

*In this second of a two-part Topical Review, the authors complete their presentation of an intervention model for learning-disabled adolescents. This review is important not only because it clearly presents the elements necessary for intervention with adolescents, but also because it shows how the needs of adolescents are different from those of elementary-aged LD children. Part II of the review, in particular, documents the need for interventions that go beyond tutoring in content areas and remediation of basic skills in reading and math. Also in this section, the authors show how the complexity of the high school environment, as compared to elementary schools, creates special needs for careful planning and communication among those involved in the education of LD adolescents.—J.K.T.*

## Academic and Cognitive Interventions for LD Adolescents: Part II

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*This is the second of two articles focusing on a review of the academic and cognitive interventions available for LD adolescents. In "Academic and Cognitive Interventions: Part I," an argument was presented that because of the complex needs of LD adolescents it is important to develop an intervention model that is sufficiently comprehensive to impact these students. A further contention was made that such an intervention model would be composed of a number of components. In Part I, reviews of three of these components (motivation, instructional practices for promoting general skill acquisition, and instructional practices for enhancing the generalization and maintenance of skills) were presented. The purpose of this article is to discuss four additional components that would be needed in a comprehensive intervention model for LD adolescents. Specifically, the literature will be reviewed regarding a curriculum or content component, a communications component, a transition component, and an evaluation component. Again, since the existing body of research in the field of secondary learning disabilities relative to academic and cognitive interventions is in its infancy, these reviews will, in places, focus on recommended research instead of on actual findings.*

### THE CURRICULUM COMPONENT

One constant facing most secondary LD teachers is a shortage of time available for addressing the many educational needs of LD adolescents. One uncertainty facing these same teachers is *what* to teach these students during that limited time. The choice of what to teach during resource room instruction appears to be a

function of numerous variables. Several factors have been identified in the literature as affecting program emphases for LD adolescents (e.g., Alley & Deshler, 1979; Brandis & Halliwell, 1980; Goodman & Mann, 1976; Wiseman, 1981): (a) the type of student classified as LD (e.g., mild or severe); (b) the perceived role of the LD teacher (i.e., to deliver content in a "remedial" mode, to remediate academic skill deficiencies, etc.);

(c) the educational philosophy and training of the LD teacher; (d) the demands of the mainstream setting; (e) the expectations and attitude of the school administration and staff; (f) the LD student's previous remedial history; (g) the outcome goals of the student's educational program; and (h) the teacher's familiarity with specific instructional approaches. It is obvious from this list that instructional programs for LD adolescents are based on a host of factors other than *student* needs. The purpose of this section is to discuss the different instructional approaches currently used in addressing the academic and cognitive deficits of LD adolescents<sup>1</sup>. Four major intervention approaches will be presented: (a) the tutorial approach, (b) the basic skills remediation approach, (c) the compensatory approach, (d) and the strategies approach.

**The tutorial approach.** This approach emphasizes the provision of instruction for the LD student in academic content areas. Areas of instruction are usually those content subjects in which the student is experiencing difficulty or failure. The LD teacher's major responsibility is to help the LD student to succeed (i.e., receive a passing grade) in the regular curriculum (Deshler, Lowrey & Alley, 1979). Thus, there are no special curriculum materials that are used in conjunction with this approach; the use of regular curriculum materials is facilitated through tutorial instruction. Proponents of this approach assume that the optimal intervention helps the student "fit-the-system" (Wiederholt & McEntire, 1980).

There are numerous realities of secondary schools that encourage the use of tutoring as an instructional response. First, the increased emphasis on minimal competency testing has served to clarify specific requirements that must be met by all students in order to progress in the system. In the secondary grades, many of these requirements are content-oriented. Consequently, the emphasis of the remedial program for the LD student is largely dictated by the nature of the minimal competency examination (Pullin, 1980). Second, there is more and more emphasis on increasing the "core curriculum" requirements for LD students (e.g., Boyer, 1983; Gardner, 1983; Shelby & Coleman, 1983). Such pressures increase the difficulty encountered by LD adoles-

cents in coping with the curricular demands and, in turn, encourage LD teachers to tutor the students in these areas to provide them with direct assistance to meet these core requirements. Third, a high dropout rate has been reported for LD adolescents (Levin, Zigmond & Birch, 1983). Tutoring is viewed as an instructional model that has the greatest chance of quickly *and* directly addressing the immediate problems faced by these students and, in turn, increasing the probability that they will remain in school. Fourth, Goodlad (1983) has reported that secondary teachers use a very limited number of pedagogical approaches, thus increasing the difficulty for mastering the curriculum content by those students whose learning habits do not match the instructional styles of the content teachers. Therefore, tutoring is seen as necessary to provide the LD student with the support required to cope with the curriculum demands.

The use of tutoring as a technique for acquiring content has some potential drawbacks. Alley and Deshler (1979), and Laurie, Buchwach, Silverman & Zigmond (1978) have noted that it is a short-term solution at best. That is, through the tutorial approach, the student's immediate needs might be met, but the student is not taught how to learn the content independent of tutorial assistance. Furthermore, the major responsibility for delivering content is shifted from the regular teacher (the content expert) to the LD teacher (an untrained person in most content areas), thus resulting in a situation in which content education from an uncertified teacher is received by the LD student. In short, tutoring is basically a system-dependent technique which may have desirable immediate payoffs at the expense of reinforcing a life-style of dependency. The extent to which the students' long-term interests are being served is questionable.

Currently there are no data available on the effectiveness of the tutorial approach by itself. In one study conducted to evaluate the effectiveness of a resource room program, the tutorial approach was found to be used by teachers 65% of the time in two secondary resource room programs serving as the control settings (Schumaker, Deshler, Alley, & Warner, 1983). Students in these programs were

found to show minimal achievement gains (e.g., a mean gain of .3 yr. in reading and .1 yr. in math in one year). These data lend some credence to the notion that emphasis on the tutorial approach does not necessarily serve the students' long-term needs. That is, although students receiving this instructional approach may be passing required courses, they do not necessarily learn to read or do math, and they probably do not learn to approach and complete tasks on their own.

**Basic skill remediation.** Individuals utilizing this approach provide developmental or remedial instruction for basic academic skill deficits. The purpose of such instruction is to improve the students' performance in basic skill competencies. The skills taught are usually at a level that approximates the student's achievement level. That is, if a sophomore reads on a fourth-grade level, instructional tasks will be designed to teach basic reading skills typically taught at the fourth-grade level with the goal of sequentially improving the student's skills.

There are several rationales that seem to support the use of the basic skills remedial approach. First, a prevalent theme in education during the past few years has been "back to basics" (Sewall, 1982). With LD adolescents often demonstrating significant deficits in basic skill areas, the argument has been to insist that these students cannot benefit from the books and assignments used in the content class until they have mastered certain basic skills in such areas as word attack and arithmetic computation. Thus, remediation of skill deficits in these areas is seen as prerequisite to content acquisition. The instructional goal becomes one of raising a student's reading level as measured by a standardized test of basic academic skills. A second major reason for emphasizing basic skill remediation is the fact that many secondary LD teachers have received their initial preparation in teacher training programs with an elementary focus. Consequently, efforts are often made to extrapolate teaching methods and procedures from the elementary to the secondary setting. Most of the instructional procedures at the elementary level are centered around the remediation of basic academic skill deficits (Zigmond, Silverman & Laurie, 1978).

Authors who have advocated instruc-

tion in basic academic skills have emphasized the following as being important for success with adolescents: the use of direct instructional procedures that emphasize mastery of basic skills, to a pre-specified level (Goodman & Mann, 1976); the structuring of instructional procedures to insure intensity of instruction (Meisgier, n.d.; Meyen & Lehr, 1980); and the use of reinforcement strategies to enhance the motivation of the LD student (Cox, 1980).

Some of the potential drawbacks noted with the basic skills approach include the following. First, although numerous curriculum materials are available for use in conjunction with this approach, many of these materials were developed for use with elementary students, and data are not available that indicate which of these materials are capable of producing the quickest gains in basic skills in LD adolescents. Second, even if these data were available, the gains made through this instruction may not be sufficient to enable the student to cope with the complex demands of the secondary curriculum (Deshler, Alley, & Carlson, 1980). In short, the LD secondary student (who typically reads at a fourth grade level) may never learn to read materials written at tenth grade readability levels in the time available for instruction. Third, the range of skills remediated under this model is too restrictive in that such skills as skimming, organizing large data sets, critical listening, etc., can be considered "basic" skills at the secondary level. Thus, proponents of this approach do not acknowledge the fact that what is "basic" changes as grade level increases (Schumaker & Deshler, in press). Students receiving this curriculum approach may be more likely to drop out of school if they see no relevance of the skills they are learning (e.g., phonetic sounds) to the tasks they are required to complete (e.g., reading 50 pg. textbook chapters in a government class).

There is currently a dearth of data on the efficacy of a basic skills remediation approach per se; however, some data reported in the literature provide some indication of the effectiveness of this approach with LD adolescents. Warner, Schumaker, Alley and Deshler (1980) reported that LD adolescents reach a plateau in basic skill development in the

secondary grades. That is, achievement in reading, writing and mathematics as measured by the *Woodcock-Johnson Psycho-Educational Battery* was found to plateau at about the fifth grade level by the time students reached the upper junior high school grades. This finding is somewhat surprising in light of the major role played by basic skill remediation in most of the secondary programs in the Warner et al. study, but the finding has been replicated in an evaluation study of secondary LD programs reported by Schumaker et al. (1983). These researchers found that students in a program emphasizing this approach (82% of student instructional time was spent on basic skills remediation) made gains of only .2 yr. in both math and reading as a result of a year of instruction in the resource room program.

In light of the fact that about 51% of secondary LD programs emphasize this approach (Deshler et al., 1979) these results indicate a need to examine more closely the utility of the remedial approach for LD adolescents. Within such an examination is needed comparative research to identify the instructional practices and materials that cannot only benefit LD adolescents but that can make large changes in their skill levels in short periods of time. This goal must be met if the remedial approach is to have any utility for the secondary LD field.

**The compensatory approach.** This approach is designed to permit teachers to use nontraditional methods of presenting content so that LD adolescents can more easily master the subject matter presented at the secondary level. This model has been characterized by Weidert and McEntire (1980) as an example of a "change-the-system" approach in that it involves changing the setting and conditions for learning rather than changing the learner. This intervention approach is based on the rationale that the regular school learning environment contains several expectancies that many LD students are unable to meet. Thus, this approach involves the use of a variety of audio/visual formats to facilitate LD students' acquisition of content in a manner that circumvents or compensates for their skill deficits.

Specific compensatory approaches include the following. Mosby (1980) has

advocated the use of procedures that match each student's strongest learning modality with the method of instruction or testing. Examples of the Mosby approach include the taping of lectures, instead of taking notes, and the oral presentation of a chapter test instead of the written presentation of the test. With the same goals in mind, Hartwell, Wiseman and Van Reusen (1979) have developed methods for producing a Parallel Alternative Curriculum that is designed to maintain the same content objectives as the regular curriculum but varies the delivery mode and format. For example, to master the required content in an American history chapter, students may be permitted to view films to obtain the information rather than read the textbook chapter. Both the Mosby and the Hartwell et al. compensatory approaches have been described in the literature as total intervention programs. Each of these programs rely on a significant amount of system change at the building level by both the principal and teaching staff in order to create modifications that the majority of instructional staff can agree to use and that can also benefit students.

In contrast to those procedures that rely on total system change, Schumaker, Deshler, and Denton (1982), as a part of the Strategies Intervention Model, have designed a procedure whereby paraprofessionals can highlight classroom texts used in core subjects with a specified marking system and can make "paradensed" tape recordings of key information to be learned. Students, in turn, are taught a specific learning strategy for gaining information from these materials. Unlike the Mosby and Hartwell et al. approaches, this procedure has *not* been used as a total instructional program but merely one component of a comprehensive intervention model. That is, Schumaker et al. advocate that this procedure be used only until LD students acquired sufficient strategies to master the content themselves without modifications being made in the materials.

Some of the potential drawbacks of compensatory approaches, in general, are the following. First, an underlying assumption of the proponents of most of these approaches is that changing the mode or format of instruction is sufficient to affect learning. This may not be

a valid assumption as shown by the research of Miller (1983) who found that the performance of LD students on minimal competency examinations did not change significantly when the format of test administration was changed. Deshler and Graham (1980) have argued that material modifications that do not actively involve the learner and which fail to use good principles of learning and motivation often result in poorer rather than better performance. Second, because many compensatory approaches focus on system rather than student intervention, they are often difficult to implement. That is, the cooperation of both administrative and instructional staff has been noted as being central to their success (Hartwell et al., 1979). Often, such support is difficult to solicit and sustain over time. Third, many compensatory procedures shift responsibility for change from the student to the system. This is especially true with those programs that advocate material modification and compensation as the major intervention. That is, the degree of an LD student's success is a function of the changes the system makes to accommodate the student, not the number changes the student makes to better cope with the setting demands. LD students may learn behaviors of dependency instead of independence through this approach.

Again, only a limited amount of data are available on the efficacy of this approach in addressing the academic and cognitive deficits of LD adolescents; however, Schumaker et al. (1982) have reported poor student performance when material modifications did not actively involve the learner. Specifically, they found that when LD adolescents listened to verbatim tapes of content materials, they received poorer grades on chapter tests in mainstream classes than they did when they read unmodified materials by themselves. On the other hand, Schumaker et al. (1982) reported significant student gains (grade increases from F to B) when a compensatory approach was used that emphasized both active student involvement as well as teaching the student a specific strategy for using the modified materials. Additional research is clearly needed in this regard to clarify the effectiveness of certain aspects of the compensatory approach and the long-term

impact of it on LD adolescents.

**The strategies approach.** The strategies approach is not designed to teach specific content, but rather to enable LD students to use their existing academic skills in a strategically optimal fashion so that content information can be acquired, manipulated, stored, retrieved, and expressed. In short, the approach is designed to teach students "how to learn" (Alley & Deshler, 1979) and how to demonstrate their command of knowledge in the performance of academic tasks.

Typically, task-specific strategies are developed by educators which are designed to enable the LD student to meet specific setting demands. Each strategy contains a set of self-instructional steps that lead to solving a particular type of problem. For example, a reading strategy might be used by a student with fourth grade reading ability to use this ability optimally to obtain information from a textbook chapter written at the 10th grade level.

The rationale behind the learning strategies approach is based in part on what has been learned about the cognitive development of the learning disabled. LD students have been characterized as strategy deficient. That is, for a variety of reasons, many LD students do not spontaneously employ or generate sophisticated task-specific strategies when they are needed (Brown, 1978, 1980; Deshler, Kass, & Ferrell, 1978; Torgesen, 1977). Despite this deficiency, research has shown that, once taught a specific strategy, many LD students can and do use the strategy effectively (e.g. Schmidt, 1983, Schumaker, Deshler, Alley, Warner, & Denton, 1982). A number of validation studies have demonstrated the effectiveness of teaching LD adolescents specific mediations for solving common academically related problems such as the monitoring of written errors (Schumaker, Deshler, Nolan, Clark, Alley, & Warner, 1982), test taking (Lee & Alley, 1981) and improving reading comprehension (e.g., Schumaker, Deshler, Alley, Warner, and Denton, 1982). The above cited studies have all included the use of a specified set of acquisition steps outlined by Deshler, Alley, Warner and Schumaker (1981) to teach the strategies (See Part I of this series). In addition to showing that LD adolescents can learn task-

specific strategies, the above cited research studies have also shown that the students' use of the strategies results in increases in classroom test scores, course grades, and regular classroom teacher perceptions of LD adolescent classroom performance and in acceptable scores on district competency examinations.

One limitation of this approach is that in order to successfully benefit from instruction in task-specific strategies, most students need to have acquired some basic skills (e.g., must be reading at the fourth grade level). Thus, strategies instruction may not be appropriate for the very severely disabled youngster. Another limitation that has been noted about instruction in task-specific strategies is that, in most cases, it is the LD teacher who assumes responsibility for designing the task-specific strategies taught to students. While this may be appropriate in the early instructional stages, it is not conducive to fostering learner independence in the long run because the student is not given the opportunity to analyze setting demands and to design his/her own task-specific strategy (Reid & Hresko, 1981). Furthermore, it has been argued that instruction in task-specific strategies alone does not prepare students to be sufficiently responsive to the broad array of situations they must deal with in both school and nonschool settings.

To overcome these shortcomings, it has been argued that instruction in task-specific strategies needs to be expanded to include instruction in more generic cognitive strategy skills (Deshler, Warner, Schumaker & Alley, in press). Advocates of a broader cognitive strategies approach support the application of a more holistic perspective to the problem of educating students (e.g., Dansereau, 1978). These approaches emphasize a variety of instructional techniques such as cognitive behavior modification techniques (Meichenbaum, 1977), the training of control processes (Brown, 1980), and the training of metacognitive functions (Flavell & Wellman, 1977).

Unfortunately, most of the research studies done in the area of cognitive training have been conducted in laboratory settings on laboratory tasks. In a study that is an exception to this rule, Ellis (1983) determined the effects of teaching LD adolescents an executive

strategy for self-generating, task-specific strategies. He found that many LD students with prior task-specific strategy training could learn to do the processes traditionally undertaken by teachers. The students learned to conduct an environmental analysis of problem areas and a self-assessment of skills, to generate task-specific strategies, to monitor their self-generated strategies' effectiveness, and to modify the strategies as needed. Results of the study demonstrated that the LD students' grades in targetted regular classes significantly improved as a function of the training and that content teachers' perceptions of the quality of the LD adolescents' work were significantly higher as well. This study illustrated the feasibility of instructing LD adolescents to undertake responsibilities previously performed by teachers and students.

Some of the cautions about cognitive strategies interventions that have been noted in the literature are the following. First, knowledge of an appropriate metacognitive strategy does not guarantee its use (Wong, in press). Second, materials and tasks used to examine cognitive strategy instruction tend to be artificial and thus have little relevancy to educational situations (Dansereau, 1978). Thus, the relevance of many of the cognitive strategies training studies to the day-to-day education of LD adolescents is unclear at this time. Third, specific student characteristics such as level of motivation or lack of a frame of reference to strategic thinking behaviors could be related to the effectiveness of cognitive training (Ellis, 1983). Finally, teaching students to take a cognitive strategy approach to learning may be appropriate for higher order tasks (e.g., reading comprehension) but have little applicability for more basic skills (e.g., decoding words) (Wong, in press). In other words, although the most recent research in the area of cognitive strategies training is promising, additional research is needed to determine its usefulness with and long-term impact on LD adolescents and its proper place in programming for LD adolescents.

**Summary.** The instructional approaches that have been promoted and used to ameliorate the academic and cognitive deficits of LD adolescents have been quite varied. Currently, there is a paucity of data regarding the efficacy of most of

the approaches reviewed. Given the complex nature of the characteristics of the LD adolescent population and the characteristics of the secondary setting and the weaknesses of each of the approaches described above, it seems logical that no one approach is sufficiently powerful to impact all LD secondary students. Thus, the most appropriate intervention approach will be one that is sufficiently comprehensive to respond differentially to such variables as student goals, learner characteristics, years of instruction remaining, setting demands, etc. The emphasis of future research should not be directed toward determining which approach is right or which one is wrong, but rather at determining under what conditions and with whom a given approach is most effective. The result of this research would be an intervention model with a multifaceted curriculum that integrates the best of each of the approaches described in this section. Although such a curriculum will be complex, it appears to be what is needed by the targeted population.

### **The Communication Component**

Because an effective intervention model for LD adolescents will of necessity be complex and because it will be inbedded within the complex environment of the secondary school setting, it is important for any intervention model for LD adolescents to have as one of its components a communication system to coordinate all of the individuals serving/interacting with LD students. Deshler (1978), for example, has noted that the imposed structure and organization that provided direction and security to students in the elementary school is usually reduced to a subtle, more flexible structure in high school, thus increasing the number of potential problem areas for the student saddled with a learning disability. Furthermore, Deshler, Alley, Warner, Schumaker, and Clark (1980) found the number of support systems relied upon by LD adolescents in secondary settings is greater than the number used by their nonhandicapped peers. That is, LD adolescents reported a significantly larger number of contacts with different support personnel (e.g., counsellors) in the school environment than non-LD adolescents. Finally, Miskel

(1982) has described many secondary schools as being "loosely coupled." In other words, staff interactions at the secondary level are often minimal because the mechanisms that could support communication among staff members are often absent.

These data underscore the continuing problems that LD adolescents face in secondary schools and their needs for strong support systems. These data also highlight how some of the unique attributes of secondary settings present special challenges to cooperative efforts on behalf of the learning disabled. In short, in order for LD adolescents to be successfully accommodated within a mainstreamed environment in the secondary setting, significant efforts must be devoted to the design and implementation of effective cooperative planning producers (Alley & Deshler, 1979) and communication devices among all those serving (or interested in) particular students.

As with so many other areas in programming for LD adolescents, there is an absence of empirical evidence regarding cooperative planning and communication on behalf of the LD adolescent; however, several proposed models have been discussed in the literature. Laurie, et al., (1978) have delineated three prerequisites for making a cooperative arrangement between resource teachers and regular teachers work. First, administrators must be convinced of the importance of cooperative planning to the student's future success in mainstreamed classes. Second, there must be time available for regular and special teachers to work together on problem-solving and planning. Third, teachers must learn to work together and have positive attitudes about their cooperative arrangement. Laurie et al. (1978) specify a number of steps to be followed by cooperating regular and special education teachers to create change in students' behavior in regular classrooms. They are: (a) determine the requirements for "making it" in the particular mainstream class, (b) specify which of these course requirements the LD student is not meeting, (c) hypothesize the causes of failure, (d) brainstorm possible classroom modifications, (e) overcome the regular teacher's resistance to change, (f) select an action plan, (g) implement the plan, and (h) evaluate the changes. Riegel (1980)

and Schumaker, Deshler, Alley and Warner (1981) have outlined very similar steps in facilitating communication at the secondary level. In addition, Schumaker et al. (1981) identified eight techniques to be included in a planning session between LD and regular class teachers in order to increase the efficiency of the session. These factors include: (a) plan in advance, (b) be specific, (c) involve the content teacher in all major decisions, (d) seek closure, (e) focus on specific students, (f) reinforce teachers for their efforts, (g) recognize mutual professional status, and (h) come out of the session with a specific plan.

Schmidt (1983) has provided some empirical data on the effectiveness of cooperative planning. He found cooperative planning efforts between LD and regular class teachers to facilitate the generalization of task specific learning strategies acquired in the resource room to the regular classroom. Schmidt used cooperative planning as a final generalization condition when two previous conditions (review and transfer activities) failed to cause students to generalize their use of writing strategies in regular class settings. The objectives of the cooperative planning conferences were to: (a) explain the strategy(ies) taught in the resource room that are pertinent to the content class and provide a rationale for their use; (b) explain the student's present level of performance of the targeted strategy(ies) in the resource room and compare it to performance before strategy training; (c) provide the content teacher with a set of cue cards that students use to aid them in the use of the strategy; (d) discuss situations in the regular classroom when the student could use the targeted strategy(ies), and (e) enlist the classroom teacher's cooperation to cue the LD student in the regular classroom as to appropriate times to use the strategy. Schmidt found that a simple reminder (cue) by the regular class teacher was quite effective in causing an LD student to apply specific learning strategies to her regular class assignments.

The need to empirically validate the different communication and cooperative planning sessions outlined in the literature is obvious. A factor that should not be lost in the validation process, however, is the fact that all of the models

described above stress the need for strong administrative support resulting in an environment conducive to staff interactions on behalf of the learning disabled. Thus, the communications component of any intervention model must concern itself with *all* levels of staff support.

Unfortunately, hardly any research has been conducted to determine how to best gain the support of administrators for secondary special education programs. Schumaker, et al., (1983) reported that the satisfaction of administrators with a program can be increased if LD teachers hold regular meetings (2–3 times per year) with building administrators and special education administrators. In these meetings, the progress of students was shared with the administrators. The special education teacher showed work produced by the students before and after instruction and summary data depicting such measures as number of passed versus failed courses, number of school dropouts, and gains in achievement test scores to the administrators. Whether the obtained increases in satisfaction measures are translated into increases in verbal and other kinds of support from administrators remains to be determined.

Another area where communication would seem to be crucial is between LD teachers and the parents of LD adolescents. Again, this is an area where little research has been conducted. Schumaker et al. (1983) reported that when rating their satisfaction with several aspects of the programs the parents of LD students in two of three programs were the least satisfied with the ways their child's progress in the programs was communicated to them. Conceivably, parental support and involvement could be crucial in ensuring that homework assignments are completed (by the structuring of "study time" in the home), in facilitating the training and generalization of a number of skills (e.g., social skills, transitional skills) that are taught in resource room programs, and in encouraging continued school involvement toward a high school diploma. If parents are to be supportive, practical but effective ways of communicating their son/daughter's progress and needs must be developed.

Clearly, research in the area of communication between LD teachers and content teachers, administrators, and parents

is needed if a communication component is to be fully developed for interventions for LD adolescents. This component appears to be needed in order to coordinate and build support for the complex array of services needed by this population.

### **The Transition Component**

Even if an intervention model for LD adolescents is developed that includes effective curriculum, instruction, motivation, and communication components, it should not be left to chance that graduating seniors will make successful transitions from secondary school life to life as young adults. For most adolescents, this transitional process is a difficult one; decisions must be reached, emancipation from home must be consummated, and adjustments to new living, working, and social environments must be made. Recent research has shown that LD individuals encounter more difficulties with this transition process than their non-LD peers. For example, in a study of LD young adults 19 to 25 years of age, Vetter (1983), found that significantly more LD (55%) than non-LD young adults appear to hold jobs that have significantly lower social status than the jobs of their age-peers, and they are significantly less satisfied with their jobs than their non-LD peers (White, Schumaker, Warner, Alley & Deshler, 1980). With regard to social adjustment, LD young adults are significantly less satisfied with their social lives than their peers (Vetter, 1983). In particular, they are significantly less satisfied with their dating and express significantly more problems in meeting and communicating with the opposite sex. In the area of leisure-time pursuits, they report having significantly fewer close friends with whom they can go places or share activities. They watch TV significantly more often than their non-LD peers, while non-LD peers are significantly more active in sports activities, hobbies, and reading. White et al. (1980) identified two variables in the personal/social realm that differentiated LD young adults from their peers: their degree of involvement in social or fraternal organizations and their degree of involvement in recreational activities. LD young adults were significantly less involved in these activities than their non-LD peers.

These findings indicate that LD young adults are having a more difficult time adjusting to life than their nonhandicapped peers in several life-adjustment areas. They are less happy with their jobs, they are still living with their relatives, they are less happy with their social lives, and they are not active in leisure time pursuits. Clearly, an adequate intervention program at the secondary level would prepare LD adolescents for this crucial transition process such that they could be successful and satisfied with the results. Thus, a Transition Component appears to be a needed part of an intervention model for LD adolescents for ensuring smooth transitions during and after secondary school and throughout the students' later lives.

Unfortunately, despite the urging of several authors for services for LD adolescents in this regard (e.g., Brolin & Kokaska, 1979; Clark, 1980), there has been no published empirical research on the topic of transitional preparation for LD adolescents. This dearth of research is perhaps a result of several problems that are inherent in the provision of transitional services for LD adolescents. If these services are viewed as appropriately delivered after graduation, there is currently no delivery vehicle available for such a program. School district personnel have traditionally "washed their hands" of students who either drop out or graduate. If transition services are viewed as appropriately delivered during the high school years, special educators often do not perceive their role as including the provision of transitional services. Even if they do accept such a role, secondary special educators must choose among a variety of service delivery options including meeting the immediate needs of LD adolescents (e.g., passing the next test in a required course, passing minimal competency requirements), providing them with learning strategies and a host of other academic and social skills, and providing transition-oriented skills.

When special educators do choose to offer transition education, it usually focuses on career-oriented content (e.g., Mitchell, 1978). Even then, special educators spend a minimum of time on career-oriented education. Schumaker et al., (1983) recently showed that an average of .4% or less of class time (less than

.2 min. per day) in three resource room programs was spent in career-oriented education. Even if it is done well, career-oriented education does not prepare the student for the problems inherent in independent living and in developing leisure-time pursuits. Due to time and resource constraints that probably will not improve in the near future, special educators cannot hope to specifically prepare LD adolescents for the vast variety of jobs available in today's and tomorrow's job markets or for every problem that they might face in adult life.

One viable alternative to this seemingly insurmountable problem is to approach the delivery of transition education through the teaching of a set of generic cognitive skills that can be used in making successful transitions. This set of skills would allow a person to make decisions, solve problems, set goals, plan for the future and implement and reach goals. The training of these skills could be couched within the framework of making the transition between high school and adult life, but logically, such cognitive skills should enable LD young adults to independently and successfully resolve problems they face during transition periods throughout their lives.

This cognitive skills training approach to transitional education appears to be viable and appropriate for a number of reasons. First, it may be readily accepted by special educators because the training of cognitive skills is generally perceived to be within the realm of special education. Second, LD adolescents appear to exhibit deficits in just these cognitive skills. For example, LD adolescents have been found to be unskilled problem solvers when faced with a problem in the social realm. They are significantly poorer problem solvers than their normal-achieving peers, and their problem-solving abilities are equivalent to those exhibited by juvenile delinquents (Schumaker, Hazel, Sherman, & Sheldon, 1982). Nevertheless, LD adolescents' problem-solving performance on novel problems can improve by more than 100% after they receive 1½ hours of training in problem-solving skills (Hazel, Schumaker, Sherman & Sheldon, 1982).

LD adolescents also appear to be poor goal-setters (e.g., Robbins & Harway, 1977). They tend to set either unrealisti-

cally high goals, unrealistically low goals, or exhibit random goal-setting patterns (Tollefson, Tracy, Johnsen, Buenning & Farmer, 1981, Tollefson, Tracy, Johnsen). If LD adolescents are poor goal-setters, it is logical that they would have problems in successfully approaching the life-planning process, a process composed of a series of goal-setting, goal-implementation, and goal-modification tasks. This hypothesis has been supported by the results of two studies that indicate how LD young adults compare to their peers with regard to future-oriented goals. For example, significantly fewer LD adolescents have plans for future education or training than their non-LD peers (White et al., 1980). Non-LD young adults express significantly more goals than LD young adults, and their goals are more realistic than the goals of LD young adults (Vetter, 1983). Fortunately, research has also shown that LD adolescents can learn to set realistic goals, to plan for goal implementation, and to monitor and evaluate their behavior. Research has also shown that their use of these skills results in improved performance in other academic areas (e.g., Seabaugh & Schumaker, 1981; Tollefson, Tracy, Johnsen, & Chatman, 1983).

A third reason that a cognitive training approach may be appropriate is that there is evidence that a transition training program consisting of cognitive skill training can impact adolescents in a short period of time. Jason and Burrows (1983) taught high school seniors the generic coping skills of relaxation techniques, cognitive restructuring techniques, and problem-solving procedures in a total of six weekly sessions lasting 45 minutes each. They utilized discussion activities and practice activities (including role-playing procedures) to train the skills. Jason and Burrows found that the trained students showed significant gains on several measures including cognitive restructuring, coping strategies, self-efficacy, and rationale belief measures. The trained students performed significantly better than the control students on the cognitive restructuring measure which tested the students' use of cognitive restructuring in a traumatic transitional situation.

In summary, these research findings indicate that LD adolescents are lacking in some cognitive skills that can be logi-

cally related to their transitional problems. Fortunately, they appear to be amenable to training in these areas. In addition, training in such skills appears to have had positive effects for normal-achieving students when facing contrived transitional problems.

In light of these promising results, a transitional program focusing on these cognitive skills is currently being developed and field-tested by staff members of the KU-IRLD. As currently envisioned, this program, tentatively called the "Life Planning Program," will consist of a series of activities designed to teach a set of decision-making, problem-solving, goal-setting and goal-implementation skills and to enable students to apply the skills to their own lives in three content areas: career/educational plans, independent living, and social interactions. Eight principles have guided the initial specification of the program and will guide the development process to insure maximum use and generalizability of the Life Planning Program by LD individuals. These principles are the following: (a) life planning will be taught as a cognitive process; (b) a validated instructional methodology will be used (e.g., Deshler et al., 1981); (c) the program will be learner managed; (d) instructional time will be limited to short time periods; (e) the program will be useable by a variety of personnel and in a variety of settings; (f) parents and mentors will be involved in the program; (g) the program will be designed such that it can interfere with the IEP process; and (h) the development of the program will be data based.

The results of this project should provide instructional materials and practices that can be included in the transitional component of an intervention model for LD adolescents. Research is needed that will delineate the impact of such instruction on the lives of LD individuals. Other research in this area should be encouraged as well.

## The Evaluation Component

In the years following 1975, as a result of an increase in available services mandated by PL 94-142, the attention of policy makers in special education has shifted from concerns about the actual *availability* of these services to concerns



about the *effectiveness* of these services in meeting the needs of the handicapped (Kauffman, 1981). In short, the issue of student outcomes resulting from special education intervention is becoming the focus of attention in our field. Because programming for secondary LD students is in its infancy, it is especially important that any intervention model include an evaluation component in order to obtain feedback on a regular basis with regard to its outcomes. Evaluation data are essential if current intervention efforts for LD adolescents are to be refined sufficiently so that they can evolve into an effective intervention model that truly impacts LD adolescents.

Very few studies based on empirical data have been reported in the literature regarding the efficacy of different intervention models for LD adolescents. Deshler (1980), for example, in describing seven different secondary LD models developed through Title VI-G and Title IV-C funding, noted that a common deficiency among all of the programs was their lack of not only evaluation data but more importantly, a systematic evaluation plan that could be used to refine their programming efforts. One exception that appears in the literature is the evaluation of a secondary LD program reported by Zigmond (1978) which was based on the work of Lindvall and Eichelberger (1974), Wortman (1975), and Provus (1972). Zigmond's evaluation system focused on two areas of evaluation: program development and program components. The objective of the program development evaluation was to investigate the soundness of the theoretical assumptions on which the program was based. The program component evaluation utilized both the formative and summative procedures to measure the effectiveness of ongoing activities. The formative evaluation involved the examination of records, observation, interviewing, and informal assessment, whereas the summative evaluation emphasized a comprehensive examination of data generated by both students and teachers. Zigmond reported that students in the program who had received at least five months of services showed sufficient gains in reading recognition over the period of a year. No other gains were reported.

Recently, Levin et al., (1983) have

completed a follow-up study on 52 of the students who received services in the program that was evaluated in the Zigmond (1978) report. The purpose of this follow-up study was to provide descriptive information on the growth of the students through four years of programming and the relative effectiveness of the program to produce academic achievement gains in LD adolescents from grade 9 to 12, as well as to determine the effectiveness of the program on the dropout rate of the target population. The data indicated that the "holding power" of the program for LD adolescents was quite limited in that 51% of the LD students dropped out of school before completing the twelfth grade. Those students who remained in the special education program over the course of the four years of the evaluation gained a mean of 2.5 grade levels in reading skills and a mean of one grade level in math skills.

Another example of an evaluation effort conducted on a secondary LD program has been reported by Schumaker et al. (1983). One of the major goals of these researchers was to produce an intervention model (which they have called the Strategies Intervention Model) that would be dynamic and responsive to the needs of the consumers of the program. In order to ensure this dynamic function, a feedback loop consisting of a yearly summative evaluation was designed. This evaluation involved the collection of data in three areas: data concerning actual implementation of the program, data concerning student progress, and data concerning consumer satisfaction. The implementation data were gathered through resource room program observations of instructional procedures used, student-teacher interactions, and student use of class time. Student progress measures include pretests and posttests at the beginning and end of the school year on standardized achievement tests and on criterion-referenced tests related to task-specific learning strategies taught in the program. Consumer satisfaction measures included responses from administrators, support staff, regular teachers, parents, and students regarding their satisfaction with the goals, procedures and outcomes of the programs. Results of the two-year evaluation show that once strategies instruction is boosted to comprise 75% of

the instructional time in the resource room, students in this program show significantly better performance on tasks requiring strategy use than students in other programs. In fact, their performance on some tasks equalled or exceeded the performance of normal students on the same tasks. In addition, the students gained almost twice as much in basic skills areas (as measured by standard achievement tests) as students in other programs. Schumaker et al. (1983) have made significant progress in evaluating the short-term efficacy of their intervention model but note the need to shift the focus of their evaluation efforts to the impact of the entire intervention model over time in a variety of school settings.

In summary, intervention efforts for LD adolescents have been typified by an emphasis on the design and structuring of programs rather than their evaluation. In light of the paucity of efforts in the area of evaluation, a system for evaluating special education programs for adolescents is currently being developed by the KU-IRLD (Deshler, Greenwood, Schumaker & Mellard, 1983). As currently envisioned, development efforts are based on the thesis that questions regarding student outcomes are only meaningfully addressed when their relationship to other variables such as student attributes and educational program variables are clearly represented and considered. Student attributes are being defined in this context as those characteristics that describe students when they enter into special education programs (e.g., achievement and ability level, social competence, educational history, etc.). Educational program variables are divided into two categories: those describing the program and setting in general (e.g., teacher/pupil ratio, funding, structural coupling, expectancy climate, etc.), and those describing the instructional processes going on within the setting (e.g., teaching methodology, academic learning time, student-teacher interactions, etc.). Finally, student outcomes are defined as the academic, social, vocational, and daily living competence of students in the program. The assessment of student outcomes will occur along a continuum of a class of measures. These measures would range from those that assess the more immediate outcomes of an educational



program (e.g., criterion measures of performance, observational and behavioral checklists of adaptive, academic or social behavior) to those that assess the summative outcomes of the program (e.g., indices of educational attainment beyond secondary education).

Finally, in order to make it possible to create a systems analysis that allows the consideration of variables related to student educational programs and student outcomes as well as their interrelationships, the technologies available through behavioral decision analysis (Edwards, 1977), operations research (Nagel & Neef, 1976) and computer technology are being incorporated into the evaluation system. It is hoped that through such efforts as this some workable procedures for evaluating secondary programs for LD students can be developed.

In conclusion, in an era of financial restraint, few public school systems or individual program efforts can afford the luxury of evaluation research, yet even fewer can afford to persist in educational practices which are ineffective in producing valued student outcomes. What is needed are dynamic evaluation systems that allow programs to continue to evolve to meet the needs of the populations being served. Only through further research in this area will any of the controversies regarding the best ways to serve LD individuals be resolved.

## SUMMARY

The seven intervention components reviewed in this article and its companion article (Part I) are not meant to be exhaustive; rather, they are seen as being necessary to respond to the complex needs of LD adolescents. The reviews that have centered on each of the components have highlighted the following about academic and cognitive interventions for LD adolescents. First, both direct-service components (e.g., the curriculum and acquisition components) and indirect-service components (e.g., the communication and evaluation components) appear to be required to impact LD students. Second, significant progress has been made since the passage of PL 94-142 in delineating issues and major instructional approaches for older LD students. Third, the data base on the characteris-

tics LD adolescents and secondary settings is beginning to grow. Fourth, there still remains a paucity of data empirically validating different intervention practices for LD adolescents. Our attention needs to be turned to this agenda in the coming years.

## REFERENCE NOTES

<sup>1</sup>The discussion in this section is limited to cognitive and academic interventions. Curriculums which emphasize social skills, functional skills, and career education will not be addressed

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