



Learning strategies and the learning-disabled adult student  
by Patricia Ann Hays

A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Education  
Montana State University

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Abstract:

The purpose of this study was to determine whether post-secondary learning-disabled students' learning strategies changed after academic and study skills intervention during one semester of classes and what impact learning strategies had on adult learning. The study also identified whether there were groups of learning-disabled adult learners who think and learn in a similar manner.

The data were collected from (a) the Self-Knowledge Inventory of Lifelong Learning Strategies (SKILLS), (b) the Test of Adult Basic Education, (c) follow-up cluster focus groups, and (d) a demographic questionnaire. Learning strategies included metacognition, metamotivation, memory, critical thinking, and resource management.

Learning disabilities were defined as a heterogeneous group of disorders manifested by significant difficulties with listening, speaking, reading, writing, reasoning, or mathematical calculations. The sample consisted of 101 diagnosed and suspected learning-disabled students enrolled at Montana State University College of Technology-Great Falls during the fall of 1993. Learning strategies did not change after one semester of academic and study skills instruction. However, discriminant analysis indicated that male and female and diagnosed and suspected learning-disabled students learn differently due to the processes of Structured Learning and Rigid Planning respectively. Cluster analysis revealed five distinct groups of learners: Assisted, Hands-On, Sensitive, Persistent, and Balanced Learners.

It was concluded that (a) SKILLS and learning strategies are practical tools for educational improvement for learning-disabled students, (b) learning-disabled students generally experience academic skills deficiencies, (c) SKILLS is useful for 2-year college students, (d) gender and diagnosed/suspected learning-disabled status influence learning strategy selection, (e) short-term academic and study skills training does not change learning strategy usage, (f) distinct learning-disabled groups exist, (g) learning-disabled students need to advocate for services, and (h) learning-disabled students require accommodations in particular learning situations. Recommendations included providing special counselors, staff development for faculty, developing a learning strategies course, providing learning-disabled students with accommodations, and conducting further research related to learning disabilities, learning strategies, and academic and study skills.

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ADULT STUDENT

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## TABLE OF CONTENTS

	Page
LIST OF TABLES . . . . .	vii
ABSTRACT . . . . .	viii
1. INTRODUCTION . . . . .	1
Problem Statement . . . . .	8
Purpose of the Study . . . . .	10
Research Questions . . . . .	11
Significance of the Study . . . . .	12
Definition of Terms . . . . .	13
Assumptions and Delimitations . . . . .	15
2. LITERATURE REVIEW . . . . .	17
Introduction . . . . .	17
Learning Disabilities . . . . .	19
Learning Strategies . . . . .	22
Introduction . . . . .	22
Metacognition . . . . .	29
Metamotivation . . . . .	31
Memory . . . . .	34
Critical Thinking . . . . .	36
Resource Management . . . . .	39
Study and Academic Skills Intervention . . . . .	41
3. METHODOLOGY . . . . .	48
Introduction . . . . .	48
The Setting . . . . .	49
Population . . . . .	53
Self-Knowledge Inventory of Lifelong Learning Strategies (SKILLS) . . . . .	53
Test of Adult Basic Education (TABE) . . . . .	60
Procedures . . . . .	64
4. FINDINGS . . . . .	66
Introduction . . . . .	66
Participants . . . . .	66
Procedures . . . . .	67
TABE Scores . . . . .	68
SKILLS Instrument . . . . .	71

TABLE OF CONTENTS--Continued

	Page
Discriminant Analysis . . . . .	77
Discriminant Analysis with SKILLS and Gender . . . . .	78
Discriminant Analysis with SKILLS and Diagnosed and Suspected Learning-Disabled Students . . . . .	83
Cluster Analysis of SKILLS and Demographic Variables . . . . .	86
Cluster 1: Assisted Learners . . . . .	93
Cluster 2: Hands-On Learners . . . . .	95
Cluster 3: Sensitive Learners . . . . .	97
Cluster 4: Persistent Learners . . . . .	99
Cluster 5: Balanced Learners . . . . .	101
 5. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS . . . . .	 104
Summary . . . . .	104
Discussion of the Findings . . . . .	107
TABE Assessment Scores . . . . .	107
Pre- and Post-test SKILLS Instrument Scores . . . . .	107
Results of the Discriminant Analysis . . . . .	108
Results of the Cluster Analysis . . . . .	108
Conclusions . . . . .	109
TABE Scores . . . . .	109
SKILLS and Learning Strategies . . . . .	110
Academic and Study Skills Intervention . . . . .	112
Discriminant Analysis Results . . . . .	115
Cluster Analysis Results . . . . .	116
Recommendations . . . . .	121
 LITERATURE CITED . . . . .	 126
 APPENDICES . . . . .	 141
Appendix A--Permission to Conduct Research . . . . .	142
Appendix B--Student Participant Letter . . . . .	145
Appendix C--Intake Sheet . . . . .	147
Appendix D--SKILLS Instrument and Answer Sheet . . . . .	149
Appendix E--Focus Group Questions . . . . .	158

## LIST OF TABLES

Table	Page
1. Components of Self-Knowledge Inventory of Lifelong Learning Strategies . . . . .	55
2. Individual TABE Score Ranges . . . . .	70
3. Means and $t$ -tests for Learning-Disabled Groups on TABE . . . . .	71
4. Means and $t$ -tests for SKILLS Conceptual Areas . . . . .	73
5. Means and $t$ -tests for SKILLS Subscales. . . . .	73
6. Analysis of Covariance of SKILLS Post-test Scores Learning-Disabled Groups . . . . .	75
7. Structured Learning. . . . .	82
8. Rigid Planning. . . . .	84
9. Mean Scores for Clustering Variables. . . . .	91

## ABSTRACT

The purpose of this study was to determine whether post-secondary learning-disabled students' learning strategies changed after academic and study skills intervention during one semester of classes and what impact learning strategies had on adult learning. The study also identified whether there were groups of learning-disabled adult learners who think and learn in a similar manner.

The data were collected from (a) the Self-Knowledge Inventory of Lifelong Learning Strategies (SKILLS), (b) the Test of Adult Basic Education, (c) follow-up cluster focus groups, and (d) a demographic questionnaire. Learning strategies included metacognition, metamotivation, memory, critical thinking, and resource management.

Learning disabilities were defined as a heterogeneous group of disorders manifested by significant difficulties with listening, speaking, reading, writing, reasoning, or mathematical calculations. The sample consisted of 101 diagnosed and suspected learning-disabled students enrolled at Montana State University College of Technology-Great Falls during the fall of 1993. Learning strategies did not change after one semester of academic and study skills instruction. However, discriminant analysis indicated that male and female and diagnosed and suspected learning-disabled students learn differently due to the processes of Structured Learning and Rigid Planning respectively. Cluster analysis revealed five distinct groups of learners: Assisted, Hands-On, Sensitive, Persistent, and Balanced Learners.

It was concluded that (a) SKILLS and learning strategies are practical tools for educational improvement for learning-disabled students, (b) learning-disabled students generally experience academic skills deficiencies, (c) SKILLS is useful for 2-year college students, (d) gender and diagnosed/suspected learning-disabled status influence learning strategy selection, (e) short-term academic and study skills training does not change learning strategy usage, (f) distinct learning-disabled groups exist, (g) learning-disabled students need to advocate for services, and (h) learning-disabled students require accommodations in particular learning situations.

Recommendations included providing special counselors, staff development for faculty, developing a learning strategies course, providing learning-disabled students with accommodations, and conducting further research related to learning disabilities, learning strategies, and academic and study skills.

## CHAPTER I

## INTRODUCTION

The goal of adult education should be life fulfillment. If this is indeed a goal, then adult educators should be involved in meeting the needs of the learning disabled adult. (Stubblefield, 1981, p. 12)

It is no secret that the problems learning-disabled individuals face in education are enormous. Traditionally, these individuals perform poorly in the post-secondary education setting. Many factors contribute to this such as an early history of academic problems in school or cognitive delay (Cranney, 1983), behavioral problems (Gilmore, 1975; Matson, 1988), socioeconomic factors (LaBuda, DeFries, & Pennington, 1990), educationally disadvantaged backgrounds where intervention services were not available or students were taught only basic, essential academics (Harrington, 1982), a lack of adequate study and time management skills (Maugrum & Strichart, 1984), and poor self-esteem (Neault, 1983; Polloway, Smith, & Patton, 1983; Shaw et al., 1989).

Writers such as Alley and Deshler (1979) have stressed that as learning-disabled children reach adolescence, the educational focus and the types of services they receive must change. The need for such change becomes even more

significant in adulthood as the complexity and interaction of the variables associated with disabilities are further magnified (Schumaker, Alley, Warner, & Deshler, 1980).

Educators face many problems in providing post-secondary programs for learning-disabled students (Johnston, 1984). A survey by Schumaker, Deshler, Denton, Alley, Clark, & Warner (1982) reported that 67% of young adults diagnosed as learning-disabled while in public school had plans for post-secondary education. In fact, the number of learning-disabled students entering college has more than doubled since 1978 according to the Education of the Handicapped Amendments of 1983 (Shaw & Norlander, 1985, p. 4). Over 16 million adults with learning disabilities are potential candidates for post-secondary education with over 800 American colleges and universities offering services or programs for the learning-disabled student (Fielding & Moss, 1981). Estimates suggest that approximately 10% of incoming freshmen have a specific learning disability manifested in poor reading, writing, or problem solving abilities (Kanter, 1986; Richards, 1977; Sims & Kozall, 1974) with the most common difficulties found in the reading area (Ostertag, Pearson, & Baker, 1986). In the post-secondary vocational/technical setting, the percentage of learning-disabled freshmen may be even higher than 10% as the "open admissions" type of institution often accepts students who are unable to

compete academically at a four-year college. The population also contains many nontraditional older students not previously diagnosed with a specific learning disability during elementary or secondary school (Seitz & Scheerer, 1983, p. 20).

Since Hinshelwood's (1917) classic description of a condition he termed "congenital word blindness," learning disabilities have received much attention from professionals in medicine and many other fields; this is especially so in education. Despite over 60 years of research, the debate still continues concerning a proper definition, etiology, treatment, and prognosis of and for learning disabilities. Consequently, terms such as "learning dysfunctions" (Ross, 1976) or the more commonly accepted expression "learning disabilities" are used.

Early in this century, Charles Orton was the first to identify children of high or average intelligence who were unable to read; he coined the term "strephosymbolia" to describe the twisted confusion of symbols these children experienced. His work of 1937 is still the classic source for remedial training of dyslexics.

The learning that takes place in learning-disabled persons is unique (DeRuiter & Wansart, 1982). Learning-disabled individuals pass through the same qualitatively different developmental stages as those without learning disabilities (Piaget, 1977), but there appear to be

significant differences between learning-disabled individuals and their peers who do not experience learning disabilities (Entwisle, Forsyth, & Muuss, 1964; Gibson & Levins, 1975). These qualitative differences have been noted for decades (Hinshelwood, 1917; Orton, 1937).

A specific learning disability is a hidden disability resulting from a presumed neurological limitation or imbalance affecting an individual's ability to learn--to receive and express information. Recent medical and neuropsychological breakthroughs have revealed much about the nature of information-processing disorders. Learning disorders may occur in the areas of (a) visual perception--reversals or transposing words, (b) auditory-processing--hearing intermittent background noise or hearing only parts of what is said, (c) perceptual-motor--extreme difficulty in fine-motor coordination resulting in illegible handwriting or poor notetaking skills, and (d) reasoning skills. These deficits impair the student's ability to learn. As a result, learning-disabled students learn differently when compared to the norm.

Because of the complexity of this hidden disability, it is often confused with other disorders; the most common of these is with mental retardation. However, many students with learning disabilities possess average to above-average intelligence and demonstrate the ability to succeed in college-level coursework (Biggs & Bullock, 1990;

Shaywitz & Shaw, 1988). In the 1950s and 1960s, learning-disabled students were commonly misdiagnosed as slow learners, underachievers, or mentally retarded. While students with learning disabilities may simply appear to lack basic skills, they are fundamentally different (Kanter, 1986). Learning-disabled students are a group of individuals with diverse psychological, academic, social/emotional, and vocational profiles (Cronin & Gerber, 1982); this is not unlike much of the non-disabled population. However, while many of the deficits or problem areas experienced by people without learning disabilities are alleviated by maturation and experience, the problems often persist for the learning disabled (Hughes & Brewer, 1985, p. 6). The true test of a learning problem may therefore be in its persistence (Blalock, 1981; Mercer, 1979). In the systems approach to diagnosis and remediation used at Northern Kentucky University, Johnson and Morasky (1977) found that what initially appeared to differentiate some learning-disabled students from academically underprepared students was the severity of their problems; even with average to above-average intelligence, learning-disabled students had tremendous difficulty in introductory classes requiring them to read extensively and take written examinations.

Follow-up studies present convincing evidence that learning-disabled adults do attain satisfactory educational

levels and vocational status commensurate with normal learners in the general population (Shaywitz & Shaw, 1988). It has been well-documented that (a) learning-disabled students can succeed in post-secondary education with proper academic support, (b) there is a need for qualified personnel to administer and teach in the programs available, (c) instruction includes the use of technology as well as clearly structured learning strategies, and (d) transition programs are needed to help bridge the gap between high school and college (Biggs & Bullock, 1990; Cherney, 1990).

MSU College of Technology-Great Falls conducts a Master Student class for new students which addresses study skills, learning strategies, interpersonal communication skills, test-taking, test anxiety, self-worth, and career development issues in a group setting. This is an attempt to bridge the gap between high school and college for both young and older students. Because learning-disabled students often have poor preparatory skills such as these (Maugrum & Strichart, 1984), it is especially important to provide transitional assistance. The majority of students completing Master Student have indicated that it was extremely helpful in addressing potential problems in core courses in their programs.

There is a need for more precise identification of learning disabilities (Hughes & Brewer, 1985). In 1981 the

National Joint Committee for Learning Disabilities

developed a definition that reads:

Learning disabilities is a generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical disorders. These disorders are intrinsic to the individual and presumed to be due to central nervous system dysfunction. Even though a learning disability may occur concomitantly with other handicapping conditions or environmental influences, it is not the result of these conditions or influences. (p. 8)

Therefore, those with learning disabilities receive inaccurate information from their senses and/or have trouble processing that information. Like static on a radio, the information becomes garbled as it travels from the eye, ear, or skin to the brain (Brown, 1981). This inaccurate sensory or perceptual information leads to problems with academic work. Adult students may have difficulty with one or more of the following: reading, writing, speaking, listening, or mathematical concepts and problem-solving. Either these skills have not been learned, have been learned after heroic work, or have been learned poorly (p. 1).

Much has been written concerning the benefits of the learner developing learning strategies. Knowledge of learning strategies can empower learners not only in their involvement in academic environments but also by informing them of the most effective methods and attitudes for

lifelong learning. Adult education emphasizes the need to not merely teach content but to teach broader knowledge about how to learn (Hill, 1992, p. 11). Students need to learn how to learn because

it is no longer realistic to define the purpose of education as transmitting what is known. In a world in which the half-life of many facts and skills may be ten years or less, half of what a person has acquired at the age of twenty may be obsolete by the time that person is thirty. (Knowles, 1975, p. 15)

Students need to be equipped with skills with which they can direct their own learning. "One of the goals for education is to provide people with the tools so they can learn on their own, without dependence on institutions or teachers" (Apps, 1981, p. 245). Acquisition of learning strategies can be a vehicle for this self-directed learning.

#### Problem Statement

Much of the research regarding learning-disabled students and the impact of skills intervention has been done with elementary and secondary children (Polloway, Smith, & Patton, 1983, pp. 179-185). This research indicates that problems experienced by adolescents persist in adulthood even though course-specific progress is experienced during elementary and secondary coursework. However, adults with learning problems should not be viewed simply as grown-up learning-disabled children (Travis,

1979). Their characteristics and needs should be viewed within the context of other adults' behavior and the demands of adulthood rather than in reference to their difficulties as children; this is particularly true since the nature of a disability may change with age (Meyen, Schiefelbusch, Deshler, Alley, Schumaker, & Clark, 1980).

Learning-disabled adult students have unique problems in learning. Published studies indicate that study skills and specific academic skills intervention can have a definite impact on post-secondary students' success in particular coursework (Idol-Maestas, 1981). Past history at Montana State University College of Technology also has demonstrated that study skills and academic skills intervention has an impact on a learning-disabled student's ability to learn and succeed in a post-secondary program; this has been indicated by lab instructors' assessments and course completion or graduation rates of learning-disabled students. However, it is not known what specific learning strategies these students use.

Learning strategies are the skills and techniques that an individual elects to use in order to accomplish a learning task. Given the fact that learning-disabled students have shown limited success throughout elementary and secondary school, it is possible that these students will continue to use previous unsatisfactory learning strategies when entering post-secondary studies and thus

often continue a pattern of failure (Polloway, Smith, & Patton, 1983, pp. 179-185). By providing study and academic skills intervention, the learning-disabled student may modify learning strategy patterns as a result of skills intervention and thereby increase the possibility of success.

It is critical that counselors, educators, and administrators discover ways to assist the learning-disabled adult learner. Little has been written (a) on the relationship between the post-secondary learning-disabled student's entry level learning strategies, skills intervention, and resulting learning strategies and (b) on the impact of this relationship on adult learning (Cordoni, 1982; Neault, 1983). It is possible that if people were followed past young adulthood, significant outcomes might appear. It is, therefore, important to give learning-disabled students the tools and techniques to accommodate their own disability.

#### Purpose of the Study

The purpose of this study was to describe the learning strategies used by learning-disabled students at Montana State University College of Technology-Great Falls. To accomplish this, the research was fourfold. First, it determined what learning strategies learning-disabled students used at MSU College of Technology. Second, it

assessed whether specific academic skills intervention in the form of academic skill building or study skills instruction had any impact on the resulting learning strategies. Third, it investigated if it was possible to discriminate between male and female students and between diagnosed and suspected learning disabled students in whether they exhibited a different pattern of learning strategies after skills intervention. Fourth, it explored whether there were identifiable clusters of learning-disabled students who thought and learned in a similar manner and how that impacted adult learning.

#### Research Questions

Little research has been done in the area of learning strategies and the learning-disabled adult. This study investigated the relationship between the post-secondary learning-disabled student's learning strategies measured by the Self-Knowledge Inventory of Lifelong Learning Strategies (SKILLS), specific skills intervention, and post strategies measured by SKILLS. Four research questions were investigated in this study:

1. What is the learning strategy profile of a learning-disabled student?
2. Does skills intervention produce a significant change in the post-secondary vocational/technical learning-disabled student's learning strategies?

3. Do males and females and do diagnosed and suspected students have a different pattern of learning strategies?
4. Do distinct clusters of learning-disabled students exist? If cluster do exist, what are their characteristics?

#### Significance of the Study

Information about a learning-disabled student's use of learning strategies and the relationship of learning strategies to study or academic skills intervention has the potential of impacting post-secondary education programs in a significant way. Instructors and administrators could use the knowledge about skills intervention and the learning-disabled student's learning strategies to improve the learning environment for students. Specific alternative methods of study as well as alternate assignments and testing could be provided by instructors. If a student's learning disability was documented initially, advisement would automatically include information regarding study skills intervention, study skills lab, or academic skills lab. A seminar in learning strategies could be accessible to all students. Students could use the information to identify their most useful strategies or explore additional learning strategies in the future. If a relationship between learning-disabled students, skills intervention,

and resulting learning strategies can be found, then more appropriate pre-advisement is possible to assist the post-secondary learning-disabled student succeed. ✓

Adult learning intersects with learning how to learn. ✓  
As an adult learns, the learning impacts motivation for further learning. This in turn affects the adult learner's potential to be a more efficient, effective, and meaningful learner (Smith, 1982, p. 58). Knowledge of learning strategies can empower learners not only in their involvement in academic environments but also by informing them of the most effective methods and attitudes for lifelong learning. Adult education is replete with the prescription to not merely teach content but to teach broader knowledge about how to learn (Hill, 1992, p. 11). ✓  
To encourage lifelong learning and lifelong self-directed learning, educators must assist people who want to break their ties with formal education and develop their own strategies for learning (Apps, 1981, p. 246). Indeed, if a learning-disabled adult can adapt by developing more effective learning strategies to further personal learning, the goal toward successful completion of a post-secondary program of study can be attainable.

#### Definition of Terms

**Academic Skills Intervention:** Providing instruction in basic skills training in the areas of reading,

arithmetic, English, or a combination of these when skills fall below the 10.0 grade level.

**Critical Thinking:** A reasonable, reflective thinking that is focused on deciding what to believe or do. It includes identifying and challenging assumptions, challenging the importance of context, imagining and exploring alternatives, and reflective skepticism (Brookfield, 1987, p. 12).

**Learning Disability:** This is a generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, and mathematical or problem solving concepts. These disorders are intrinsic to the individual and presumed to be due to central nervous system dysfunction. Even though a learning disability may occur concomitantly with other handicapping conditions or environmental influences, it is not the result of these conditions or influences. (Slavin, 1992, p. 409)

**Learning Strategies:** The techniques and skills that an individual elects to use in order to accomplish a specific learning task. Such strategies vary by individual and by learning objective. Often, they are so customary to learners that they are given little thought; at other times much deliberation occurs before a learning strategy is selected for a specific learning task. (Fellenz & Conti, 1989, p. 1)

**Master Student Class:** Based on Becoming a Master Student by Dave Ellis (1984), this course at Montana State University College of Technology-Great Falls deals with study skills, learning strategies, interpersonal communication, test anxiety, self-worth, and career development issues in a group setting.

**Memory:** Learning strategies which help adults in learning situations. These include rehearsal of information, organization and elaboration of information, use of external aids, and the application of self-knowledge about memory and use of mnemonic techniques. (Fellenz, & Conti, 1994, p. 5)

**Metacognition:** Thinking about the process of learning and emphasizing self-regulatory tactics to insure success in the learning endeavor (Fellenz & Conti, 1989, p. 2).

**Metamotivation:** Tactics and techniques used by the learner to provide internal impetus in accomplishing learning tasks. These are based on a model developed by Keller (1987) which emphasizes focusing attention, fostering confidence, anticipating reward, and enjoying learning activities. (Fellenz, & Conti, 1994, p. 8)

**Resource Management:** The identification of appropriate resources, critical use of such sources, and the use of human resources in learning. (Fellenz, & Conti, 1994, p. 3)

**SKILLS:** An acronym for the Self-Knowledge Inventory of Lifelong Learning Strategies. This is a learning strategies inventory with established validity and reliability which asks respondents to rate 18 learning strategies in 4 of 6 scenarios commonly found in everyday life and which call for a learning effort on the part of the respondent. (Fellenz, & Conti, 1994, p. 2)

**Study Skills Intervention:** Providing a way for an individual to learn methods to solve a specific problem in a specific subject area in a classroom setting. These methods include things such as notetaking, memorization techniques, and developing critical thinking skills.

**Suspected Learning Disability:** In this study, those identified at or below the 10.0 grade level equivalence on the TABE as well as being referred for special services by faculty or counseling staff.

**TABE:** An acronym for the Test of Adult Basic Education. This instrument with a long history of use in secondary and post-secondary institutions through the United States is used to establish basic skills achievement levels for adults. The skill areas include reading, arithmetic, and language.

### Assumptions and Delimitations

It was assumed that accurate and reliable responses to the instruments used in the study could be best obtained under controlled conditions. Controlled conditions referred to testing in a classroom with a testing proctor.

SKILLS and TABE instruments were administered by the researcher following an initial intake interview. It was assumed that the participants answered questions under both conditions truthfully and in an unbiased manner. Because the counseling program was designed to help students who come in voluntarily, it was in the student's best interest to be honest during testing. The SKILLS instrument did not seek any confidential information, so there would be no reason for a student to feel a need for protection from disclosure. All participants in this study volunteered to respond and complete the TABE, pre- and post-SKILLS instruments, and participate in cluster focus groups.

The research was delimited to learning-disabled post-secondary students who were entering MSU College of Technology for the first time and were planning to begin a program in the fall of 1993. Participants were excluded from this research if there existed known neurological or emotional problems or uncorrected visual or auditory acuity deficits.

## CHAPTER 2

## LITERATURE REVIEW

Introduction

The rights of learning disabled students to a post-secondary education are specifically guaranteed under Section 504 of the Rehabilitation Act of 1973, yet very little is known about how to best accommodate the learning-disabled student in a college environment. A vicious cycle results because for the learning-disabled student, the prospect of attempting college without a support system is terrifying (Cordoni, 1982). Some institutions are making specific efforts to identify and meet the needs of learning disabled students, but it appears to be a slow word-of-mouth process. This rate of accommodation is disappointing because with the appropriate system of support services, the learning-disabled student can progress through the college experience and can productively and professionally enter the world of work (Neault, 1983, p. 16). However, little research has been done with the learning-disabled college population; definitive data is lacking in the areas of needs identification and appropriate assessment measures (p. 6). Therefore, little has been written regarding a

relationship between study skills and academic skills intervention and learning strategies particularly in higher education.

Most of the literature focuses on children through 12th grade and concludes that deficits in basic skill functioning are enduring for most learning-disabled children, but most transition programs from secondary to post-secondary institutions have been successful in seeing students complete programs, given appropriate support services (p. 5).

Seidenberg (1985) suggests that the transition phase for learning-disabled students from secondary school to college cannot be accomplished in one step. Rather, she describes a three-stage process that includes high school instruction, planning for transition, and placement into an appropriate college program. The results of a survey comparing the perceptions of high school and college faculty regarding the characteristics and preparatory needs of secondary learning-disabled students indicate that both high school and college teachers agree on the characteristics and preparatory needs of secondary learning-disabled students (Seidenberg & Koenigsberg, 1986).

Open admissions policies, new federal laws regarding individuals with disabilities, and attempts to enroll a broader spectrum of the population in higher education have

begun generating publications on the problems of learning-disabled students. For instance, Cross (1971, 1976) surveyed community college programs and analyzed their remedial course offerings and curricula designed to meet the needs of learning-disabled and underprepared students in the lowest third of scores on academic-skills testing. Cross has been at the forefront in recognizing the need to accommodate learning-disabled students and underprepared students, and she has influenced the policies and goals of many programs.

### Learning Disabilities

What is a learning disability, and how does learning occur for those that are learning-disabled? An authoritative definition of this syndrome was proposed by experts working on a project sponsored by the National Institute of Neurological Diseases and Blindness (Clements, 1966). There have been a few revisions to the definition since that time. In response to the educational mandate of PL 94-142 in 1973, which guarantees a public education to all children, the U.S. Office of Education developed the following definition of learning disabilities:

Specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations. The term includes such conditions

























































































































































































































































































