. Thirty-nine percent of the students work on basic reading skills at the literacy sites.

Norton (1992) surveyed three groups of students at one community college concerning their study habits and skills. The groups were nonLD students in remedial courses, nonLD students in traditional courses, and students with LD in remedial classes who received assistance in a "developmental learning lab." Findings included that there are very few differences in study habits among the groups. Those with LD reported requiring substantially more assistance in math, spelling, writing, and reading comprehension, however; they also reported difficulty in understanding their own class notes.

Few of the studies included in this review of the literature sought the adult students' perspective on adult education. In one that did, a survey of adults with LD who had participated in a college preparatory program (San Nicolas, San Nicolas, & Morelli, 1990), the adults indicated that they appreciate small class sizes and teachers with whom they can have discussions. Other studies indirectly sought information on adult students' perspectives. For example, Mlekwa (1992) investigated adults' perceptions of Tanzania's state literacy program. Adult learners as well as government officials and adult education program administrators were observed and asked to comment. A central finding was that the adults perceive little correlation between literacy programs and fulfilling their basic economic needs.

Quality of life. From an analysis of the National Adult Literacy Survey (NALS), Reder (1994) concluded that an adult's wages or earnings are positively correlated with her/his level of functional literacy. Economic profiles specifically of adults with LD tend to reflect findings from other studies not included in this review on quality of life

and transition (e.g., Wagner, 1993). For example, Sitlington and Frank (1993) found that those with LD who dropped out of or completed a Resource Training Program are employed at similar rates, but that a significant portion of them are not actually employed. Those who are employed typically work in labor and service jobs at near minimum wage pay levels.

The Texas Education Agency, Austin Division of Program Evaluation (1991) found young adults with LD are more likely than their nondisabled peers to be high school dropouts and more likely to be employed at lower levels. Those with LD are also less likely to pursue post secondary education. In questionnaires to adults with LD who had been enrolled in special education during secondary school, Smith (1990) found that approximately one-third of the nearly 400 respondents who never applied for vocational rehabilitation services were unaware of how to seek out or initiate services.

Levine and Edgar (1995) interviewed high school completors who had been out of high school five or ten years. Those with LD were less likely to have participated in or completed postsecondary education. Females with LD who were pregnant or had children were typically single parents without partners or financial support. Employment trends were similar for adults with and without disabilities. Males with LD were more likely than females with LD to be employed after six years, however. Ohler (1995) and Levine (1994) found that in the case of college students with and without LD, differences in "career maturity" are based on socioeconomic status, and classification as having a severe LD or mild LD.

Medical/Cognitive profiles. Several of the publications provided medical or cognitive profiles of the adult students with LD whom they studied. For example, Bristow (1992) administered a state's Optometric Association's vision screening battery to a total of 34 ABE/GED students functioning at varied levels. Findings include that approximately 80% failed one or more of the battery's ten vision subtests. As a general

pattern, the lower the ABE level at which a student was studying, the more subtests she/he failed. As is suggested in both Bingman (1989) and Jordan (1989), a first step in the LD screening process should be a vision screening.

Johnson (1994) administered a psycho-educational battery to 14 adults with LD reading at or below the fourth grade level. As is common in children with LD, their mean full scale and performance scores fell within the average range while their verbal score was low (mean = 83.5). Using Minnesota Multiphasic Personality Inventory - 2 (MMPI-2) results, Gregg et al., (1992) found adults with LD to differ significantly from the normative population. They were found to be under extreme stress that led to high anxiety, as well as to have negative self-concepts. And, Dikitanan (1994) looked at learning disabilities and characteristics in at-risk first year college students that might inhibit college completion. Twenty-one percent of the 404 students were identified as having a learning disability. No specific "preferred" learning style was identified for these students. However, statistically significant correlations for the students' with LD performance on individual measures led the author to conclude the students need to improve their cognitive abilities in vocabulary, comprehension, spelling, and arithmetic.

Screening Studies

Fourteen studies specifically addressed screening or assessment practices in adult education for adults who may have an LD (see Table 6). (Not all were studies solely of LD screening or assessment, however.) These studies addressed either the appropriateness of specific screening or assessment practices, or which practices are used and how.

Insert Table 6 about here

Test appropriateness. The Consortium for the Study of Learning Disabilities in the California Community Colleges (1983a) analyzed various learning disabilities

assessment tools to determine which may be appropriate for adults with a suspected LD. They concluded that few assessment tests are appropriate for assessing aptitude or achievement in community college populations, and that those that may be appropriate are susceptible to bias for certain populations. Their findings also showed little difference between those with an LD and those who are low-achievers, and thus the authors suggested that the aptitude-achievement discrepancy formula may not be appropriate for assessing learning disabilities in community college student populations. Similar findings concerning achievement and performance scores of young adult females of Anglo and Mexican-American descent indicate that language, and not learning disability, is likely to be source of discrepancy between the groups (Whitworth, 1984). Despite such findings, the aptitude-achievement discrepancy is still the dominate formula used in recognizing LD in adults (McCue, 1994).

Other research was focused on assessment related to specific learning disabilities. These have been studies of how LD subtypes may be reliably determined. Shafrir and Siegel (1994) studied whether a procedure used for identifying subtypes of specific learning disabilities in children is applicable for identifying LD subtypes in adolescents and adults. After administering the Weschler Adult Intelligence Scale-revised (WAIS-R) and Wide Range Achievement Test-revised (WRAT-R) to adults with IQ scores of 80 or below and applying Siegel's procedures, the authors concluded that the following subtypes of LD can be reliably determined: arithmetic disability, reading disability, and combined reading and arithmetic disability. The performance levels on specific subtests of the WAIS-R and the WRAT-R by which the authors based their findings are detailed in the publication. The authors further found that distinguishing between the educational level of adolescents and adults does not help to further distinguish subtypes.

In a study involving undergraduate college students, some of whom had a specific reading LD and others who did not, Roberts (1995) compared predictability of

a reading disability from the WAIS-R and the Woodcock-Johnson Tests of Cognitive Ability-Revised battery (W-J TCA-R). Because students tend to score higher on the full scale IQ of the WAIS-R, almost three times as many are identified as having a reading disability as are when the W-J TCA-R is administered alone. The authors concluded that a subset of WAIS-R subtests can reliably predict the W-J TCA-R Broad Cognitive Abilities score for those identified as having a reading disability.

Testing practices. Carlton and Walkenshaw (1991) surveyed 35 postsecondary institutions to identify what practices they follow in their assessment process. The findings indicated that nearly 50 % of responding institutions are not assessing all areas pertinent to an LD diagnosis. In several instances, the tests being used as part of the diagnosis process have not been normed on adult populations. This published study provides a cautionary tale regarding how assessment is sometimes being conducted in postsecondary institutions. It also provides information on a variety of tests that have been used to evaluate such areas as language and communication skills, math, reading, and visual perception skills.

Potential biases in assessment practices were studied in several publications. Thompson (1994) studied whether the placement test used in one college to place "non-native speakers" in lower level English classes or ESL are biased. The performances of all students assessed across three semesters using the Combined English Language Skills Assessment (CELSA) were compared by ESL placement levels to the scores of 80 % of those with the highest level of placement in ESL classes. No bias was detected based on gender. Possible bias was determined based on age, however. Older individuals are found to have typically been out of school longer than younger individuals; years out of school is negatively correlated with preparedness to succeed. In addition, evidence indicated that students with self-reported LDs may be over represented in ESL and entry-level English classes. This finding may indicate a programmatic bias or may be reflective of the learning needs of non-native speakers

with LD at the college studied.

Findings by Weaver (1994) indicate that due to anxiety, low concentration and limited skills, students with LD benefit from additional time for testing. Multiple tests were administered to college students with and without LD to establish these findings.

In a study involving adults with LD who are enrolled in literacy programs or postsecondary education, Lemke (1995) tried to identify predictors of risk for stress in adults with LD. The Learning Disability Self-Disclosure Inventory was developed for this study, and found to be some-what reliable for predicting risk for stress. Stress was identified as a degree of what the authors referred to as "passing," that is, self-awareness of one's learning disability and the degree of accompanying wariness and selectivity in revealing that awareness to others. Overall, no statistically significant difference was found between levels of self-confidence for adults with LD and those in the general population. Those with LD were found likely to use social supports as a buffer against stress in such ways as engaging in superficial relationships. Also, those with LD were found to be more likely than the general population to deal with stress by engaging in avoidance coping strategies and learned helplessness behaviors.

Intervention Studies

The studies included in this review that concerned intervention practices (see Table 7) may be broadly subcategorized as addressing a specific intervention practice or an approach to intervention. For example, Lazarus (1993) studied the effectiveness of postsecondary students with LD using guided notes; and, Geib and Chamie (1986) conducted a four year case study on the effectiveness of a "triage" model of instruction with one adult with a severe LD.

Insert Table 7 about here

Specific practices. The majority of the published research in the intervention category (on both practices and approaches) focuses on reading. Unlike studies in the

Adult Education category, a strong majority of these studies involved adults in adult basic education programs. Still, even for those studies that did involve adults in colleges and universities, reading related interventions are the common topic of study. This general finding is indicative of the degree to which reading is a pervasive area of need for adult literacy students and, plausibly the importance of reading in the lives of these adults.

Examining the nature of the reading-based intervention studies may reveal what at least the adult literacy research community considers to be important approaches to reading instruction. With the inclusion of a naturalistic study of reading abilities (e.g., McGuire & Bieber, 1989) and other studies from this review that identify their subjects' reading proficiency, the case is made even stronger. Almost without exception, the studies reflect an orientation towards a skills-based approach to reading. This is true for both understanding the reading abilities of the adult student and for providing reading interventions. While studies may be found of phoneme blending skills (e.g., Johnston, 1994) and auditory discrimination (Edwards & Smith, 1992; Wisner, 1987), for example, few studies clearly investigated non-skills based approaches (e.g., Johnson, 1985; Gadsden, 1989).

In Gadsden's (1989) survey of adult literacy programs, 74 % reported using word recognition programs such as phonic-centered approaches. In a comparison of a language-experience approach to a word recognition approach for ABE students, the language experience method was found to lead to improved comprehension, but not to make any comparative difference to the personal efficacy of the subjects (Gadsden, 1989).

Other studies addressed intervention topics in addition to reading. For example, Ogles (1990) studied the impact of learning contracts on the reading gains of adults with beginning reading skills. The contracts resulted in greater attendance and persistence but not comparably greater reading gains over adults with LD who do not

use contracts.

Bursuck et al. (1989) found that approximately one-third of the program staff they surveyed consider students' development of compensatory learning strategies to be the most important service they can provide. And, roughly one in ten of them identified remedial instruction in basic skills as most important.

Some of the intervention studies addressed topics identified as important in research from other categories of this review, for example Graff and Coggins' (1989) findings regarding the importance of adult literacy students' positive self-affect. In Yost et al's. (1994) study of intervention practices used by postsecondary personnel primarily responsible for serving students with LD, teaching self-advocacy skills was identified as one of the most highly utilized interventions. Approximately two-thirds of the 510 respondents reported commonly working with students with LD toward the goal of independence, which included self-advocacy skills.

Intervention approaches. Based on a survey and review of projects for Australian adults with "intellectual disabilities," Van-Kraayenoord (1992) concluded that approaches such as experiential learning ought to be foregone in favor of more direct instruction approaches that allow for over-learning and compensatory strategies. Other study findings expanded upon Van-Kraayenoord's (1992) conclusion. For example, Ramsey and Ramsey's (1983) study of a successful curriculum for Job Corps participants with LD. It was found successful in part because of individualized instruction and sequential learning of skill hierarchies. Geib and Chamie (1986) found in a case study of one adult male with LD that a "triage model" for promoting basic skills was effective. Butler (1994) examined the outcomes of teaching six postsecondary students procedures for generating strategic self-regulation. By participating in her "strategic content learning" instruction, the students developed positive beliefs about the usefulness of strategies and their abilities to effectively employ them. The adult students were also able to develop appropriate strategies.

Case studies of three college students with LD by Wren, Williams, and Kovitz (1987) also indicate that adult students benefit academically from using learning strategies. The researchers suggested the students' mature cognitive skills aid their efficient learning of the strategies.

In one of the few comparison studies found in this review, Bartlett (1994) compared the performance of university students in a developmental mathematics course who learned a guided discovery method to that of other math students who did not learn the method. Both weekly performance data and student's self-reports were collected. Bartlett (1994) found that those who learn using the guided discovery approach have reduced anxiety about their math abilities and achieve higher than their peers in the control condition.

Only a few of the intervention-based publications specifically studied the processes that occur during an intervention. Pomerance (1991), for example, analyzed how adult students interact when studying in tutoring pairs. Findings indicate that while tutor-tutee discussions include both directional and conversational relationships, the discussion of the literacy topics that are the focus of the tutoring intervention tended to be corrective in nature. D'Annunzio (1994) examined a tutoring intervention approach that highlighted collaboration and continuous feedback; and related it to the outcomes he identified. Among those outcomes were increased grade level performance on WRAT-R reading subtests and increased student self-confidence in reading and writing. In Alexander (1990), an adult student with LD kept a journal of her successful two-year tutorial experience. She identified six "strategies" that made the tutorial successful. they center around the tutor's understanding of learning disabilities, considerate instruction and care for the student. Approximately one-third of the ABE administrators Gadsden (1989) surveyed reported that their instruction includes one-to-one tutoring.

In a year-long study of adult basic education students participating in computer-

assisted instruction (CAI) in the areas of math and reading, Hakim (1991) found that a CAI approach enhances their learning.

In a study of preparation for post secondary school experiences, Bernacchio and Fortinsky (1988) found that students with specific learning disabilities who participate in a collaborative transition planning effort involving special education and vocational rehabilitation have both better post school employment satisfaction and better records of admission to postsecondary education than their peers who do not participate in the effort. In addition, the transition students are more likely to take advantage of tutoring and adult education programs. Perin and Flugman (1990) also found a transition program beneficial. Their subjects were young adults with severe learning disabilities who had left special education programs. In this program, trade skills are taught in addition to basic literacy and interpersonal skills. A majority of program completors show gains in both academic and interpersonal skills, as well as in competitive employment.

The published studies of interventions should be very useful to those interested in literacy teaching practices for adults with LD. Many of them could be accessed in a literature search using terms such as *reading*, *daily living skills*, and *tutoring*. The studies tend to identify specific populations of adults with LD and literacy needs (e.g., community college students, those reading below fifth-grade level). Most describe the intervention studied in sufficient detail for the reader to replicate the practice. Also, they typically provide pre- and post-intervention performance data that may be useful for comparison if an intervention is replicated.

Discussion

A collective summarization of the research findings included in this review is difficult. The included publications cover a wide array of topics, with limited overlap. The most frequently corroborated implications seem to be that reading is a primary topic of literacy intervention, remediation is overwhelmingly the most common

approach to intervention. Also, positive self-affect is frequently reported among successful adult literacy students. It was not established that promoting positive affect will lead to literacy success, however.

The most important finding may be the limited amount of research eligible for inclusion in this review. As has been noted, published relevant studies probably do exist that were simply excluded by our search criteria. The number excluded is unlikely to be large, given the breadth of our search procedures. Thus, we find little empirical evidence to support the "best practices" that adult literacy educators and their students engage in every day. Just as Lessen, Dudzinski, Karsh, & Van Acker (1989) found concerning practices for school children, intervention approaches have not be empirically linked to individuals with specific learning disabilities based on particular characteristics of the person or the specific LD. The same is surely true for interventions and adults with LD. Carnine (1993) has noted that the majority of instructional practices and materials used in American education today have no empirical basis.

A large percentage of the adult literacy teaching force are certified educators and a good portion of the others are well experienced despite lacking a certifying credential. We can put faith in the likelihood that they make informed decisions about what works best with their adult students with LD. In the absence of empirical evidence, many are well supported by their own insights and consultations with other professionals. Still, they are limited by such factors as professional isolation and insufficient information on which to base informed decisions. Common wisdom can benefit from research evidence. For example, it is commonly accepted that instruction that is appropriate for students with learning disabilities is appropriate for nondisabled learners as well. The converse is assumed not to be so. Empirical evidence indicates that there may be exceptions to this commonly accepted rule. For example, Fowler and Scarborough (1993) report that nondisabled adult learning

reading skills are in some instances hampered by the segmented learning that benefits students with learning disabilities (see also Adams, 1990). And, in other instances, regardless of disability status there is only one way to learn certain skills or concepts (Fowler and Scarborough, 1993).

As is evidenced by the smattering of researched topics included in this review, there is little research in the specific case of adults with LD who have literacy learning needs to indicate precisely how they should best be screened and taught, and how programs in different contexts can be best arranged to meet their unique learning needs. We do adult literacy educators and their students with learning disabilities a disservice when we do not provide them with empirical evidence to inform their practice.

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Table 1. Search terms and categories and subcategories of the literature review.

Descriptors			
Adult	Andragogy	Instructional materials	Math
Adult basic education	Assessment	Instructional methods	Post secondary
Adult education	Developmental disabilities	Intervention	Reading disability(ies)
Adult literacy	Functional literacy	Learning disability(ies)	Screening
Adult literacy research studies	Identification	Literacy	Screening test
			Workplace Literacy

Table 2

Adult Education Programs: College/University Programs

Author	Year	Topic	Participants	Data Source	Major Findings
Beirne-Smith & Deck	1989	academic services, students who are served, assessment & referral procedures, staff training, nonacademic services	108, 4-yr college/ university post-secondary LD programs	survey	mostly serve males who were parent/self referrals, many don' t assess, services range from tutoring to consultation/ counseling, staff are trained on student's needs and programs' purposes
Bursuck, Rose, & Cowen	1989	service provision for students with LD in two- and four-year colleges	197 Association of Handicapped Student Service Programs in Postsecondary Education community and 4-yr colleges	survey	generally in compliance with Section 504, most provide additional remedial services, specific services provided vary with institution size, majority of tutoring done by peers
Carlton & Walkenshaw	1991	strengths & weaknesses of LD assessment	35 postsecondary institutions with LD programs	survey	almost half are not assessing all areas of LD, the WAIS-R is the intelligence test of choice

Table 2, cont.

Adult Education Programs: College/University Programs

Author	Year	Topic	Participants	Data Source	Major Findings
Hunt	1990	perceived ed needs of adults with LD, methods used to address those needs, future concems in designing programs	15 2-yr public comm colleges; 10 special needs coordinators	survey	developed special needs departments in reading, math, vocation, and personal skills, current methods are inadequate, future planning emphasizes professional development
Marcus	1990	program features/purposes	15 College & University programs sponsored by Fund for the Improvement of Post Secondary Education (FIPSE)	questionnaire	each program used money differently, information on the projects' purpose, features, impact, what worked, what didn't work, and what happened when project ended
Ostertag, Pearson, & Baker	1986a	community college LD program services	106 community colleges, 179 professionals from the reporting campuses	questionnaire	most had formal programs, services included special classes, tutoring, counseling, variety of referral sources, 91% used IEPs, approx 30% used a team approach, improvements needed in time extension, modified schedules and curriculum & learning center availability

Table 2, cont.

Adult Education Programs: College/University Programs

Author	Year	Topic	Participants	Data Source	Major Findings
Ostertag, Pearson, & Baker	1986b	how students are evaluated & taught, core services available to students, how programs are assessed	106 community college special education coordinators/service providers, psychologists and faculty	questionnaire and survey	standardized assessments are commonly completed but results from other agencies are accepted (high school), support services in specific subject areas, counseling, test taking, & special classes are provided, poor consistency in service delivery across programs
Roulstone	1989	perceptions of language curricula for students with severe LD	9 British Further Education college course leaders	survey	course leaders favored group discussions and role playing, believed objectives of curriculum supported social education and development of independence
Woods, Sedlacek, & Boyer	1990	LD program characteristics	13 state universities	survey	over half don't have a separate budget, all provide consultation to classroom teachers (e.g., testing), 67% don't use assessment info. for placement, favored the WAIS-R and Woodcock-Johnson, made arrangements for readers, extended time, alternative testing, etc.

Table 3

Adult Education Programs: Community Adult Education Programs

Author	Year	Topic	Participants	Data Source	Major Findings
Center County Vocational-Technical School, County Development Center for Adults	1994	staff development needs in adult literacy programs	31 tutors in the state's adult literacy program	survey	topic needs include learning styles, characteristics of adult learners, effective tutoring strategies and lesson planning, materials/ resources, & cultural differences; delivery modes include training sessions, tutor manual, private consultation, workshops, and self-study
Gadsden	1989	ABE services available to students	160 adult literacy programs; 125 program administrators	questionnaire	1/3 offer one-on-one tutoring, most time spent on reading instruction, also provide GED prep., writing, and continuing ed. classes, 77% require bachelors degree for instructors (w/ certification)

Table 3, cont.

Adult Education Programs: Community Adult Education Programs

Author	Year	Topic	Participants	Data Source	Major Findings
Gerber	1984	Dutch vs. Danish transition services for adolescents/adults with LD		author's observations, review of literature	Dutch services focus on transition within the later school years, voc rehab has little involvement (mainly for medically validated LD based services), LD is typically not recognized beyond the school years. Danish services are comprehensive through transition and adult years, organized pursuit of voc and postsecondary ed, specific courses focused on vocational, social, and community adjustment

Table 3, cont.

Adult Education Programs: Community Adult Education Programs

Author	Year	Topic	Participants	Data Source	Major Findings
Mlekwa	1992	relation of states' literacy training to daily activities of adult learners & to village development programs	From 2 villages in the Moragoro Region, Tanzania: 14 adult education coordinators and teachers, 22 adult learners, 16 government officials, 10 village elders	document review, participant observation, unstructured interviews	the adult learners felt that literacy training did not relate to daily life activities, it was not linked to the political, cultural, and economic aspects of the village, it was irrelevant to their occupations, they also felt literacy training reflected the interests of the state and did not create the opportunity for the village to formulate its own policies
Nurss, Campbell, & Hiles	1991	resources of adult literacy resource centers; needs of adult literacy centers	26 States 78 adult literacy resource providers	2 surveys	reported needs include materials on funding sources for literacy programs, workplace literacy, literacy for indv. with LD, books for new readers, recruitment & retention in literacy programs, instructional materials, and family literacy; resources identified as least useful include literacy for the homeless, computer software programs, volunteer training, and literacy for the elderly

Table 3, cont.

Adult Education Programs: Community Adult Education Programs

Author	Year	Topic	Participants	Data Source	Major Findings
Perin & Flugman	1990	vocational, basic literacy and interpersonal skills training program for young urbans with severe LD	47 young adults with severe LD who left high school special education programs	pre-post tests; periodic competency ratings	78% obtained competitive jobs (less than $6/hour), over 60% showed increases in reading comp., spelling, arithmetic, and positive change in self-concept
Pollack	1991	education services available to incarcerated individuals, and whether differentiated for LD	50 adult prisons 50 prison education directors	observations, questionnaire	services include one-on-one tutoring (66%) by volunteer tutors (60%) and peer tutoring (86%), 44% of the prisons offer no courses specifically for indv. with LD, 34% have a specified budget for resources for inmates with LD, 38 of the 50 reported having inmates classified as having LD, incidence ranged from 0% in total female facilities to 92.86% in maximum security

Table 3, cont.

Adult Education Programs: Community Adult Education Programs

Author	Year	Topic	Participants	Data Source	Major Findings
Ramsey & Ramsey	1983	2 months of enriched classroom work, one hour a day, program include emphasis on individualization, precise feedback & sequential learning of skill hierarchies	LD control and intervention groups, Underachieving control and intervention groups, all participants part of Job Corps	pilot intervention program	longer stay in the program resulted in higher salary and job retention, those with special curriculum gained 1/2 an academic year, those with standard instruction made no gains underachievers with intervention gained 2/3 an academic year while those without gained 1/2
Van-Kraayenoord	1992	adult literacy services provided in Australia	90 principals/ directors/presidents, 201 service providers, 37 correctional service institutions, 108 course conveyors, 102 teachers/tutors, and 205 community agencies; 18 adults age 21-54 with intellectual disabilities; 5 special literacy projects	survey; field studies; analysis of special projects	most courses are ABE/ literacy taught by female instructors, 2-6 students, assessments conducted via interview, few follow planned curriculum, instruction includes one-on-one or small groups, teaching methods include scaffolding, cognitive strategies, & compensatory devices

Table 4

Adult Education Staff

Author	Year	Topic	Participants	Data Source	Major Findings
Nelson, Dodd, & Smith	1990	what various faculty members are willing to provide in terms of accommodations for students with LD	college faculty: 57 arts & sciences 27 education, 19 business, 4 anonymous	questionnaire	50% of the faculty would provide at least 16 of the 18 accommodations mentioned, more willing to allow mis-spellings, incorrect punctuation and poor grammar than extra credit, altered assignments, and copies of lecture notes, college of ed. faculty was most positive
Nelson, Smith, & Dodd	1991	instructional adaptations faculty provide to students with LD	45 midwestern community vocational college faculty	survey	faculty is willing to provide instructional adaptations, little correspondence between those adaptations they are willing to provide and those they had provided in the past
Newman	1992	strengths & weaknesses of faculty interventions (in preparation for survey research)		literature review	survey being developed which includes 21 single item, closed-end statements or questions concerning specific subject areas (reading, examinations, learning styles, characteristics of learning, etc.)

Table 4, cont.

Adult Education Staff

Author	Year	Topic	Participants	Data Source	Major Findings
Norlander, Shaw, McGuire, and Norlander	1989 1990	current and desirable competencies of direct service staff and administrative personnel	299 postsecondary administrative personnel in colleges and universities	survey	assessment skills, cognitive interventions, & instructional skills/techniques are most desired areas of competence for LD specialists, management and leadership are most desirable for administrative personnel, research skills are not defined as "most desired," assessment skills are seen as area of need for LD specialists, interpreting tests, writing grants, and knowledge of special ed. programs are perceived as needed improvements for administrative personnel

Table 4, cont.

Adult Education Staff

Author	Year	Topic	Participants	Data Source	Major Findings
Ross & Smith	1988	professionals' attitudes & knowledge of students with LD, service availability, staff development, activities availability, desire for additional staff development & support services	306 ABE & GED teachers, program directors, and counselors	questionnaire	2/3 want training on characteristics of students w/ LD and teaching methods, 1/2 want more information on LD assessment, appropriate teaching materials, and consultation with specialists, most are not knowledgeable about legal rights of students with LD
Ross & Smith	1989	ABE/GED staff awareness of LD during adulthood	306 teachers, administrators, and counselors of ABE & GED programs	questionnaire	not all accommodations are acceptable, thought students with LD should be considered as have a handicap, many did not respond or responded "don't know" to many of the legal questions, most know when and how to refer/provide services, are unsure where to refer students, staff show interest in seeing more LD services provided and further training on characteristics of LD and teaching methods

Table 4, cont.

Adult Education Staff

Author	Year	Topic	Participants	Data Source	Major Findings
Saeteo	1990	competencies for in-service training of functional literacy teachers	240 functional literacy teachers, supervisors, and administrators in NE Thailand	2 part questionnaire (1) demo-graphic data and (2) staff perceptions	competencies/training needs include: philosophy of critical thinking and problem solving, establishing respectful relationships, theory and practice of teaching, principles of adult ed. and characteristics of adult learners, development of adult education, using subjects/ materials/techniques appropriate for adults, helping adults develop skills important in their daily lives
Yost, Shaw, Cullen, & Bigaj	1994	intervention practices & attitudes of postsecondary personnel primarily responsible for providing services to students with LD	510 college and university practitioners	survey	highest training was a Masters degree, intervention practices include tutoring specific subject areas, instruction in advocacy skills, organizational skills, test-taking strategies, time-management skills, and study skills, 1/3 indicated an independence plan is not a priority

Table 5

Adult Education Students

Author	Year	Topic	Participants	Data Source	Major Findings
Adelman	1992	students' with LD study habits & attitudes	110 college students with LD	survey	frequent absences from class and scheduled tutor sessions, often unprepared, show lack of interest, tum in assignments late and often incomplete
Bristow	1992	need for vision screening of adult education students	34 ABE/GED students at varied reading levels	analyzed screening outcomes across reading levels	79% of students failed one or more vision subtests, at ABE level 1-100% had vision problems, at level 2 - 43% had vision problems, at level 3 - 25% had vision problems, GED level-75% had vision problems
Chall	1994	literacy instruction patterns for ESL students & students with LD	100 adult literacy center students	does not say	students with LD are stronger than ESL students in word meaning and weaker in the print aspects of reading
Consortium for the Study of Learning Disabilities in the California Community Colleges	1983	to compare aptitude, achievement & discrepancy scores of students with LD, low achiever & non-handicapped	25 LD specialists in California Community Colleges; 117 students, 51 with LD	statistical comparisons of profiles	on aptitude scores students with LD show lower academic potential than peers, achievement-aptitude scores do not show a discrepancy for students w/ LD

Table 5, cont.

Adult Education Students

Author	Year	Topic	Participants	Data Source	Major Findings
Consortium for the Study of Learning Disabilities in the California Community Colleges	1983	factors on which students with LD can be distinguished from low achievers	9 specialists in California Community Colleges; 49 low achv. students, w/ LD	analysis of survey data	students who are low achievers are more likely to change schools, more active in social organizations, and are better able to participate in class discussions, work independently, learn from printed material, and learn reading & spelling; students with LD seek out assistance more often than low achievers
Dikitanan	1994	whether a specific set of learning characteristics exist which interfere with successful completion of college curricula	404 high-risk college freshmen	analysis of placement testing results	students with LD need improvements in their cognitive abilities in vocabulary, comprehension, spelling, & arithmetic, they do not exhibit a preferred learning style

Table 5, cont.

Adult Education Students

Author	Year	Topic	Participants	Data Source	Major Findings
Fadale & Winter	1990	identify college programs that serve occupational education special needs students, and the students' needs	113 program staff members 133 students/clients	interview/ survey	most programs serve a broadly defined population; types of programs include support services and instructional programs; common needs of students include gaining self-confidence, acquiring legal info, & setting realistic goals
Gerber, Reiff, & Ginsberg	1994	success, vocation, education, family, social/emotional functioning, daily living skills, and disability	28 men and 12 women, ages 29-67, all highly successful, with LD	critical incident technique as part of ethnographic interviews	11 critical incidents were identified, the average number per subject was 2.8, the majority identified were from adulthood and educational settings, 84 of the critical incidents identified were positive and 24 were negative

Table 5, cont.

Adult Education Students

Author	Year	Topic	Participants	Data Source	Major Findings
Graff & Coggins	1989	differences between BA/BS completers vs non-completers	10 completers of external baccalaureate degree 10 non-completers	telephone interview	individuals who completed their BA/BS stressed self-sufficiency and independence in finding resources, did not need as much contact with their instructors, were goal-oriented and confident in their abilities, those who didn't complete their degrees had high dependency on their instructors, needed guidance, structure, discipline and encouragement, and had difficulty motivating themselves
Gregg, Hoy, King, Moreland, & Jagota	1992	personality profiles	college and rehabilitation students with LD	group comparisons of MMPI-2 profiles	rehabilitation group display feelings of social isolation, poor self-concept, self doubt and restlessness, university group indicates fear, obsessive thoughts, self-doubt, lack of self-confidence, and self-criticism, both groups experience anxiety

Table 5, cont.

Adult Education Students

Author	Year	Topic	Participants	Data Source	Major Findings
Heggoy & Grant	1989	academic profile of ABE students	18-30 yr olds; 50% male, 50% female; who had multiple failure on Regents Tests or were rejected	diagnostic profiles of non/minority students	minority students were older, 84% were black, half had attended a previous institution, and majority sought eval because of multiple failures on the tests, non-minority students sought eval because of problems in the classroom, fewer had attended a previous institution, the majority were female
Herd	1995	adult students' awareness of their own learning processes	11 ABE English students	Interview, observations, and group discussions	most experienced problems in grade school because of LD or family problems, had initial fear about returning to school, like the relaxed, noncompetitive environment with patient, supportive instructors
Johnson	1994	psycho-educational patterns; oral language and mathematical performance	14 adults with LD and reading ability ≤ 4th grade	case history and assessment	majority graduated HS, all had jobs, all deficient in word attack skills, mean FS IQ-96

Table 5, cont.

Adult Education Students

Author	Year	Topic	Participants	Data Source	Major Findings
Johnston	1985	psychological & social determinants of failure	3 males in adult literacy program	case studies	all exhibit low intelligence, extreme loneliness, and experienced unusually high levels of anxiety, each thought they are the only one with problems, all exclude print from their lives because they had difficulty reading
Levine	1994	Immediate & long-term post school outcomes of youth with disabilities, by gender	947 1985 & 1990 HS graduates	interviews	few significant differences found between males and females, but many are found among disabilities, those with LD do not attend post-secondary schools at a rate comparable to their non-disabled peers, those with mental retardation perform poorly compared to those with LD or no disability

Table 5, cont.

Adult Education Students

Author	Year	Topic	Participants	Data Source	Major Findings
Levine & Edgar	1995	differences in transition after high school outcomes among youth with mild mental retardation, youth with LD and youth with no disability	549 1985 HS graduates 398 1990 HS graduates	interviews	only significant differences are among males and females, males are more likely to be engaged in work or school by year 6, females with LD are at-risk for becoming single mothers; differences between grads with and without disabilities are attendance, graduation, and degree earned
Masullo	1995	difference between students with and without full time work experience	50 adults with LD over 16 years old	structured, open-ended interviews	No difference in subjects' scores on multiple choice comprehension assessment, oral recall of task, voc. oriented tasks, or telephone message writing assignment, those without work experience saw reading as more important, able to give justified responses why essential, and undecided on future employment options

Table 5, cont.

Adult Education Students

Author	Year	Topic	Participants	Data Source	Major Findings
McGuire & Bieber	1989	needs of post-secondary students with LD in technical colleges	5 Connecticut technical colleges	informal observations	identified needs include institutional planning, information on Rehabilitation Act, in-service education for staff, and admission/intake procedures
Mishoe	1995	similarities & differences in attitudes and behavior of students with LD	200 community and technical college students with LD, 18 or older	comparison of results by subgroups	as a group, they do not demonstrate a preference in learning style, perception mode, or judgment mode, males prefer sensing/ thinking style and females the sensing/feeling style, age is not a factor in preferred learning style, length of time in school (2 yr vs 4 yr) affects preferred mode of perception
Norton	1992	Differences in study habits between LD and non-LD groups	113 non-LD college students 37 students with LD	surveys	little difference in the study habits of students w/ and w/o LD, students with LD require more assistance in all subject areas, & have difficulty understanding their notes

Table 5, cont.

Adult Education Students

Author	Year	Topic	Participants	Data Source	Major Findings
Ohler	1995	career maturity	76 college students w/ LD, 106 non-LD college students	diagnostic tests, questionnaire	no differences in career maturity between students w/ LD and non-LD based on diagnostic classification, race, or gender, SES is a related factor, severity of LD also affects career maturity, best predictors for students w/ LD are academic achievement, type of work experience related to career choice, gender, & equality of work experience
Reder	1994	analysis of National Adult Literacy Survey data	26,000 adults	survey	1/2 performed at lowest levels of literacy proficiency, proficiency was correlated with wages, earnings, & poverty status, no differences between black and white adults when education and literacy are equated

Table 5, cont.

Adult Education Students

Author	Year	Topic	Participants	Data Source	Major Findings
Reiff, Gerber, & Ginsberg	1992	daily living & education in vocation, family, social issues, emotional issues	71 successful adults, with specific LD who had achieved either moderate or high vocational success	in-depth interview	underlying factors to success include an effort to gain control of their lives, including desire to succeed, goal-orientation, creativity, good match between abilities and work environment, adaptability, and a support system
Sitlington & Frank	1993	employment/living trends	101 HS dropouts with LD--class out for 1 year 911 HS graduates with LD	survey	56% employed, 80% found jobs on their own, few received help from school 63% received no post-secondary training, 56% employed part time, almost all in competitive jobs

Table 5, cont.

Adult Education Students

Author	Year	Topic	Participants	Data Source	Major Findings
Smith	1990	students' with LD knowledge of rights in the vocational rehabilitation application/ eligibility process, employment status, income & education level, living arrangement, and knowledge/perception/ experience with LD services	397 self-identified students with LD ages 16-67 in need of voc. rehab services	questionnaire	1/3 do not know how to initiate services (49% never thought of it, 34% don't know how, 23% don't know where, 15% think they'd be denied services, and 13% are afraid to apply), knowledge of VR differs with educational level, significant differences in one's knowledge of VR and their income level
Texas Education Agency, Austin Division of Program Evaluation	1991	comprehensive review of methodological advances in program evaluation of SPED	ERIC search; 10 national researchers (e.g. US Department of Education.)	literature review; interviews	individuals with LD have lower employment levels, higher dropout rates, and do not advance to college as often as their non-disabled peers

Table 5, cont.

Adult Education Students

Author	Year	Topic	Participants	Data Source	Major Findings
Tilburg & DuBois	1989	barriers and encouragements to participation in adult education	58 adults enrolled in ABE (1/2 from Great Britain & 1/2 from US)	structured open-ended interview	barriers to participate/persist include anticipated embarrassment, fear of failure, previous negative experiences, lack of support, & difficulty of material, encouragements include needing an education for a job, self-improvement, children, avoiding current condition, self-motivation and outside support barriers/ encouragements did not differ between the 2 groups
Valdes, Williamson, & Wagner	1990	individual household characteristics, school & education program characteristics, programs available, services received & outcomes	1,191 students with LD, age 13-21	survey and examination of school records	43 tables: individual and household characteristics, students' school and educational programs, services received, and youth outcomes, by community, gender, age, school, status, household income, ethnicity, and head of household education

Table 5, cont.

Adult Education Students

Author	Year	Topic	Participants	Data Source	Major Findings
Ziegahn	1989	major aspirations relating to personal development, jobs and literacy; experience with learning, in school & out; social networks around literacy	27 "low literate" adults on a reservation	interview	contentment w/ present job and primary relationship, self-concept, view of future, clarity of goals, understanding of the nature of barriers, and social network compensating for lack of skills are conditions which affect intensity of connection b/t literacy education and aspirations

Table 6

Screening Studies

Author	Year	Topic	Participants	Data Source	Major Findings
Carlton & Walkenshaw	1991	assessment of LD strengths & weaknesses	35 post secondary institutions with LD programs	survey	Half do not assess important areas to LD diagnosis, unsure how to test international students, WAIS-R is intelligence test of choice
Consortium for the Study of Learning Disabilities in the California Community Colleges	1983	identify standardized assessment instruments technically adequate for use in discrepancy model or in assessing characteristics associated with learning disabilities	3 psychometric assessment experts	evaluation of 10 instruments	academic potential-Wechsler Scales & Woodcock-Johnson Psychoeducational Battery pt I appropriate, academic achievement-Wide Range Achievement Test & Woodcock-Johnson Psychoeducational Battery Pt II appropriate, Bias possible in selected sub-populations
Consortium for the Study of Learning Disabilities in the California Community Colleges	1983	comparison of aptitude, achievement, & discrepancy scores of students with LD, low achievers & non-disabled	25 LD specialists in California Community Colleges; 117 students, 51 with LD	statistical comparisons of profiles	students with LD demonstrate lower academic potential, Wechsler scores higher than WJ-CAT, achievement-aptitude discrepancy not discriminating factor b/t LD and peers, nonLD students more likely to demonstrate discrepancy

Table 6, cont..

Screening Studies

Author	Year	Topic	Participants	Data Source	Major Finding
Consortium for the Study of Learning Disabilities in the California Community Colleges	1983	factors on which students with LD can be distinguished from low achievers	9 specialists in California Community Colleges; 49 students, low achievers, 34 with LD	survey	students w/ LD sought tutoring, LA's more social active, change schools more often, scored higher on Woodcock-Johnson Reading & Written Expression cluster scores
Duncan, Wiedel, Prickett, Vernon, & Hollingsworth-Hodges	1989	whether the Tactile TONI can be used as an intelligence test for blind students and contribute to LD identification	11 blind voc rehab clients aged 19-50 with WAIS or WAIS-R scores < 90	comparison of performance on WAIS or WAIS-R	Tactile TONI should not be used to assess performance IQ in blind persons with concurrent orientation or tactile discrimination problems, correlation with WAIS or WAIS-R was insignificant
Heggoy & Grant	1989	academic profile of ABE students	18-30 yr olds; 50% male, 50% female; evaluated because of multiple failure on Regents Tests or referred	compared diagnostic profiles of non/ minority students	frequent flat profile; high % of females sought eval; differences b/t minority & non-minority included age, number of post-secondary institutions attended & reason for eval

Table 6, cont..

Screening Studies

Author	Year	Topic	Participants	Data Source	Major Finding
Lemke	1995	formulation of model to predict stress-risk among adults with LD	75 adults with LD enrolled in post secondary education or literacy programs	correlation of indices from the Health & Daily Living Form, & LD Self-Disclosure Inventory	age, educ level, employment status, & passing did not represent stress-risk predictor in model; mean self-confidence level for adults w/ LD not significant, higher instance of health symptoms, Quality of Significant Relationships index of HDL most concise picture of how social supports are used as stress buffer, Avoidance Coping index of HDL best typify how respond to stress
McCue	1984	potential for voc rehab of persons with LD	130 Bureau of Vocational Rehabilitation clients	compared-scores from battery of psych & neuropsych tests to file scores	mean length of services for those receiving neuropsych assessment less than for those with only psych testing, no diff b/t groups for total cost of service

Table 6, cont..

Screening Studies

Author	Year	Topic	Participants	Data Source	Major Finding
Roberts	1995	validation of the Woodcock-Johnson Test of Cognitive Abilities-Revised to assess reading disability	35 under grad college students, 20 with LD	comparison of scores to scores on WAIS-R	subset of WAIS-R subtest scores could provide a significant predictor of WJTCA-R BCA score for college students w/ reading disabilities, model accounted for 71% of BCA scores variance
Shafrir & Siegel	1994	whether a classifying scheme developed for the subtyping of children with LD can be applied to adolescents & adults	130 normal achievement students, 231 students with arithmetic &/or reading disability	classified students by performances on achievement tests	classification scheme resulted in homogenous subtypes of adults & adolescents w/LD, addition of educational level criterion did not change pattern of results
Spillane & Newlin	1994	build knowledge base re: adult literacy and LD; if computer based assessment can provide in-depth, valid diagnosis of specific LD	expert panel	expert advise, literature review	currently computer assess could not provide valid diagnosis, but battery of tests could be developed and incorporated based on 4 prevalent subtypes: dyslexia, discalculia, digraphia, & dysorthographia

Table 6, cont..

Screening Studies

Author	Year	Topic	Participants	Data Source	Major Finding
Thompson	1994	determine the impact of the Combined English Language Skills Assessment Test on historically underrepresented groups	2205 students taking math and English placement tests prior to enrollment	compared placement of native and non-native speakers	evidence of possible disproportionate impact on rates for students w/ self-reported LD at upper levels of ESL & into English 101, decreased referral rates may be related to actual difference in performance due to disability
Weaver	1994	effects of extended time and untimed testing	40 college students without LD, 48 students with LD	comparisons of testing performance, and students' performance strategies	students with LD scored better on extended and untimed tests in vocab and comprehension
Whitworth	1984	performance variance between Anglo and Mexican-American females on assessment tests	60 Mexican-American females, 60 Anglo-American females age 16-24 , 1/2 of each group classified as LD and 1/2 as low-achieving	comparison of test outcomes bases on minority and disability status	diffs b/t 2 ethnic LD groups are result of verbal or language factors, nonLD group diffs more dramatic, none of other diffs were statistically significant

Table 7

Intervention Studies

Author	Year	Topic	Participants	Data Source	Major Findings
Alexander	1990	phonics instruction and decoding skills	1-42 year old low-literate female	case study, student journal	strategies: relationship b/t tutor & student must trust based, tutor must empathize w/ adult's learning difficulty, tutor must cut through student layers, recognize that student can do some things well, be persistent & highly tolerant of frustration; selection of reading material must be based on common interest & newness
Bartlett	1994	improving performance & reducing math anxiety by combining guided discovery approach with techniques from Curriculum & Evaluation Standards for School Mathematics & principles of adult learning	27 university students taught with the guided discovery method, 53 students taught with traditional methods	student comments, analysis of errors on weekly tests; follow-up interview	students using guided discovery achieved more mathematically, had less anxiety, & more confidence, method very effective for adult students, moderately effective for traditional students

Table 7, cont.

Intervention Studies

Author	Year	Topic	Participants	Data Source	Major Findings
Bernacchio & Fortinsky	1988	model transition program for individuals with specific LD	32 young adults with specific LD, comparison young adult group	initial survey, follow-up questionnaire, informal interviews, 2 survey questionnaires	transition group had increase in full-time work, rank higher in job satisfaction, access tutoring more, those using transition plan were employed more & had higher hourly wages than non-users or controls, had higher incidence of dyslexia, discalculia & disgraphia
Butler	1994	supporting students to generate individualized strategic approaches as they engage in cognitive activities for self-regulation	6 adults with LD enrolled in a post secondary institution	questionnaire, interview	students became more actively strategic while completing both instructional & additional tasks

Table 7, cont.

Intervention Studies

Author	Year	Topic	Participants	Data Source	Major Findings
D'Annunzio	1994	program effectiveness for individualized reading, expressive writing, and language experience approach	15 inner-city adult learners, 15 undergraduate tutors	case study/ tutoring experiment	learners made considerable progress toward stated goals, collaboration in assessing progress provided learners w/ continuous feedback; interest & needs were met, rapid progress in reading & writing, self esteem increased, self confidence in reading & writing increased
Ducksworth	1989	past histories & current achievement levels of low-literate adults under 5 subtitles: biography and family relations, education, self-appraisal, diagnosis of beginning reading level, individualized treatment plan; based on 5 group lessons	4 low-literate black adults who grew up in the south	case studies (pre & post tests)	READ & TABE showed positive gains for all subjects, Woodcock form B overall showed positive gains

Table 7, cont.

Intervention Studies

Author	Year	Topic	Participants	Data Source	Major Findings
Edwards & Smith	1992	visualization and verbalization for comprehension program, reading, spelling, and pronunciation daily therapy	21 college age students in the V/V program or Auditory Discrimination In Depth procedure, and control group	pre-post comparisons	Mean increase in test score was significantly higher for test group, average increase in GPA was .49, average comprehension increase for V/V & ADD-2 years
Gadsden	1989	descriptive analysis of adult education programs; comparison of language experience and word recognition approaches	12 ABE students in language-experience program, 12 in word-recognition program	interviews, observations, testing and informal discussions	language experience approach produced greater gains in reading comp, mean performance scores consistently higher for language experience group
Geib & Chamie	1986	effectiveness of a triage model for serving adults with mild, moderate, or severe LD backgrounds	1 adult with severe LD	case study of triage model	adult made significant gains in all academic areas, triage model incorporates a comprehensive evaluation of individual's problems w/ diagnostic/ prescriptive teaching methods

Table 7, cont.

Intervention Studies

Author	Year	Topic	Participants	Data Source	Major Findings
Hakim	1991	analyze the level of improvement of math, reading, & literacy skills, focus on effectiveness of computer assisted instruction	10 adults in ABE classes, 73 traditional ABE/literacy program coordinators	questionnaire	technology improved adult's self-image, basic skills training improved parent confidence in helping children w/ school work; supportive facilitators and teachers was pos factor for adults; learning should be related to individuals needs & goals
Johnson	1994	psychoeducational patterns; interventions in oral and written language, reading and math	4 adult volunteers with LD & reading ability ≤ 4th grade level	tutoring and case studies	three of four subjects progressed to 7th or 8th grade reading level, which encouraged them to seek higher level positions & enroll in community college programs
Lazarus	1993	effects of guided notes on academic performance	3 post secondary students with LD	pretest-posttest	each student's % correct on tests gradually improved as guided notes introduced

Table 7, cont.

Intervention Studies

Author	Year	Topic	Participants	Data Source	Major Findings
Molek	1990	create a curriculum for ABE students with LD, addressing setting, academic and affective skills	14 adult students with LD	examined IEPs; pre-post performance comparison	no results given
Ogles	1990	effect of learning contracts that include tutor/student mutual expectations, student goals, and choice of materials on student reading level gains	39 adult beginning readers with learning contracts 37 without learning contracts	systematic field approach with random pretest	no significant difference in reading level b/t groups, learning contracts did impact attendance & persistence of adult beginning readers in 1-on-1 volunteer literacy program
Pomerance	1991	subskill strategies of learning to read and perform real-world tasks	5 adult literacy tutor-student pairs	naturalistic study	tutor teaching approach corrected error in learner's individual performance, implied a behaviorist model, focus was on learning subskills & getting words right rather than understanding connected discourse

Table 7, cont.

Intervention Studies

Author	Year	Topic	Participants	Data Source	Major Findings
San Nicolas, San Nicolas, & Morelli	1990	adaptive survival skills: student rights, responsibilities, orientation to campus & auxiliary services	17-30 year-old students with LD	pre-college program with a then-and-now post-survey given	students developed pos. attitude towards their disabilities & attending college, recalled most material, liked small classes & discussion opportunities w/ instructors, liked meeting people w/ similar learn. needs, overall program effective in learning skills for college transition
Smith & Dalheim	1990	comparison of phonics curriculum, equipment, and traditional methods to teach reading	20 adult with LD reading below 5th grade level	case study, exit interviews, pretests & posttests	equipment group made greatest gains followed by no equipment & then comparison curriculum, greatest differences in oral reading, least in silent reading comprehension
Wisner	1987	increasing reading ability--primarily using Laubach-phonic approach	5 adult reading students	case studies	reading while listening should be used if it seems appropriate, can be adapted to meet students' needs, value seemed proportionate to students' use of approach vs their expressed opinions of it's value to them

Table 7, cont.

Intervention Studies

Author	Year	Topic	Participants	Data Source	Major Findings
Wren, Williams, & Kovitz	1987	various strategies that help students with disabilities become more successful learners	3 college students with LD who were members of a learning strategies project	case studies	strategies show clear advantages to working at college level, students more capable of using information & strategies offered, able to use more mature skills to learn more efficiently

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