5-2003

The Effects of Self-Monitoring Checklists and Performance Feedback on Study Skills of College Students with Disabilities

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THE EFFECTS OF SELF-MONITORING CHECKLISTS AND PERFORMANCE FEEDBACK ON STUDY SKILLS OF COLLEGE STUDENTS WITH DISABILITIES

by

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A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Psychology
(School Psychology)

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

2003

ABSTRACT

The Effects of Self-Monitoring Checklists and
Performance Feedback on Study Skills
of College Students with Disabilities

by

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Utah State University, 2003

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This study utilized a multiple baseline design across two study skills to examine the impact of a self-monitoring checklist and performance feedback on the implementation of study skills for seven college students with disabilities. The accuracy with which students performed study skills was calculated as a percentage based on the number of correct study skill steps completed during a college course divided by the total number of treatment steps. The results show that three of the seven students markedly increased the accurate use of the notetaking and study guide skills immediately when provided with a self-monitoring checklist and performance feedback, whereas the other four students had more variable results. However, following a booster session, all students' performance increased following intervention. Results were socially validated

by students who indicated they were generally satisfied with the intervention and found it to be useful when studying for the college class.

(109 pages)

ANOWLEDGMENTS

Becoming involved with this research project has been an interesting endeavor. I have had many people that have guided me through this process. In particular, my thesis chairperson, Donna Gilbertson, has been a wonderful support and resource. She has made herself available for assistance and has tutored me in the process of single subject design on a continuing basis. Dr. Gilbertson has also been a constant source of moral support for which I am grateful. My thesis committee members have also been very pleasant to work with and brought informative insights to the research.

I would like to thank my family for their assistance in helping me pursue this goal in my life. It has been a long road and they have been there the entire journey. I would like to acknowledge my parents, Lowell and Margaret Mecham, who served as public educators until their retirement. I thank them for their example and for their dedication to educating young minds. I gained my value of education from their service. Also, I would like to express my pride in my own family members that have struggled to overcome various disabilities. It is their persistence and fortitude that started me on the path to the career I have chosen. Seeing them struggle to succeed against the challenges that faced them inspired me and gave me an interest in this field of study. Finally, I would like to express my gratitude for my colleagues at the Disability Resource Center. Diane Hardman took me under her wing and taught me many principles and insights on an individual basis. It is from her that I gained my passion for teaching study skills to students with disabilities.

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INTRODUCTION

A major problem across the country is the increasing numbers of students with disabilities who are struggling during the transition period between high school and postsecondary education. Findings of various studies indicate students who have received special education services have high rates of unemployment, minimal participation in postsecondary education and an inability to live independently (Blalock & Patton, 1996). Due to these concerns, the federal government has identified the transition from school to work or postsecondary education as a federal priority for students with disabilities, and has implemented several regulations mandating transitional planning of students to adulthood by school-based teams when a student turns 14 years old. Specifically, in 1990, amendments were made to the Education for All Handicapped Children Act that included the consideration of transition services for students in special education. One of the purposes delineated for the annual Individualized Education Program (IEP) team meeting was to plan and document transition services when students with disabilities turn 16 years of age (Blalock & Patton). The Individuals with Disabilities Education Act (IDEA-97) Amendments of 1997 (Public Law 105-17) further mandated that the IEP meetings should include a written statement of transition needs related to students' courses of study beginning at age 14, followed by a documented transition services plan for students with disabilities at age 16 and older (Hasazi, Furney, & Destefano, 1999). Because these regulations have passed, service agencies for disabled persons and educators have been seeking to find effective methods of transitioning students from school to adult activities.

In practice, many students exiting high school have not consistently received either formal or informal transition assistance services (Lehmann, Bassett, & Sands, 1999). Students entering college after receiving extensive support in secondary settings, are moving from a structured, externally monitored environment to a flexible and self-monitored environment with limited support. Findings from studies examining transitional periods for students with disabilities indicate that these students are not prepared to advocate for their needs or independently meet the academic standards set for them (Lehmann et al.; Merchant & Gajar, 1997; Thoma, Rogan, & Baker, 2001). Hence, these findings suggest that current transitional practices are not fulfilling the service needs of all students or appropriate services are not being provided. This leaves these students unprepared for postsecondary pursuits.

The federal priority on successful transitioning between secondary and postsecondary schools has been further emphasized with the recent increase in the enrollment of students with disabilities in 2- and 4-year institutions. Although students with disabilities are less likely than their nondisabled counterparts to attend postsecondary education, approximately 18.1% of adults with learning disabilities enroll in a 2- or 4-year college program (Wagner, Blackorby, Cameto, & Newman, 1993). Unfortunately, these students often have difficulty completing their postsecondary education and are not retained due to deficiencies that hinder them from succeeding (Aune, 1991). Due to the low retention of students with disabilities in postsecondary institutions, college campuses are responding by implementing remedial courses that provide support and training on skills that are critical for success in college-level coursework. A substantial body of research has demonstrated that one critical factor

needed to increase retention of students with disabilities is the ability to implement effective study skills (Dunn, 1996). However, students with disabilities often are lacking in study skills to a greater degree than the average college student. Hughes and Suritsky (1994) found that the notes of students with learning disabilities were not as complete as the notes of students without a learning disability.

Several surveys of university students with learning disabilities (LD) have included items that have the student evaluate their notetaking abilities. The majority of respondents reported difficulties taking notes (Bireley, Landers, Vernooy, & Schlaerth, 1986; Cowen, 1988; Suritsky, 1992). Authorities in the field of special education have discovered learning and behavioral problems that differentiate college students with LD from other academically underprepared undergraduates. Included in this list of problems is the propensity for these students to be deficient in study skills involving time management, task organization and completion, notetaking, outlining, using reference materials, and test taking (Mangrum & Strichart, 1988; Putnum, 1984).

Many college campuses report that there has been a decline in the quality of the academic achievement of not only students with disabilities entering college but also their nondisabled peers (Losak, Schwartz, & Morris, 1982). Increasingly, postsecondary staffs are complaining that incoming students are not well prepared with regard to specific knowledge and study strategies (Eikeland & Manger, 1992). These incoming students have been found to be deficient in some of the capabilities required for successful academic performance (Thomas, Bol, & Warkentin, 1991) such as a lack of motivation (Eikeland & Manger), difficulty in performing traditional academic tasks

(Weissberg, Berentsen, Cote, Cravey, & Heath, 1982), and a lack of ability to use study strategies effectively (Jackson & Cunningham, 1994).

Even when training on study skills occurs at the high school level, the required proficiency level of these skills for academic success may drastically change between high school coursework and college coursework. Lack of proficient skills may be due to an inconsistent degree of study skills programs in high school or lack of sufficient training opportunities to generalize skills to a much faster pace, covering more content. Although many postsecondary education programs are increasing supports for students with disabilities, the level of remediation some students need is not always addressed on an individual basis to accommodate students with special needs. Success in the college setting still remains dependent on the qualities of the student and the degree to which the student independently implements skills with various subject matter (DeFur, Getzel, & Trossi, 1996).

Given the importance of study skills, remedial college courses are increasingly providing curriculum that teaches or reviews effective study skills. Initially research examined study skill training at the secondary level, but more recent studies are examining the effectiveness of training programs for postsecondary students. However, much of the literature focuses on subjective reporting for outcome measures instead of relying on direct measurements of experimental effects on the use of study skills. Many studies at the college-level are also limited due to (a) lack of clear treatment procedures, (b) inadequate treatment integrity measures, (c) results from mixed populations that do not differentiate level of effect between disabled and nondisabled individuals, (d) limited studies across various categories of disabilities, (e) lack of component analysis of study

skill programs, and (f) failure to specify the level of individual modifications made, which is critical for students with disabilities.

If the transition process is to be successful for students seeking a college education, college readiness training for special education students needs to be considered. Moreover, a substantial body of research supports that these programs must assist students in increasing their skills given that effective study skills that have been shown to increase academic success. The ability to perform study skills effectively with external support initially and later on their own, could potentially assist transitioning students in becoming academically ready for postsecondary pursuits. The provision of remedial classes that teach study skills is one potential solution when study skill training was not adequately provided at the high school level. However, these classes must maximize skill acquisition within a short period of time, with fewer resources to give intense monitoring and feedback in comparison to resources and time provided at a high school level. Research on effective teaching and training strategies suggests several promising options that may be implemented with college students with disabilities. Three components that have been found to promote independent implementation of skills include (a) determining the specific skills and behaviors required for regular class success, (b) focusing the curriculum on the specific skills identified as necessary for regular classroom success, (c) ensuring the students actually use their new skills in regular class settings. Also, acquiring data on the extent to which instruction has been effective and useful to students helps professionals to know the value of the skills taught (Anderson-Inman, 1986). For students with disabilities learning study skills, a better understanding is needed of instructional strategies that effectively and efficiently

promote rapid skill acquisition that can be independently implemented in the natural classroom settings fairly immediately.

In summary, colleges are increasingly faced with the challenge of providing remedial coursework to enhance skills that predict academic success in college courses in order to increase the number of students who can complete college. However, to maintain efficiency, this type of support is given over a brief period of time. Without support that quickly promotes independent use of important study skills in college courses, low retention rates will most likely continue to be a problem. Given the empirical support for effective teaching and training strategies with various populations in secondary education, investigating the effects of specific instructional components in college remedial courses is an important area of study. Thus, this study was based on the supposition that the use of effective teaching strategies with preliminary guided practice paired with self-monitoring and performance feedback in a college adjustment course would effectively enhance the use of study skills for students with disabilities in a paired college course for which the student is concurrently enrolled.

Specifically, this study measured the effects of a study skill package on notetaking and study guide skills taught within a college adjustment course composed of students referred by rehabilitation services for enrollment in the course. The approach used in this study initially employed training that included verbal written instructions, practice opportunities with guided prompts, immediate performance feedback, and a preliminary demonstration of efficacy before students with disabilities independently implemented study skills in a college-level classroom. Following training, this investigation evaluated the effects of a self-monitoring checklist and performance

feedback on student's establishment and maintenance of two study skills in a postsecondary environment. Finally, student acceptability of the instructional package was examined.

REVIEW OF THE LITERATURE

The purpose of this review is to (a) determine the importance of study habits as a predictor of academic achievement, (b) evaluate the key treatment components that were used for the study skills intervention, and (c) review previous evaluations of study skills training courses and determine possible weaknesses. The studies reviewed were selected to represent the available information in the area of study habits as related to academic achievement. The articles were selected by conducting a computer search of the PsycInfo database for all key words and a selected search for specific key areas using the ERIC database to select journal articles containing empirically based studies published from 1969 until the present. A subject and keyword search was conducted using the following descriptors:

academic achievement	academic performance	academic success
academically at risk	ADA	at risk
career counseling	checklist	college
college adjustment	college adjustment course	college freshmen
college orientation	college readiness	college students
college success	college transition	cornell method
disabilities	disability	disability law
disabled	disabled students	discriminative stimulus
disorders	educational achievement	freshman orientation
grades	guided prompts	habits

high school	high-risk students	IDEA
learning disabilities	learning disabilities	notetaking
performance	performance feedback	postsecondary
prompts	rehabilitation	rehabilitation counseling
remediation	retention	school adjustment
school transition	script	Section 504
self-monitoring	self-monitoring checklist	special education
study	study guides	study habits
study skills	study skills course	success
test preparation	transition	transition practices
transitional programs	treatment	underprepared college students
university		

Disability Laws

One of the major issues for students with disabilities who enroll in postsecondary education is the abrupt change in rights and services that are provided under the law. There are three federal laws that pertain to students with disabilities within the educational system including the Individuals with Disabilities Education Act (IDEA-97), Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA). While these laws all are designed to increase support and services for students with disabilities, they vary in the definition of disability and type and length of time services are provided.

Students with disabilities are often first familiarized with services and rights as they are mandated by The Individuals with Disabilities Education Act (IDEA-97). This federal special education statute governs the educational programming of elementary and high school students with disabilities that fall into one of thirteen special education categories (e.g., learning disability, other health impairments). However, to be qualified as having a disability under IDEA-97, the individual must meet specific qualifications listed under one of the thirteen specific classifications listed in the act. If the individual has the impairments listed, they are labeled under that category and receive services that meet the individual needs of that student. While IDEA-97 is narrow in its criteria as to whom is a student with a disability, IDEA-97 is broad in the scope of services it provides to students with disabilities. For example, students may qualify for services such as counseling, social work, physical or occupational therapy, speech therapy, or transportation services It is specifically designed to serve students in the educational environment until graduation or the age of twenty-one.

Section 504 of the Rehabilitation Act of 1973 states, "No otherwise qualified individual with a disability in the United States...shall, solely by reason of her or his disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance". In order to be considered a disabled individual under Section 504, a person must have a "physical or mental impairment that substantially limits one or more major life activities, has a record of the disability, and is regarded as having the disability." Therefore, Section 504 is a broad statute that promotes nondiscriminatory practices in all aspects of education, employment and transportation at any age. Regarding education, Section 504

requires that elementary, secondary and post-secondary students with disabilities must have an equal opportunity to benefit education and that equivalent programs must be provided to all students.

The ADA is a federal statute that keeps people with disabilities or individuals associated with a disabled person from being denied access to public or private education or opportunities solely on the basis of their disability. Hence, students with a disability who attend schools that do not receive federal monies are also given the same rights as those given under Section 504. Student's rights provided under ADA are essentially the same as those provided in Section 504. In fact, the office of Civil Rights has stated that every violation of Section 504 is also a violation of the ADA as it applies to students.

A frequent challenge for students with disabilities is adjusting to the different level of services they are offered in postsecondary education settings as compared to the services they received in elementary and secondary educational settings. Prior to graduation, students with disabilities are protected under ADA, Section 504 and the IDEA-97 mandate. In contrast, students' rights and services in postsecondary education, are only protected under section 504, and ADA and are often limited (Missouri College Guidebook, 1999). Because there are considerable differences in what services are provided under IDEA-97 versus 504 and ADA, services will likely be different for students with disabilities who were eligible for special education services provided under IDEA-97 as students move from secondary education into college. This is because these mandates have different goals. One way in which these mandates differ is that Section 504 and ADA work to eliminate barriers that exclude persons with disabilities by preventing hurdles to participation. These hurdles may be physical (steps that prevent a

person in a wheelchair from accessing a building) or programmatic (excluding a child with hepatitis from a classroom). In comparison, IDEA-97 is designed to not only enable student to have equitable learning opportunities but also provides remedial services. Essentially, as students progress to postsecondary education, they are required to assume more responsibility with less support (Missouri College Guidebook). Because services will be focused on providing access and equality rather than remediation, the level of services may decrease. For example, students may be allowed extra time on tests, but the test content will not be shortened or simplified. During high school, these same students likely had structured, modified environments that were provided for by the school district with no cost or effort for the student. Often, students had their curriculum modified or shortened and, primarily, their special education teachers or perhaps parents, monitored their educational progress (Missouri College Guidebook). Under IDEA provisions, students are more likely to be given services that provide frequent adult monitoring, prompts, and feedback on their progress. In college, the schedule of adult's supervision, learning prompts, and feedback is substantially reduced and more so if the student fails to seek this type of support.

Outcomes for Students with Disabilities in Postsecondary Education

Because of this discrepancy in services between high school and college, students will often struggle to be successful following high school. Statistics on postsecondary outcomes for these students are often bleak. Blackorby and Wagner (1996) summarized findings of a National Longitudinal Transition Study (NLTS) that provided a

comprehensive data set regarding outcomes for students with disabilities. This longitudinal study examined the 5-year educational and postschool performance of 8,000 youth between the ages of 13 to 21, with a variety of disabilities. They found that for a large portion of students who were classified as having an emotional or learning disability, postschool employment and education data consistently reflected poor outcomes (see Table 1). As noted in Table 1, few students with emotional or learning disabilities who are rated by parents as having higher functional mental skills (i.e., time telling, reading common signs, counting change, using phone book and phone) enroll in postsecondary schools (Phelps & Hanley-Maxwell, 1997).

Due to poor postsecondary outcomes of persons with disabilities, an important aspect of IDEA-97 and Section 504 is the requirement that at the age of 14, students must have a transition plan created in order to begin preparing them for postsecondary pursuits (Hasazi et al., 1999). One transitioning practice that has been shown to improve student posteducational outcome is the development of independent study skills (Kulik, Kulik, & Shwalb, 1983).

Table 1

Summary of Postschool Outcomes for Students with Disabilities from the National Longitudinal Transition Study (NLTS)

Outcomes post high school	Learning disabled %	Emotionally disturbed %
Drop out	28	48
Enrolled postsecondary academic	19	15
Enrolled postsecondary vocational	18	13
Competitively employed	63	52
Living independently	34	21
Full community participation	74	56
Self-care rated highly by parents	98	96

Promoting Independent Use of Study Skills and Beneficial Outcomes

Study skills are an integral component in college success and a myriad of research supports the importance of positive study skills in relation to academic success (Kiewra, 1983, 1987; Kiewra, Benton, & Lewis, 1987). For college students, academic achievement and higher student GPAs are associated with higher scores on an assessment of study habits and attitudes (Al-Hilawani & Sartawi, 1997; Gadzella & Williamson, 1984; Kooker & Bellamy, 1969). Consistent findings from studies examining the effects of study skills on academic performance suggest that successful students can be differentiated from failing students by their use of study skills (Brozo, Schmelzer, & Thurber, 1982). Further investigation by Kooker and Bellamy considered differences between college graduates and students who dropped out of college. They found that students who had completed their baccalaureate degrees had better study habits and more favorable attitudes toward academic pursuits.

The specific study skill of notetaking, has been shown to be an effective strategy to increase student's learning capabilities (Adams, Carnine, & Gersten, 1982; Brown, Campione, & Day, 1981; Brown & Smiley, 1978; Spires & Stone, 1989; Weinstein & Rogers, 1985). For example, Bretzing, Kulhavy, and Caterino (1987) found that junior high students who learned how to take notes were able to boost academic performance levels. Also, Laidlaw, Skok, and McLaughlin (1993) found overall gains on science exams for fifth- and sixth-grade students when notetaking combined with self-questioning (a form of review) was used. Yet, students are often not taught to make good

notes, even at the secondary level, although course content in most secondary classrooms is instructed through readings, discussion, and lecture (Horton, Lovitt, & Christensen, 1991; Saski, Swicegood, & Carter, 1983). The demand for notetaking skills substantially increases at the postsecondary level, but many students are not able to routinely use this skill independently (Jackson & Cummingham, 1994).

Spires (1993) specifically approached the task of teaching students notetaking skills in a college-level developmental reading course. All students in this treatment were instructed in a split-page method of notetaking, which has similar skill steps to the present study. The instruction involved: (a) a rationale and explanation of the strategy, (b) teacher modeling of the strategy using videotaped lectures, (c) teacher and student working collaboratively to use the strategy using videotaped lectures (d) teacher and peer feedback on the in-class use of the strategy, and (e) independent student use of the strategy. Students were divided into three groups that were given varied levels of instructional support. The control group simply received a brief review of the steps involved in using the split-page notetaking method. They did not receive any modeling or guided practice. The "instruction only" group received a handout regarding the skill steps followed by modeling and guided practice of these steps. The final group received the above instruction in addition to a self-questioning component. In the final group, students were instructed in how to monitor their notetaking through asking themselves questions that centered on *planning* (e.g., What is my purpose in listening to this lecture?); *monitoring* (e.g., Am I maintaining a satisfactory level of concentration?); and *evaluating* (e.g., Did I deal with comprehension failures adequately?). Planning questions occurred before the lecture, monitoring questions took place during the lecture, and

evaluating questions were posed after the lecture was finished. These questions were of a process nature, which helped the student monitor how well he or she was attending to and comprehending the lecture. In order to assess direct use of the notetaking procedure a notetaking assessment instrument was used. The notetaking assessment instrument used by Spires (1993) included two areas of concern, format and content. The format considerations included (a) the use of split-page format, (b) legibility, (c) abbreviation of common words, and (d) recurring items. The content considerations included (a) accurate conception of main points, (b) accurate details and secondary points, (c) appropriate sequence, and (d) clarity of wording. Although the author did not specify how often notes were reviewed by the instructor, specific feedback on the quality of their notetaking and explanations were provided at times during the course when there was a discrepancy between the instructor notes and student-generated notes. A study skill checklist was used to evaluate students' notes. However the students were not asked to use the checklist to monitor their own notetaking. The results of this study revealed a statistically significant difference for quality of notetaking. The instruction plus self-questioning group outperformed both the control and instruction only groups on the notetaking and comprehension measures. Also, the instruction only group outperformed the control group on notetaking (Spires, 1993).

Researchers have demonstrated that notetaking during lectures is an important skill that helps students comprehend lecture material and later recall this material for subsequent tests (Aiken, Thomas, & Shennum, 1975; Bretzing & Kulhavy, 1979; DiVesta & Gray, 1972; Kiewra, 1984). The process of taking notes allows students to be actively engaged in the lecture, thus allowing for deeper integration and recall of

information. Also, notes serve as a later permanent product that students can refer to for additional review and recall (Henk & Stahl, 1985). Hence, There are various methods of teaching students notetaking skills. Some focus on the mechanics of the skill, while others seek to assist students with the metacognitive processes that allow for successful notetaking. There have been several studies that indicate that during notetaking students should actively generate relationships between the various pieces of lecture information and their prior knowledge of the material (Boyle & Weishaar, 2001; Bretzing & Kulhavy, 1981; Kiewra, 1985; Peper & Mayer, 1986).

Although notetaking is a critical skill when learning new material, there are additional study skills that are important for academic success. Hattie, Biggs, and Purdie (1996) found that structural aids, such as advance organizers, summarizing (Armbruster, Anderson, & Ostertag, 1987); rehearsal (Dwyer, 1986), the selection and use of effective task strategies (Schunk & Gunn, 1986), the construction of graphic organizers, summary writing (Weisberg & Balajthy, 1990) and writing strategies like planning, organizing, writing, editing, and revising (Englert, Raphael, Anderson, Anthony & Stevens, 1991), appear to be uniformly effective, with an effect size on performance of 0.58. In order to retain and integrate information learned, it appears that reviewing and reciting the material is another component to studying that is important. Research conducted by Adams et al. (1982) suggests that reviewing and reciting may improve retention and recall. King (1992) measured the effects of various study skill strategies that included deep-level processing strategies of college students on academic performance in three experimental conditions. These deep level strategies included practices that allowed students to review and recall information they were attempting to learn. The first

experimental group took notes on a lecture and later looked over their notes to review the material, the second group took notes and was taught to generate questions and answers about the material they were learning, while the third group took notes and wrote summaries of the lecture. The results of the study indicated that the self-questioning group retained more information and outperformed the summarizing and notetaking group respectively. Thus, simple review of notes is not as effective for encoding information as deep-level processing strategies.

Although the use of study skills has been shown to increase academic performance, not all high school programs directly teach study skills that meet the individual needs and are specifically designed for students with disabilities. This is unfortunate because many students may not independently acquire these skills to a proficient level needed for college-level courses (Eikeland & Manger, 1992; Hughes & Suritsky, 1994; Jackson & Cunningham, 1994; Mangrum & Strichart, 1988; Putnum, 1984; Zimmerman, Goldston, & Gadzella, 1977).

Compared to high school courses, college courses present more information at a quicker pace. Therefore, the ability to utilize good study skills in an efficient manner is even more important. However, it is very difficult to change the study skills that students have acquired, usually over many years of study, and older students are more resistant to change (Hattie et al., 1996). Nevertheless, due to the importance of study skills, colleges are increasingly providing a brief course to teach critical skills. However, these courses require students to quickly learn skills in a short period of time since they are generally only enrolled in a study skills class for one semester. After a student initially acquires study skills with instruction, the success of this student in postsecondary education

depends on the student's ability to perform the study skills independently with little or no external support. Achieving this end can be facilitated by the type of instruction given when acquiring and practicing a skill and by the use of self-monitoring strategies.

Several reviewers have summarized a group of correlational studies from classroom observations and experimental studies that link specific teaching strategies with gains in student achievement (Brophy, 1986; McKee & Witt, 1990; Waxman & Walberg, 1991). In summary, one of the most powerful correlational findings from observational studies with powerful effect sizes yielded from experimental studies (between .88 to 1.28) indicates that students learn more with effective cues or modeling, active student responding with initial guidance, and feedback (Brophy, 1986; Greenwood, 1996; Waxman & Walberg). Effective cues or modeling of a skill includes active demonstrations, clear and well-organized explanations, and the presentation of specific and clear examples while directing student attention to key ideas (McKee & Witt, 1990). A consistent finding of effective teaching research indicates that student academic achievement is enhanced when time is allocated for students to be actively engaged in the required instructional task with immediate feedback (Brophy, 1986; McKee & Witt, 1990). Given the brief time limit during a college course, strategies to increase successful response opportunities with adequate support may be a challenge. However, the research linking teacher behavior to student achievement comes primarily from elementary and secondary classrooms with very few studies investigating the effects of specific teaching strategies on college students academic gains and more specifically on the acquisition of study skills for college-level courses.

College Study Skills Program Evaluations

There have been several researchers that have examined the effects of a study skills course at the college-level on the academic success of college students. These studies provide substantial support for special remedial programs for at risk students. However, the effects of these programs are generally weak. Kulik et al. (1983) conducted a meta-analysis of 60 evaluation studies regarding the effect of special college programs for high-risk students. The types of special programs in this meta-analysis included academic skills instruction, guidance session, comprehensive support services, or remedial and developmental studies. In general, all studies found that student GPA increased in regular college courses for students who participated in some type of college-ready course. That is, in 80% of the studies examined, GPA did increase for students from the special programs, but there was a significant difference between the control and intervention group for only 30% of the studies examined. For differences between groups on retention, 70% of 30 studies assessing retention found significant differences that favored the special skills groups, whereas 17% favored the control group (13% showed no difference). Like the results on GPAs, these results on college retention suggest that effects of special programs are basically positive. However, retention was measured within a short follow-up period after a course, typically after two semesters. Based on results from this study, overall, fairly small effect sizes are reported for differences between control groups GPA and the GPA for students in college adjustment or readiness courses (i.e., 0.27). Findings from this study also suggested that there were quite a few students who did not benefit from these types of courses and some students in

the intervention group were likely placed on academic probation (because their GPAs post-intervention were still low). If the progress for these students was not individually monitored, then these students possibly did not receive further support.

Tarpey and Harris (1979) examined change in academics after a 10-week course addressing only study skills and found greater mean differences in GPA between the treatment and control groups. However, the influence on study skills may be questionable because there was no significant difference on scores on a Survey of Study Habits and Attitudes (SSHA) and no direct measure of differences in study behaviors.

Roueche (1983) looked at how colleges and universities across the nation responded to their low achieving or "at risk" students. The findings were that successful programs, those who reported a 50% or better retention rate for those enrolled in special programs or courses for the at risk student, had several elements in common. Essentially, these programs focused on frequent progress monitoring of student and program performance, implemented individual modifications and accommodations (e.g., allowing students to complete coursework on a flexible schedule), and hired trained teachers in the special needs of the "at risk" student. Also, they had developed material and lessons to be used in the skills classes that were similar to materials and requirements in other academic courses.

The studies discussed above were conducted before IDEA had an impact on school practice in elementary and secondary education, which has had a delayed impact on college campuses. Colleges are increasingly struggling to identify efficient means to provide effective services under their legal mandates for students with a wide variety of disabilities. Therefore, more recent studies (Bogart & Hirshberg, 1993) have investigated

more intense programs because low retention rates are still a major problem, for all students, although are a particular for students with disabilities. Other recent studies have focused on the effects of readiness courses on student attitudes and have found positive changes in student locus of control (Cone & Owens, 1991), self-efficacy (Biggs, 1982), and self-reported study habits and coping skills (Petrie, 1998).

In the recent studies, due to this increase in college enrollment of students with disabilities, studies examining the effect of study skills on academics have included groups of at risk students who are not necessarily disabled students. Typically, college students that have been considered at risk for these studies meet a combination of criteria including persons predicted (using discriminate analysis) to have first semester GPAs averaging lower than 2.0 on a 4-point scale (Cone & Owens, 1991). Also, Yanok (1993) classified students as at risk based on their substandard entrance exam scores such as the Scholastic Aptitude Test (SAT), the American College Test (ACT) or the Nelson Denny Reading Test (NDRT). Elliott, Godshall, Shrout, and Witty (1990) used ACT scores below 15 and academic advisor referral as criteria for students to be at risk. When studies included students with disabilities, most studies primarily focused on college students with learning disabilities, although college disability centers are serving a more diverse population.

The more recent studies that have included at risk students have generally found that study skills and study skill programs positively influence academic performance. For example, Cone and Owens (1991) investigated the academic performance of at risk freshmen enrolled in a study skills and college adjustment course and found that course attendance was associated with improved grades. Sweeney and colleagues (1999)

evaluated the effects of the provision of guided notes on the performance of academically at risk high school students as compared to students taking their own notes during a class. Results indicated that the use of guided notes increased the accuracy of students' notes as well as their quiz scores. However, not all college students will have the luxury of guided notes provided by their instructors (although this is becoming a more common practice). Therefore, the students who have disabilities may need notetaking skills to be at an adequate level, or students may need to construct their own guided notes in order to succeed. Concern over declining retention rates caused Ranken Technical College, a private 2-year school in Missouri, to institute a program for students identified as at risk (Bogart & Hirshberg, 1993). Ranken considered a student at risk if he/she was either older than 18, a minority, a woman or a combination of these factors. Also considered was someone who had scored between 28-32 on the NDRT, 17-20 on the ACT, or 19-22 on the Wonderlic. These students were provided the following services: A new student orientation, and a freshmen survival course (that included a study skills component). Also, students were provided with a study skills curriculum program where seminars/workshops on notetaking, how to read a textbook, and how to take a test were geared to particular courses. The final aspect was an advising program where students were monitored frequently. The average retention rate at Ranken during the four years prior to this course was 69.4%. The retention rate of the students enrolled in the at risk program was 84% its first term. After two additional terms, the retention rate had jumped to 97%.

In a review that examined the effect of notetaking skills on academic performance, Suritsky and Hughes (1991) specifically attempted to report findings for

nondisabled students. The research they reviewed claimed that students with learning disabilities exhibit deficiencies in virtually all the critical component skills of notetaking. However, the reviewers cautioned the results reported by the research they reviewed, because most of the research almost exclusively incorporated nondisabled college students as subjects. Thus, the review concluded there was a lack of research specifically targeting Learning Disabled populations. Hughes and Smith (1990) also reported a lack of empirical studies that have adequately examined the efficacy of developmental education programs for college students with learning disabilities. In order for definitive answers to be discovered about the ability of disabled students in general and learning disabled students in particular, it is important to research these students' skills directly.

A comprehensive evaluation of study behaviors could directly examine both study skill and academic outcomes for students with disabilities in postsecondary settings. A review of the literature regarding the evaluation of the efficacy of study skills developmental programs in recent studies reveals few peer-reviewed publications reporting data-based research. Even the most recent relevant articles largely consist of program descriptions, dissertations, opinion papers, or survey reports (Bursuck, Rose, Cowen & Yahaya, 1989; Fairweather & Shaver, 1991; Lazarus, 1989; Longo, 1988; McGuire, Norlander, & Shaw, 1990; Nelson, Dodd, & Smith, 1990; Siperstein, 1988). Much of the existing literature focuses on subjective reporting for their outcome measures instead of relying on direct measurements of experimental effects on the use of study skills. For example, many studies utilize a survey that queries students about their assessment of their own study skills, attitudes and habits rather than measuring these skills with an objective measure. Many studies lack clear treatment procedures, have

inadequate treatment integrity measures, and do not separately investigate progress of students with disabilities from generally at risk students. Likewise, they do not indicate what level of accommodations can be made for students with disabilities and still gain the desired outcome.

Although many of these studies evaluate entire programs instead of looking at component intervention pieces that may be influencing the outcome, there are a group of studies that have evaluated the effects of specific instructional components that facilitate acquisition, maintenance, and generalization of study behaviors in various settings with various populations. Studies that have directly measured positive effects of specific instructional and training strategies on skill acquisition may also be relevant for training in college settings for students with disabilities. Two methods, scripts and performance feedback, appear to be promising strategies that warrant further investigation. It may be important to incorporate several of these methods in a treatment package. A meta-analysis by Hattie et al. (1996) found that in regard to performance, single-component interventions were rather less successful than multiple-component interventions. Also interventions incorporating study skills, with either behavioral or self-control elements, were most effective.

Intervention Strategies to Increase Skill Maintenance and Generalization

Self-Monitoring and Scripts

In order to promote maintenance of skill use across various settings, prompts that support skill accuracy during training and prompts that can be readily transported to other

situations should be used. Memos, instructions, and demonstrations are common examples of prompts that are used in an attempt to maintain skills. They may serve as discriminative stimuli for reinforcement and assist in the development of behaviors that can be maintained by consequences (Reid &Whitman, 1983). One example of possible prompts includes a form of checklist where the user can "check off" procedures as they are performed. These prompts can serve as both a reminder of process steps and a measure to be used for performance feedback via self-monitoring or feedback from an outside evaluator.

One example of materials that can serve as prompts is scripts. A script is a prewritten visual prompt that can assist a user in implementing a skill or intervention. Scripts have been shown to increase treatment acceptability and integrity of a given intervention. Ehrhard, Barnett, Lentz, Stollar, and Reifin (1996) presented four case studies where parents and teacher were asked to use intervention scripts to guide their implementation of behavior modification steps. Findings demonstrated that parents and teachers reported that the use of scripts increased treatment integrity, and interventions were successful in reducing problem behaviors. However, the results were based solely on teacher report with no direct evaluation of treatment integrity.

Scripts have been used to effectively teach academic skills to students with and without disabilities. Dunlap and Dunlap (1989) effectively utilized scripts to teach elementary students with disabilities math skills such as regrouping and subtraction. Also, once the scripts were removed during the maintenance phase, math performance continued to be successful. Brown and Frank (1990) also used scripts to assist with arithmetic skill development in elementary students with disabilities. After relatively

few treatment sessions with students using the scripts, the students reached the criterion level of at least 90% correct. Results were maintained over a follow-up period ranging from one to seven weeks following termination of the formal self-monitoring procedures.

Scripts that specify intervention procedures can also be used as a self-monitoring instrument as intervention steps are implemented. Self-monitoring is an additional strategy that has been shown to effectively increase independent skill performance without intensive external support. Self-monitoring refers to an individual systematically observing and/or recording his or her own behavior and responding to the occurrence and nonoccurrence of a specified response (Cooper, Heron, & Heward, 1987). This is most effective if it is done concurrent with learning a new task. Self-monitoring techniques have been used to enhance students' academic performance and accuracy with minimum teacher effort (Carr & Punzo, 1993; Shimabukuro, Prater, Jenkins, & Edelen-Smith, 1999). Behaviors that can be monitored can range from simple, discrete events to complex chains of responses. Self-monitoring may involve assessing and recording single or multiple responses. The simplest and most common method for collecting self-monitored data is to have individuals record the occurrence of specified target behaviors or check off behaviors as they are implemented (Shapiro & Cole, 1993).

Several studies have documented the use of self-monitoring in changing student behavior in positive ways with various populations. First, self-monitoring behavior is associated with increases in academic achievement and study behaviors for regular education students and for students with behavioral disorders (Carr & Punzo, 1993; Perry, Hladkyj, Pekrun, & Pelletier, 2001; Van Zoost & Jackson, 1974). Second, it has been effectively used to help students diagnosed with attention deficit/hyperactivity

disorder (ADHD) and LD attend to a task (Hallahan & Sapona, 1983), which corresponded in improved academic performance (Shimabukuro et al., 1999). Finally, Richards (1975) used self-monitoring in combination with study skills advice and self-control procedures to increase study behaviors. This study found that self-monitoring was an effective treatment addition to study skills development training.

However, self-monitoring alone is generally not as effective as when it is combined with other treatment components such as extrinsic motivators and performance feedback. Hayes et al. (1986) found that self-monitoring and reinforcement procedures were effective in improving academic behavior as long as there was sufficient environmental feedback (i.e., verbal or written prompts) to enable the person to know when performance had been successful. Richards, McReynolds, Holt, and Sexton (1976) investigated the relationship between feedback, self-monitoring, and study skills performance. Three groups of students that were concerned about their study habits in a psychology class were participants in this study. The first group of students was given handouts on study skills and a 10-minute one-time counseling session where students went over the handouts with a counselor and had the opportunity to have any questions answered about the skills enumerated in the handout. The second group of students was given handouts, a counseling session, and instructions for a self-monitoring procedure. This self-monitoring procedure required that students graph the time that they studied and the number of pages read on a daily schedule. Finally, the third group did not receive the handouts, the counseling session, or the self-monitoring instructions. The results showed that students in the self-monitoring group had greater gains in the amount of time that they studied each day and obtained a higher psychology course grade than students

who were given instruction only or who were given no support.

Although studies demonstrate positive effects when self-monitoring is used, there is still a need for studies to evaluate the effect of self-monitoring on study skill performance for college students with a variety of disabilities. For students with disabilities, research is needed on the value of effective training that is given *prior to* the student implementing important skills in the classroom as well as effective strategies or consequences that occur *after* students implement a skill. Self-monitoring is one strategy that can be used after skills are taught. However, optimal use of study habits may depend on the type of information or feedback that is supplied with self-monitoring.

Performance Feedback

Although instructional strategies such as guided practice and scripts effectively increase skill acquisition, the extent to which skills will continue to be used accurately in the natural setting is influenced by the consequences that occur after learned skills are implemented. One consequential strategy, performance feedback, has been used in several studies to effectively increase performance. Performance feedback is a method that provides performers with direct information regarding the accuracy of their performance in the appropriate setting in order to enhance and maintain proper behavior change (Grant & Evans, 1994). Performance feedback has been shown to increase staff performance in various organizations and increased a variety of skills. For example, Harchik, Sherman, Sheldon, and Strouse (1992) showed that staff members in a group home for disabled adults were able to improve their skills following a training workshop that utilized follow-up performance feedback by consultants and staff supervisors. The

workshop addressed skills such as, using a token reinforcement system, engaging residents in a variety of activities and general content and style of interactions with residents. Ongoing consultation with consistent feedback on staff performance improved the functioning of staff members in the areas covered during the workshop. A similar finding was evidenced through research conducted by Parsons and Reid (1995) showed that when staff personnel were trained at an in-service program about promoting the life skills of facility residents, supervisors' feedback appeared to be needed in order to enhance the use of staff members' skills with facility residents. In a study conducted by Richman, Riordan, Reiss, Pyles, and Bailey (1988), both self-monitoring procedures and performance feedback were used to increase staff on-task behavior and adherence to scheduled activities in a residential setting.

Performance feedback has been used successfully in an academic setting to increase teacher performance in the classroom such as, teacher praise and problem-solving abilities. Which in turn, resulted in increased student attending behaviors (Cossairt, Hall, & Hopkins, 1973; Gross & Ekstrand, 1983; Mace, Cancelli, & Manos, 1983; Moore, Schaut, & Fritzges, 1978). It has also been used to increase teacher implementation of academic interventions (Mortenson & Witt, 1998).

Several studies have indicated that performance feedback can be presented in several different ways and still promote effective behavior change. The most common form of communication during performance feedback cited in the literature is verbal. Moreover, several studies indicate that public feedback (either given verbally or posted publicly) may in fact increase the likelihood that performance will improve (Duus, 1988; Van Houten & Van Houten, 1977; Van Houten, Hill, & Parsons, 1975; Wilson, Reid, &

Korabek-Pinkowski, 1991). Furthermore, all modes of communication are enhanced with visuals in the form of charts and graphs (Harchik, Sherman, Hopkins, Strouse, & Sheldon, 1989).

Regardless of communication mode, the frequency and timing of feedback sessions effects the outcome of the performance regardless of what skill is being evaluated. For example, Alavosius and Sulzer-Azaroff (1990) demonstrated that feedback effectiveness is influenced by how quickly the feedback is given. A comparison between the effects of a dense feedback schedule conducted daily with an intermittent feedback schedule conducted weekly on the performance assistance behaviors of health care workers, showed that the health care workers improved to appropriate performance levels much faster in the dense feedback condition. A second critical factor influencing feedback effectiveness is providing feedback after a person has had the opportunity to respond in the natural setting to help the person identify behaviors that need improvement (Grant & Evans, 1994). Finally, performance feedback is more likely to result in correct behavior change if the behaviors to be performed are operationally defined such as in a script format (Harchik et al., 1989).

Hattie et al. (1996) indicated that the way in which teachers give feedback to students about their use of strategies would probably influence their attributions for success of failure more than will feedback regarding either ability or effort. Two studies in their meta-analysis demonstrated the desirability of providing feedback that explicitly links improved performance with strategy use (Schunk & Cox, 1986; Schunk & Gunn, 1986). Schunk and Cox suggested that the teacher who tells a student, "That's good, you're really working hard" (effort attributional feedback), may not be as effective as the

one who links success with appropriate strategy use, as in "That's correct. You got it right because you applied the steps in the right order."

The extensive literature demonstrating the effectiveness of performance feedback supports its use in training programs. Moreover, regular and extensive feedback on their performance helps students to know if their performance is accurate (Brophy, 1986). Although feedback is clearly beneficial, few studies directly measured the effects of a study skill program that incorporates effective teaching strategies such as modeling and performance feedback on study skill acquisition for disabled students in a group setting as in college-level courses.

Summary

Due to the past concern with the number of dismal outcomes of students with disabilities who are transitioning between high school and postsecondary education, a number of federal laws have been implemented to ensure that students with disabilities are provided with services that promote educational success. More recently, the federal regulations for transitional planning and services have promoted the use of promising practices to help promote effective student vocational and postsecondary functioning. However, the amount and intensity of services are greatly reduced once a student transitions between secondary and postsecondary educational systems. Moreover, skills necessary for college academic success such as basic study skills are seldom directly taught to the degree that students are able to independently learn in a college-level classroom with the decreased amount of external support and services provided. Thus, in order to help at risk students transition from high school to college, universities are

attempting to provide them with support that would help promote these essential study skills. However, there is a need for analysis of training and instruction of study skill strategies that quickly promote skill acquisition for the disabled population who are attending college. More importantly, to be effective long term, skills need to be used independently with minimal adult supervision typical for college-level courses.

The primary goal of this project was to evaluate the effects of a study skill intervention on the establishment and maintenance of notetaking and study guide skills for college students with disabilities. The approach used in this study employed effective teaching strategies initiated before the student's independently implemented study skills using a self-monitoring checklist in a second college-level course. Several antecedent strategies were first incorporated to enhance implementation including practice opportunities, a preliminary demonstration of efficacy, and visual prompts. The first objective of this study was to identify the extent to which a study skills training package presented in a college adjustment course increased the use of study skills by disabled students. The second objective of this study was to evaluate the social validity of the intervention package. The present study extends the literature in several important ways. First, this study extended training experiences by having students independently conduct the skill in a college classroom setting within the context of natural activities in the absence of trainers and verbal prompts. Second, while most research has been focused on change for groups of students in college, this study used an idiographic approach that addressed individual student needs to systematically examine the effects of antecedent and consequential strategies on acquisition and use of two important study skills. Because it is hard to make conclusions about differences in individual performance from

group studies, it was determined that a single-subject design would be more beneficial. We predicted that students' use of study skill steps would increase with the introduction of a research-based training package incorporating a brief guided practice, self-monitoring checklists and performance feedback.

The following questions were addressed in this study:

1. Would a study skills training package incorporating guided practice, scripts, and performance feedback increase notetaking and test preparation study skills of students with disabilities enrolled in a college adjustment course?

2. Did students receiving the study skill training find the experience to be fair, helpful, and meaningful?

METHODS

Subjects

Participants included seven students enrolled in an extension college readiness course, "College Study Skills and Transition," designed for students with a disability as defined by section 504 of the Rehabilitation Act of 1973. Five of the seven students participating in this study were enrolling in a college course for the first time. The names of these students have been changed to protect their identity. Linda had previously completed 96 credit hours. Her last school attendance date was 1996. Wynona had previously completed 57 credit hours. Her last school attendance date was 1983. Therefore, this was considered Linda's and Wynona's first semester as returning, nontraditional students. Additional student demographic information is presented in Table 2.

Participants in this study were selected based on the following criteria. Each student: (a) was referred by rehabilitation services and categorized as academically at risk by the Disability Resource Center (DRC), which is the university's service center for students with disabilities (b) had some type of disability as defined by Section 504, (c) considered by the DRC to be a likely candidate for college as determined by a pre-screening tool that compares each student to the average college student in an effort to determine college-appropriate referrals, (d) was concurrently enrolled in a first-year college-level academic course (generally Geology 1010), and (e) consented to participate in this program. The DRC considered students to be academically at risk if they had low ACT scores (< 18) or a low high school or college GPA (< 2.5).

Table 2

Subject Demographic Information

Name	Age	Gender	Ethnicity	504 Disability	Concurrent course enrollment
Carol	20	Female	Caucasian	Learning disabled	Geography 1130
Ernesto	19	Male	Hispanic	Traumatic brain injury	English 1010 Intro to Sociology 1010
Jeremy	21	Male	Caucasian	Physical (paraplegic)	General Psychology 1010
Karl	23	Male	Caucasian	Psychiatric (bi-polar)	Geography 1130
Linda	32	Female	Caucasian	Psychiatric (schizophrenic) medical (narcolepsy)	Intro to Parks and Recreation 1000 Intro to Therapeutic Recreation for Diverse Populations 3900
Maria	19	Female	Hispanic	Visual disability	Geography 1130 Intro to Psychology 1010
Wynona	47	Female	Caucasian	Psychiatric (paranoia/anxiety)	Geography 1130

Because students enrolled in the college readiness course were required to learn and practice materials presented in this course, all enrolled students regardless of disability were included in the study if they met the inclusion criteria. However, two students required modifications and accommodations due to severe physical disabilities. More specifically, Jeremy did not have the full use of his arms and Maria was unable to take notes due to her visual disability. Modifications made in this present study for these two students will be discussed in later sections.

Setting

Training and experimental sessions were conducted in a university classroom at a

4-year university in a semirural area with more than 20,000 students enrolled on campus or at education centers throughout the state. At this university, the DRC serves approximately 529 students, which is about 3% of the total university population. Of that 3%, 28% have a LD, 16% qualify for a psychiatric disability, 10% a physical/medical condition, and 3% are diagnosed and classified with a head injury. Other classifications served by the DRC include students that are deaf or hard of hearing, have low vision, multiple disabilities or have a temporary disability.

Experimental sessions took place during a college-level course titled "College Study Skills and Transition." The curriculum for this course was developed to meet the multifaceted needs of the educationally diverse students. Study skills were taught as one major topic within this course. Other primary topics included: (a) self-advocacy and legal issues, (b) career exploration and (c) personal adjustment and assessment. (see Appendix A for specific topics).

The course was taught in a small classroom setting with a maximum enrollment of 10 students. The instructor for the study skill section of this adjustment course was the primary researcher on this study. All training, feedback, and data collection for the study was conducted in this same classroom.

Students that participated in this study were asked to use skills in a paired academic course taught on the campus. That is, all students were required to enroll in at least one college-level course during the same semester as the adjustment course. This course was pre-approved by the DRC as a lower-level college course that would allow students opportunities to practice transition and study skills learned in the College Study Skills and Transition course. In order to meet the needs of this study, the course chosen

had to be one in which the students took notes during at least 75% of the class time and had some type of required test or quiz.

Materials

A self-monitoring checklist for notetaking and a second checklist for creating study guides was used to both teach the two study skills and to help students monitor their own skill performance when taking notes in class (see Appendices B and C). These checklists were constructed by first developing specific study skill steps from a number of empirical studies outlining effective notetaking and study strategies (Carrier & Titus, 1979; Kiewra, 1987; Longman & Atkinson, 1999; Spires & Stone, 1989; Suritsky & Hughes, 1991). Second, the specific study guide items were reviewed and modified with the collaboration team consisting of experts from the ARC. Third, development of the final checklists was revised after a pilot study with four students during a one-semester course that had been conducted prior to this study.

The initial pilot was conducted to investigate the feasibility of the notetaking study skill procedures and the practicality of the performance measurement to be used in this study. Prior to any study skill lesson, a brief review of notes indicated all four students performed 50% or less of the study skill steps. However, after a study skill lesson, in which the self-monitoring checklist was introduced and practiced, three of the four students were able to implement 80% or more of the steps during one session in a college-level course. However, the fourth student performed 60% of the notetaking steps in the outside course. Although student's performance was monitored for only one session in the pilot study, results indicated that student's use of study skills increased

with training and a self-monitoring checklist for all four students. Moreover, students verbally reported that the skills taught via the checklist were one of the most helpful skills they had learned throughout the entire study skills and transition course. Students reported that they felt more comfortable taking notes and knowing where to begin when studying for an exam.

Response Definitions, Data Collection, and Scorer Agreement

The primary dependent variable in this study was study skill accuracy performance that was defined as adherence to two study skill programs as measured by percentage of steps completed. The two study skill programs required that the student complete ten steps when taking notes during a college course and ten steps when organizing study guides for the course quizzes and tests. Each of the steps generated a permanent product (that will be discussed later) as a result of the student performing each aspect of study skill program. Student outcome was directly measured from the permanent products that were produced as each step of the intervention was implemented. Tables 3 and 4 list the notetaking and study guide intervention steps required of the students, the rationale for each step, and its corresponding permanent product. Study skill performance was calculated as a percentage of the correct steps completed by the student divided by the total number of steps. The percentage of steps completed for each assignment in-class activity was the dependent measure for analysis.

During this study, students were asked to use study skills in paired college-level course that was taken along with the College Study Skills and Transition course. The

Table 3

Notetaking Steps, Permanent Products, and Rationale for Use

Skill steps for notetaking	Permanent product	Rationale
Before lecture starts: 1. Use a subject section or notebook for the class 2. Start new page 3. Write the date, course and main topic of the lecture 4. Draw a recall column on the left hand side	A clean, clearly labeled paper ready for new notes	To keep orderly notes to facilitate easy review. Recall column will be used later to add additional needed information or questions to notes.
During lecture: 5. Make it readable. Write notes so you can read them to someone else 6. Indent for details under main point 7. Write examples under main points from lecture (at least 1) 8. Use abbreviations	Actual notes taken in class	Necessary material for easy visual review, faster notetaking and better understanding of technical material with the use of examples.
After lecture: 9. Box main points 10. Mark Q's in recall column to indicate unclear notes (at least 1)	Notes with boxed main points and unclear points marked	Organizes notes hierarchically to highlight the most salient points-also indicates unclear points for focus with the use of question marks.

purpose of this pre-approved course was to (a) examine the degree that study skills are used in a college-level course, and (b) allow students opportunities to practice study skills to be targeted in this study.

Table 4

Study Guide Steps, Permanent Products, and Rationale for Use

Study steps for study guides	Permanent product	Rationale
Immediately or within 24 hours after lecture, create a study guide from your notes: 1. Write answers to questions in your recall column. 2. Add main topics, examples, and memory cues to recall column. 3. Write a summary immediately after the lecture (about 7 to 10 lines).	Notes from class with unclear pieces and questions answered. Also, a brief summary of the material and any added examples or memory cues.	This answers unclear points, captures the "gist" of the material, and allows for recitation of the material. Moreover, facilitates student to seek additional assistance from instructors with clear objectives.
4. Create a visual study guide that matches the content you are studying using one of the following: ▪ Concept map (web) ▪ Comparison chart ▪ Process diagram (flow chart) ▪ Time line	A visual study guide.	This is higher level mental processing for material that is better remembered by organizing into patterns.
Within one week do a self-test: 5. Staple your Visual Study guide to your notes. 6. After reviewing your notes, fold a blank piece of paper in half vertically or draw a vertical line down the middle of the page.	A self-test of the material in notes.	Allows student to self-evaluate their level of understanding and recall of material.
7. Cover your notes and jot down as many main points, memory cues, and relevant details you can remember in the left-hand column. 8. Uncover your notes and compare your main points and detail with your notes and Visual Study Guide.	A practice sheet of what is recalled.	Allows the student practice recalling the information without prompts.
9. Write a check-mark on your self-test by the main points that you successfully remembered in a different colored pen. 10. Write anything that is missing <u>with a different colored pen</u> in the right hand column.	Corrections for items missed on the self-test.	Allows the student to review and recall knowledge with notes and correction of material they incorrectly answered on the self-test.

While the instructor continued to teach the lesson for that class session, a research assistant recorded whether or not permanent products (i.e., materials produced when using the study skills) were present using a data-recording sheet. A recording form was used to record whether or not the students implemented any of the study skill intervention steps as planned (see Appendices D and E). The data-recording sheet listed each of the 10 notetaking and 10 study guide steps and its corresponding permanent product. The students' study skill performance was measured directly from a series of notes and study guide permanent products that students produced as study skills steps were implemented during in-class guided practice sessions or during independent practice in their paired college course. A study skill step was recorded as completed only if the corresponding permanent product was present when it was turned in to the instructor on its due date. The research assistant marked a "√" next to each step if the appropriate product was present. If the permanent product was not present, the research assistant marked an "X" next to the step. The percentage of the correct steps completed by the student was then calculated. At the end of class, all materials were returned to the students. These procedures continued throughout all experimental sessions.

To obtain scorer agreement, an independent trained evaluator checked the permanent products for 88% of the sessions throughout the study. Scorer agreement was calculated as a percentage by dividing the number of agreement steps (i.e., Both observers agreed that the behavior did or did not occur) by the total number of agreement steps plus disagreements steps multiplied by 100. The mean percent of agreement for all products scored across subjects was 99.8% (range 99.6-99.9%).

Treatment Acceptability

The secondary measure in this study was treatment acceptability in order to assess if the treatment procedures used in this study were perceived to be appropriate, fair, and reasonable (Schwartz & Baer, 1991; Witt & Elliott, 1985; Wolf, 1978). The degree to which students found the treatment acceptable was determined using a treatment acceptability scale (see Appendix G). The scale used in this study was a modified version of the Intervention Rating Profile-15 (IRP-15) developed by Elliott, Witt, Galvin and Peterson (1984). This version had a factor loading of .95 on a single factor reflecting general acceptability. Internal Consistency of the IRP-15 instrument is coefficient alpha of .98 for the total score (Witt & Elliott, 1985). Similar to the IRP-15, the items on the scale used in this study were rated on a 6-point Likert scale with the lowest point (1) being "I strongly do not agree" and the highest point (6) being "I strongly agree."

In order to enhance student understanding of each question, the scale was slightly revised to include relevant vocabulary that better described the study skill intervention program. For example, " intervention," behavior problem," "classroom setting," and "teacher" terms on the IRP-15 were replaced with "learning how to take notes and prepare for tests," study behaviors," "college course," and "college students." To further illustrate these changes, the item on the IRP-15 "I would be willing to use of this intervention in the classroom setting" was changed to "I would be willing to use this method of notetaking/test preparation for my other college classes."

Students were given the opportunity to provide feedback on the intervention in three different ways. First, the instructor handed out the rating scale to each participant

during the last day of class. At this time, students received a verbal explanation of the purpose of the rating scale and the rating scale procedures. Students were then informed that all participation was voluntary and students could choose to discontinue their participation at any time without negative consequences. After receiving a brief verbal explanation of the purpose of the survey and how the information would be used, students were asked to complete the survey individually. Second, several open-ended questions were asked in order to obtain information that would indicate specific difficulties during treatment implementation and specific preferences. Students then set the completed surveys at the front of the room so that the instructor could pick them up without other students seeing their responses. To ensure anonymity, no names were requested on the survey. Finally, to enhance the likelihood of obtaining candid feedback, students were also asked to verbally give their comments about the study skill protocols to a person who was not actively conducting the research project.

Experimental Design and Procedures

A multiple baseline design across two study skills (notetaking and study guides) replicated across students was used to assess the effects of training, scripts, and performance feedback on the study skills performance accuracy of seven students. The experiment consisted of the following three conditions.

Baseline

During the first session of baseline condition, no intervention was implemented. However, all participating students were asked to bring any notetaking or study guide

materials they were currently using in their paired college course. Specifically, the instructor asked students to bring all notes and materials organized by the students for studying purposes. From these materials, participants' notes and test preparation materials were examined using the study skill checklists to determine baseline performance. Students' materials were returned at end of class during the same class session that materials were turned in, without any verbal or written comments. No further instruction, correction, or feedback was given regarding the targeted study skill during this phase. The next phase began when study skill accuracy performance scores were low (i.e., below 70%), and stable or showed a downward trend.

Guided Practice

The goal of this phase was to teach the skill and give the students an opportunity to demonstrate their ability to perform the skill with 100% integrity. During this condition, students were presented the specific steps for the study skill followed by in-class practice opportunities. First, the self-monitoring checklist (see Appendix B) was handed out at the beginning of class. Then the ten steps on a study skill checklist were verbally introduced and modeled for the students. Next, the instructor gave an example of how to implement each study skill in a college course. Students were informed that their performance would count towards their study skill course grade and would be written on the self-monitoring sheet. Students were then asked to practice the study skill in their paired college class and to check off any steps that they had completed using a self-monitoring checklist. A research assistant or the instructor reviewed the accuracy of the completed checklist and provided each student with the percentage of steps correct.

Students who did not complete 100% of the steps correct continued to practice the study skill steps. During the class when the study skill was first taught, there was time for two guided practice sessions. Students who did not complete 100% of the steps correct continued to practice the study skill steps in the next college readiness class. This condition continued until students had demonstrated 100% of the steps correctly during one of the practice sessions.

Guided practice for notetaking study skill. Following baseline for the notetaking skill, students were presented the specific notetaking skills with in-class practice opportunities on the first study skill to be monitored in this study. After students were given the notetaking self-monitoring checklist (see Appendix B), the first ten steps concerning notetaking skills were verbally introduced and modeled for the students. Next, the students viewed a video of the first ten minutes of a Geology 1010 lecture while they practiced taking notes. Students were then asked to take notes using the notetaking checklist as a guideline. Following the short lecture, the instructor provided an example of what notes should look like for that lecture. Students were asked to practice checking off any steps that they had completed accurately during the Geology lecture using a notetaking checklist. Either a research assistant or the instructor reviewed the accuracy of the completed checklist and provided each student with the percentage of steps correct. Students who did not complete 100% of the steps correct continued to view another ten-minute section of the video to further practice the notetaking steps.

Due to the nature of their disabilities, Jeremy and Maria were only required to do a minimal number of steps (see steps 1, 9 and 10 in Appendix B). Jeremy was physically unable to write quickly because he had limited use of his arms, and Maria used a note-

taker because she was blind. However, it was determined that they were both able to keep their notes organized by subject and date the notes. Also, they were asked to review the note-taker's notes and note places where they needed to clarify information or had a question of any sort with a "Q." Finally, in order to encourage them to review the note-takers notes further and pick out key information, they were required to box the main points of the notes.

Guided practice for study guide skill. When a student had steadily increased the study skill accuracy performance to 80% or more correct steps during the independent treatment package for notetaking phase, the second skill was introduced in the college readiness class. In a similar manner that students were taught to take notes, the study guide skills were taught using verbal and written directions, a self-monitoring checklist, modeling, and practice with immediate feedback during a class session in the College Study Skills and Transition class (see Appendix C). After receiving the self-monitoring checklist for study guides, students were first taught how to use test-preparation strategies, including reviewing notes, text, and creating various styles of study guides (i.e., web, chart, or outline). Following the short lecture, the instructor handed out guided notes of the Geology lecture that was used when learning how to take notes. Using the guided notes, the instructor illustrated one possible study guide that could be used to help study the material. At this point, the students were asked to create an additional study guide to help them learn the material as they check off steps completed on the self-monitoring checklist. The teacher and research assistant walked around to each student to help them problem solve. Each student was provided with the percentage of steps correct. Students continued to practice in this manner until they had demonstrated 100%

of the steps completed during the guided study skills practice sessions in class. There were no modifications made for Jeremy and Maria for the study guide steps. In order to promote independent practice, we encouraged both of them to find a way to self-accommodate in order to successfully complete the required steps. Jeremy used a computer to make up his study guides and Maria created hers on a large sheet of paper.

Independent Practice

After each student completed 100% of the steps accurately during the guided practice condition, the students were instructed to independently use the skill without direct assistance. During this condition, students were required to practice the study skill in another college-level course using the self-monitoring checklist as a guideline (see Appendix B). Students were then asked to bring all notes and materials organized by the student for studying purposes to each College Study Skills and Transition class. A research assistant reviewed the permanent products during class according to the ten steps on the self-monitoring checklist and recording sheet (see Appendices F and H). The research assistant constructed an overhead bar graph that showed how many students completed each of the steps. During the last five minutes of class, the students were given both verbal and written performance feedback in the following manner. First, each student had their graded work returned along with a completed checklist that indicated steps completed and the grade based on the steps completed for one lecture (see Appendices B and C). Second, using the graph produced by the research assistant, the instructor reviewed and modeled steps that any of the students had missed to the entire

class. The instructor also provided positive feedback for correct steps and helped students to identify ways to implement missed steps.

Independent practice for notetaking study skill. After each student completed 100% of the steps accurately during the guided practice condition, the students were instructed to independently use the notetaking skill without direct assistance. During this condition, students were required to practice their notetaking skills in another college-level course that required notetaking during at least 50% of the class time as an assignment for the college readiness course. The assignment required that students take notes using the notetaking checklist as a guideline (see Appendix B). All students were asked to follow all ten steps with the exception of Jeremy and Maria who completed three steps. Students continued to bring their notes to the following class. For Jeremy and Maria, they received credit for their three steps if they (a) had organized their notebook into subject sections and kept the notes in order by date, (b) had a date written at the top of their notes, (c) drew a box around the main points of the notes and (d) dad at least one "Q" written in the margins. A research assistant reviewed and graded the notes during class according to the first ten steps of the self-monitoring checklist for notetaking (see Appendix B). During the last five minutes of class, the students were given both verbal and written performance feedback.

Independent practice for study guide skill. After each student had completed 100% of the steps accurately during the guided practice condition, the students were instructed to independently create a study guide without direct assistance. Students were required to practice their study guide skills creating a brief study guide from notes taken for one lecture and the assigned reading for that lecture for an upcoming quiz or exam in

their paired course. When the students brought this homework in, a research assistant reviewed and graded the notes and study guides during class according to the 20 steps of the self-monitoring checklist for notetaking and study guides (see Appendix C). During the last five minutes of class, the students were given both verbal and written performance feedback.

Booster Sessions

In order to ensure adequate skill training, booster sessions were given if students failed to demonstrate accurate implementation of skills in the college course setting at or above 70% after three or four sessions. Booster sessions consisted of having the students use the notes from their paired course. The instructor briefly reviewed and modeled the study guide steps for the students using the student's notes. Then the student picked another section of their notes and independently completed the steps. The reviewer then gave feedback on the student's performance.

Observer Training and Reliability for Procedures and Measures

Research Assistant Training

Psychology undergraduate and graduate students (i.e., research assistants) were trained to calculate and record the data in a series of steps. First, research assistants were given verbal and written instructions on how to record intervention steps completed using the notetaking and study guide data recording sheets (see Appendices D and E). The research assistants were then shown where to write the percentage of steps correct on the

recording sheet. Third, the recording process was modeled using several examples. Finally, the research assistants were given several examples of permanent products that could be collected and asked to complete the notetaking and study guide data recording sheets (see Appendices D and E). Research assistants were considered trained when the research assistants were in 100% agreement with an experimenter's score.

Procedural Integrity for Training and Feedback Sessions

Throughout various conditions in the study, the teacher was responsible for training the participants on the study skill strategies. In order to ensure that participants were equally trained on all required study skills steps, a research assistant was present during each training session to check the accuracy with which the teacher performed the training steps. A Procedural Integrity Form for Notetaking and Study Guide Training Lecture was used to assess the degree to which students were given training steps including: verbal and written instructions, modeling, and guided practice. This form consisted of a list of each of the required training steps (see Appendix F). The independent observer recorded whether the teacher completed the steps listed on the checklist that corresponded to the treatment being used. On the procedural integrity form, the observer marked a "✓" next to a required treatment step after the teacher performed the step. In order to ensure that treatments are implemented at 100% integrity level, observers prompted the instructor to conduct any missed steps before the end of the session. After the sessions, the integrity of experimental procedures was computed by dividing the number of steps the consultant explained by the total number of procedural steps listed and then multiplied by 100. In order to ensure consistent training procedures,

an independent observer was there to review 100% of guided practice sessions. During these sessions, the teacher accurately implemented 100% of the required training steps.

In a similar manner, the integrity of the procedures for performance feedback was also monitored. In order to determine the accuracy of feedback steps implemented by the teacher after independent practice, 75% of feedback sessions were assessed by either having the teacher utilize a self-monitoring checklist (50%), or having an observer use a feedback checklist (25%) to ensure 100% integrity for performance. The teacher followed all required steps with 100% accuracy for all feedback sessions.

RESULTS

Figure 1 presents the notetaking and study guide skill performance of all seven students during baseline, guided practice, and independent conditions. Sessions presented in Figure 1 are based on a class that was held three days a week, omitting absentee days. Differences were assessed using visual inspection of the time-series data, by comparing the percentage of steps completed for each subject across skills in relation to trend, level, and variability across experimental conditions (Tawney & Gast, 1984). The amount of nonoverlapping data points was also used to quantify the degree of level changes between baseline and independent practice condition (Scruggs, Mastropieri & Casto, 1987). Finally, Table 5 depicts the average percentage of correctly completed study skill steps for each of the seven participating students during baseline, guided practice, and independent conditions across both skills. Results are discussed by experimental phase.

Baseline

In general, baseline data revealed low levels of notetaking and study guide skill performance although levels were lower, on average, for the study guide skill. Specifically for the notetaking skill, all students implemented no more than 60% of the notetaking steps. Performance for Wynona remained fairly stable within a 50-60% range (with an average of 57% steps completed) whereas Jeremy and Maria's performance was more variable with a lower average level of 24% and 14%, respectively. Linda, Carol, and Karl initially performed 40 to 50% of the notetaking steps but quickly declined to 0% obtaining an average level of 34%, 6%, and 20%, respectively. Ernesto consistently

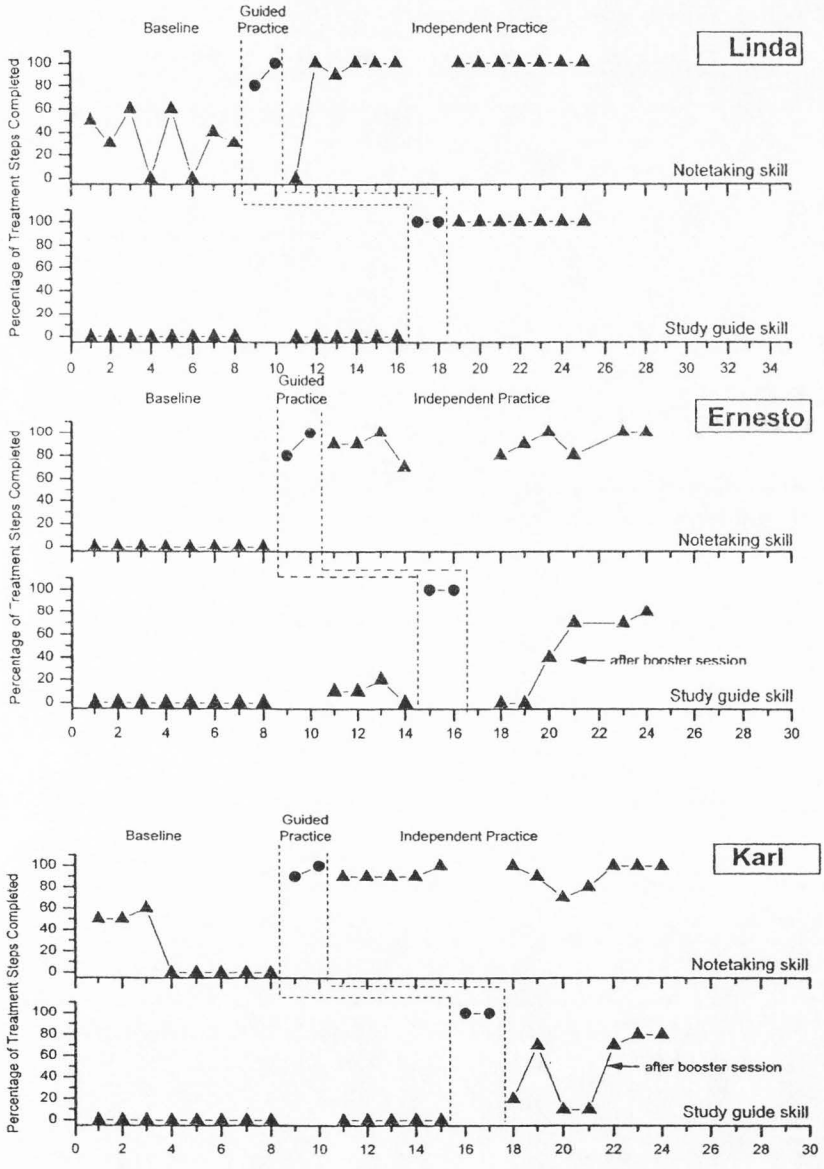

Figure 1. Results of the multiple baseline analysis of the influence of guided practice followed by independent practice on the acquisition of notetaking and study guide study skills during a college course for students with disabilities *(continued)*

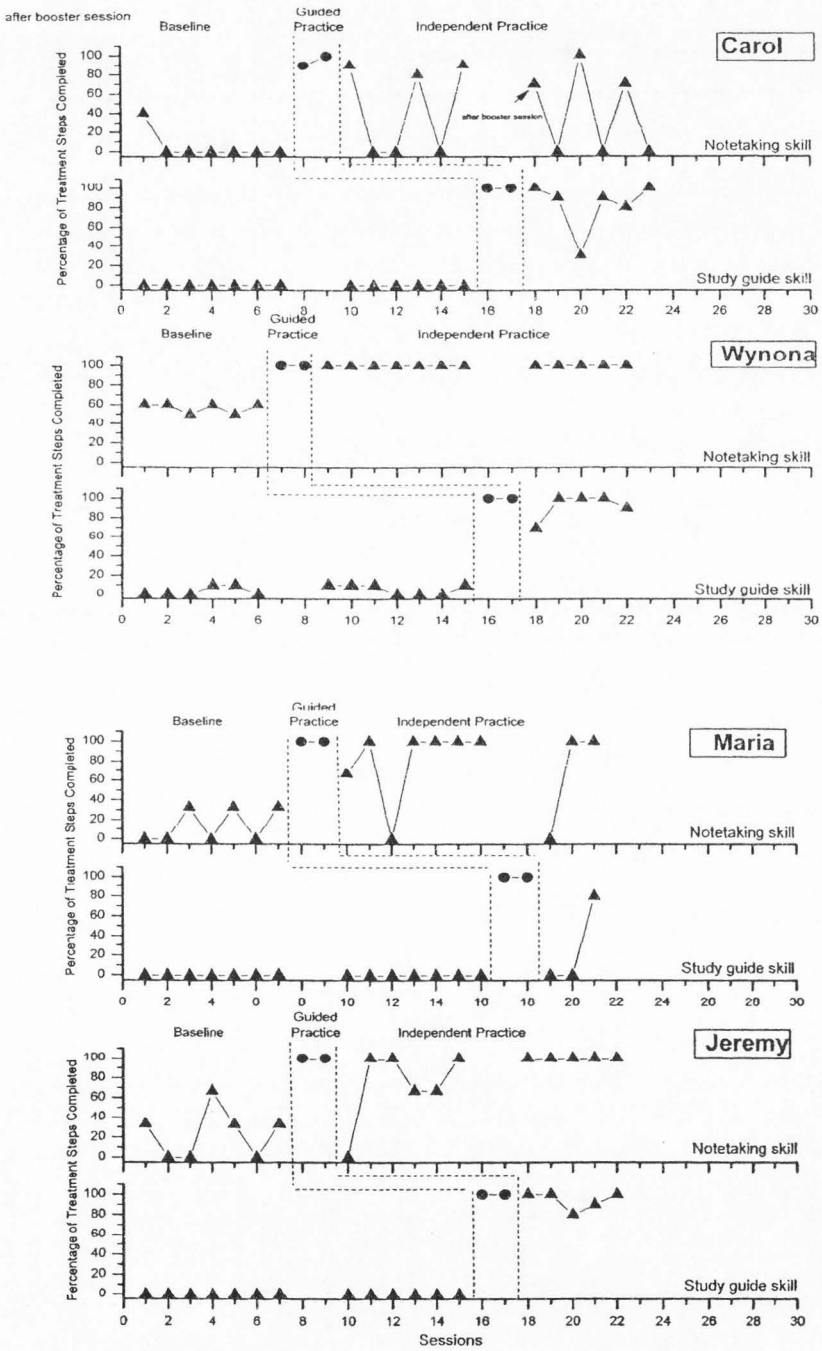

Figure 1. Results of the multiple baseline analysis of the influence of guided practice followed by independent practice on the acquisition of notetaking and study guide study skills during a college course for students with disabilities.

Table 5

Mean Percent Treatment Integrity Across Conditions

Subject	Notes baseline (range)	Notes guided practice (range)	Notes independent practice (range)	Study guides baseline (range)	Study guides guided practice (range)	Study guides independent practice (range)
Carol	6% (0-40)	95% (90-100)	42% (0-100)	0% (0-0)	100% (100-100)	82% (30-100)
Ernesto	0% (0-0)	90% (80-100)	90% (70-100)	3% (0-20)	100% (100-100)	43% (0-80)
Jeremy[a]	24% (0-67)	100% (100-100)	85% (0-100)	0% (0-0)	100% (100-100)	94% (80-100)
Karl	20% (0-60)	95% (90-100)	92% (70-100)	0% (0-0)	100% (100-100)	49% (10-80)
Linda	34% (0-60)	90% (80-100)	92% (0-100)	0% (0-0)	100% (100-100)	100% (100-100)
Maria[a]	14% (0-33)	100% (100-100)	77% (0-100)	0% (0-0)	100% (100-100)	27% (0-80)
Wynona	57% (50-60)	100% (100-100)	100% (100-100)	5% (0-10)	100% (100-100)	92% (70-100)

[a]These students only completed steps 1, 9, and 10 of Skill 1 (notetaking) due to the nature of their *disability.*

implemented 0% of the notetaking steps during baseline. For the study guide skill, with the exception of Wynona and Ernesto all students implemented 0% of the intervention steps during all baseline sessions. Wynona implemented no more than 10% of the study skill steps and obtained an average level of 5%, whereas Ernesto implemented no more than 20% of the study skill steps and obtained an average level of 3%.

Guided Practice

During this training condition, there was an immediate marked increase in study

skill performance for all participating students. In order to ensure that all students were able to accurately use the skill, guided practice was presented to the entire class until all students in the class completed 100% of the notetaking and study guide steps during training. Thus, two sessions were held for guided practice on notetaking because four of the seven students completed between 80 and 90% of the intervention steps during the first training session. However, all students obtained 100% accuracy on the second training day.

Independent Practice

When independent practice was introduced, all individual students' notetaking and study guide skills performance generally increased relative to baseline performance. However, performance varied between students in skill was consistently implemented across sessions. Specifically, for the notetaking skill, Jeremy, Linda, and Wynona maintained the high level of skill performance that was obtained during guided practice, with each of these subjects correctly completing on average over 85% of the steps. Moreover, high levels of implementation were replicated for the second skill, study guides, with average performance levels of 94, 100, and 92% implementation.

Similarly, data for Karl and Ernesto indicated a high level of notetaking skill performance during guided practice. However, their initial attempts at the study guide skill were less successful when independently implementing the skill in a college course. Karl partially implemented the study guide steps but quickly declined to 10% after two sessions, whereas Ernesto implemented 0% of the steps for the first two sessions. For Karl, it appeared that poor skill acquisition was a likely problem because his initial

attempts were at a low accuracy level. For Ernesto, it was more difficult to ascertain whether lack of performance was due to a skill or a motivation problem. In order to ensure skill acquisition, a booster session was provided to both students to review the steps involved in the study guide skill. Karl and Ernesto were also given time to complete the study guide steps independently after class if they did not bring completed study guide steps to class before given performance feedback. No supervision was provided whenever students completed the study guides after class. Immediately after the booster session, the two students' implementation of the study guide steps steadily increased to an average at or above 65%.

Maria generally performed at a high accuracy level on notetaking (M = 77%) following guided practice. Although her performance on the study guide skill showed a similar increasing trend, further data was not available to determine her level of performance during independent practice as she failed to attend the last few days of class.

Carol's performance substantially differed when compared to other participants. For example, data during independent practice on the notetaking skill indicated considerable variability in her performance with a range of 0 - 100%. This variability was due either to Carol's failure to bring notes from her paired class to be reviewed or failure to take notes at all in her paired course. Therefore, she would complete 0 % of the notetaking steps on days that notes were not taken or brought for review. When she did attempt the notetaking steps, she implemented the skill with a higher degree of accuracy as compared to her baseline performance (M = 83%, with a range of 70 - 100%). Due to lack of notes, Carol required modifications during the independent study guide phase in order for her to learn how to perform this skill. Because Carol did not always come

prepared to class with notes, she was given a booster session covering the notetaking steps immediately after learning the study guide skill during guided practice. Carol was also asked to complete her independent study skill steps for the study guide skill following class using a classmate's notes when she failed to bring her own. However, she independently completed these steps without assistance or review before she had her permanent products scored and was given performance feedback. Given these conditions, Carol generally implemented 80% or more of the study guide steps obtaining an average of 82%, although she maintained a variable and low-level performance on the notetaking skill for the remainder of the class sessions.

Nonoverlap of Data Points Between Baseline and Independent Practice

In order to further assess the reliability of the treatment effects, the percentages of nonoverlapping data points over time was computed. To calculate the percentage of nonoverlapping data, the number of data points obtained during the independent practice phase that fell at or above the highest incidence of correct steps performed during baseline condition was divided by the total number of data points obtained during the intervention phase multiplied by 100 (Scruggs et al., 1987). A high percentage of nonoverlapping data points would indicate that few data points observed during independent practice fell below the highest performance that had been observed before the intervention was introduced to the student. Therefore, a high percentage indicates a more reliable intervention effect on accurate notetaking and study guide behavior because few data points fell at or below the study skill performance during baseline.

Table 6 summarizes the percentage of nonoverlapping data points between baseline and independent practice conditions for both skills.

There was minimal overlap between baseline condition and the treatment phase for both skills. Specifically, during the notetaking phase, for all students, except Carol, the percentage of nonoverlapping data points was 80% or more. Thus, performance on the notetaking skill during the treatment condition was substantially higher than performance during baseline. When independently practicing the study guide skill in a college course, five of the seven students showed percentages of nonoverlapping data points of 100%. Of the other two students, this percentage was 33% for Maria although her results were inconclusive because she failed to attend class after three sessions. Ernesto's data demonstrated some overlap (66%) but immediately following the booster session, nonoverlapping data points increased to a percentage of 100%. Therefore, a minimal amount of overlap in data points over time was generally seen between baseline and treatment phases across both skills for six of the seven students.

Table 6

Percentage of Nonoverlapping Data Points Between Baseline and Independent Practice Conditions

Name	Notetaking baseline to treatment %	Study guides baseline to treatment %
Carol	50	100
Ernesto	100	66
Jeremy	91	100
Karl	100	100
Linda	92	100
Maria	80	33
Wynona	100	100

Treatment Acceptability

A measure of treatment acceptability was given to each of the subjects involved in the study using the IRP (see Appendix G). This scale defined treatment acceptability as the degree with which judgments are made as to whether psychological treatment procedures were appropriate, fair, and reasonable for a given problem. Participants were given the rating scale with a series of 15 items stating that the treatment procedures were appropriate, fair, and reasonable for the given problem. Respondents rated their level of agreement with each item on a 6-point Likert scale with responses ranging from 1 to 6 (i.e., 1 = "Strongly Disagree," 2 = "Disagree," 3 = "Slightly Disagree," 4 = "Slightly Agree," 5 = "Agree," and 6 = "Strongly Agree"). Only six of the seven students returned the forms and only five of the six answered all questions. One student left the back side of the form (items 12-15) unanswered.

The results of the participants' ratings on the IRP are summarized in Tables 7 and 8. Mean rating scores in Table 7 were calculated by adding the individual items on each questionnaire to obtain an overall acceptability rating for each participant, and dividing that number by the total number who had completed the questionnaire. Thus obtained scores will range from 15 to 90, with higher scores indicating greater acceptability. For this study, scores above 60 will be considered acceptable. That is the minimum score if all items were endorsed as slightly acceptable, acceptable, or strongly acceptable (Von Brock & Elliott, 1987). For the one student who did not complete the last three items, her overall score was divided by the highest score possible on 11 items (i.e., 66 points). In

Table 7

Frequency of Participants' Ratings on Items from the Intervention Rating Profile

#	Item	Item response frequency 1 Strongly disagree	2	3	4	5	6 Strongly agree	Mean rating
1.	This is an acceptable way of learning how to take notes and to prepare for tests.	0	0	0	1	2	3	5.3
2.	Most college students would find this program helpful when learning how to take notes and prepare for tests for college courses.	0	0	1	0	1	4	5.3
3.	This learning program on taking notes and preparing for tests proved to be helpful in changing your study behavior in a college course.	0	0	1	1	1	3	5.0
4.	I would recommend this note taking/test preparation program to other college students.	0	1	0	0	3	2	4.8
5.	Many college students need help with note taking and test preparation skills.	0	0	0	2	1	3	5.2
6.	Most students would find that this program for note taking/test preparation can be used in college classes.	0	0	0	2	1	3	5.2
7.	I would be willing to use this method of note taking/test preparation for my other college classes.	0	0	0	2	2	2	5.0
8.	There were not any negative outcomes when learning how to take notes and test preparation.	0	1	0	2	1	2	4.5
9.	This program would be helpful to many college students.	0	0	0	1	1	4	5.5
10.	I was able to consistently use the note taking skills and test preparation in my college course(s).	0	1	1	1	2	1	4.2
11.	This program was a fair way to learn how to take notes and prepare for tests.	0	0	0	1	3	2	5.2
12.	This program was a practical and reasonable way to learn how to take notes and prepare for tests.	0	1	0	0	4	0	4.4
13.	I liked the procedures used for teaching these study skills.	0	0	1	3	1	0	4.00
14.	This course is a good way to learn study skills.	0	0	1	0	3	1	4.80
15.	Overall, learning these study skills was helpful to me.	0	0	0	2	3	0	4.60

Note. Sample $n = 6$ for questions 1-11 and $n = 5$ for questions 12-15.
Ratings were provided based on the following scale: 1 = "Strongly Disagree," 2 = "Disagree," 3 = "Slightly Disagree," 4 = "Slightly Agree," 5 = "Agree," and 6 = "Strongly Agree."

Table 8

Descriptive Statistics of Participant Ratings on the Intervention Rating Profile-15

N	Mean	*SD*	Range	Median
6	73.5	14.0	49-86	76.5

summary, all students but one rated the interventions within the acceptable range (i.e, greater than 60).

There were three general areas of acceptability assessed by the questionnaire given to the students. Items 1, 8, and 13 queried students on their general level of acceptance of the treatment and the overall likeability of the intervention as presented. The mean percentage of students that agreed they liked this intervention as presented and found it acceptable (i.e., rated the items with an acceptability score of 4 = "Slightly Agree," 5 = "Agree," or 6= "Strongly Agree") ranged from 80 - 100%. Items 2, 3, 5, 7, 10, and 15 asked students to ascertain how helpful they thought the intervention was for improving college student's study skills. The percentage of students that indicated this way of teaching study skills was a helpful method ranged from 67 - 100%. Items 4, 6, 9, 11, 12, and 14 asked students whether they would recommend the intervention to other college students as a practical method of study skill improvement. The mean percentage of students that indicated they would recommend this method ranged from 80 - 100%.

Thus, according to results from the rating scale, students generally found the procedures used in this study to be a likable, helpful, and acceptable way for college students to learn study skills, and the majority of students would recommend this intervention to other

students. Additionally, favorable verbal and written comments made by the students on the open-ended questions most frequently indicated that they were more conscious of their notes in their paired class. Also, students stated that notes were more useful once the students reviewed them outside of class. One student commented that his or her notes were, in general, more organized and clear. Unfavorable comments centered on the inequality of effort to complete steps between the notetaking and the study guide steps. They felt that it was much more labor and time intensive to do the study guide steps. One student also mentioned that performance feedback was helpful, but could be less frequent.

DISCUSSION

Many students, particularly those students with disabilities, are entering postsecondary institutions unprepared for the rigor of their new environment (Eikeland & Manger, 1992; Jackson & Cunningham, 1994; Thomas et al., 1991). The supports they were afforded in elementary and secondary settings are not available or are limited in the postsecondary situation. Often, students with disabilities struggle and fail to meet the academic demands of college-level courses (Lehmann, et al., 1999; Merchant & Gajar, 1997; Thoma et al., 2001). However, proficiency in study skills is one factor that enhances students' ability to successfully complete college-level courses (Kiewra, 1983, 1987; Kiewra, et al., 1987). This present study evaluated whether guided practice, scripts, and performance feedback given in a college remedial course increased study skill performance in an academic college course for students with disabilities.

The findings of this study indicate that prior to the implementation of the treatment intervention, students were lacking in the two study skills examined. This was even more evident on the study guide steps. Thus, the baseline performance indicated a need for further skill training.

When given instruction and guided practice, all students demonstrated that they had the ability to perform the skill with 100% accuracy. Moreover, these results suggested that, with modifications, students with disabilities are able to effectively learn and use important study skills to the greatest extent possible. Although the use of accommodations may be necessary for some students (i.e., note-takers), the skills that require these students to review and recite the material can still be implemented to

improve academic performance. Modifications were made in this study, to allow students who were limited to using other people's notes the benefits of independently using the information given to them. For those students that have borderline skills, study skills may allow them to rely less on external supports such as note-takers. This is helpful because in many cases, designated note-takers are not even trained (Beirne-Smith & Deck, 1989; Bursuck, et al., 1989), thereby limiting any guarantee about the quality of notes. Also, many professors have reported unwillingness to provide copies of their notes (Matthews, Anderson, & Skolnick, 1987; Nelson, et al., 1990). Learning these skills will help students by training them to be less reliant on external aides.

Independent practice with performance feedback produced mixed results across students and skills. Positive results were replicated on both skills during independent practice with scripts and performance feedback for three of the seven students. With only minor modifications on the first skill and no modifications on the second skill, Jeremy was still one of the most successful students in implementing what he was taught. Maria's performance on the study guide skill showed an increasing trend similar to her results on the notetaking skill. However, because she failed to attend the last few days of class, there was not sufficient data to indicate conclusive results on the study guide skill. Since there are such a wide variety of disabilities, it is relevant to express how modifying the content still allowed Jeremy and Maria to be successful since other students will likely need modifications made in the future.

While performance was substantially improved above baseline performance on the notetaking skill, skill performance was not consistently effective for two of the students on the study guide skill until these students were given a booster session. Based

on the low percentages of study guide use observed during baseline and according to student feedback, one plausible explanation for lower performance on study guides may be that the initial ten notetaking steps were easier to implement and less time consuming than the final ten study guide steps. Prior to teaching the skills, most students demonstrated some skill level during notetaking, whereas no skill level was observed for the study guide skill without training or support in the baseline condition. Moreover, the skill gains evidenced for the notetaking skill were not as impressive as study guide gains for all students when compared to baseline performance. This may suggest that study guides may have required more effort and more learning was involved. In addition, students who did not implement study guide skills independently benefited from a booster session that provided additional instruction and practice support. However, given the conditions in this study, it is unclear why the booster session was so successful in increasing performance for these two students. The session may have simply provided the opportunity for the information presented to be better processed for these individuals. Perhaps too, it assisted the students by allowing for a specific time and place to perform the tasks required. The fact that an extra booster session increased performance indicated that the brief training provided in the guided practice phase might not have been adequate due to the level of skill difficulty.

The mixed results showing variable implementation of the notetaking skill and high implementation of the study guide skill are more difficult to interpret for Carol. The formal booster session given on notetaking did not change the variable notetaking performance. However, when simply given a time and place to complete the study guide work without any instructional support or attention, study guide behavior was

implemented fairly consistently. Because she only brought notes sporadically to be evaluated and was frequently unprepared with her study guide steps, it is possible that she might have either had a skill deficit in the area of organizational skills or a motivational deficit in completing the tasks prior to the next class time. If there had not been the time constraint, it would have been interesting to see what could be done to encourage her to bring her notes to be evaluated because everything hinged on that.

Despite student variance in the level of accuracy on the study guide skill during the independent practice conditions, postintervention percentages were significantly higher than baseline percentages on both study skills. There was minimal overlap between baseline condition and the treatment phase for either skill. This indicates a reliable treatment effect for accurate notetaking and study guide behavior because few data points fell at or below the study skill performance during baseline. From the procedures and measures used in this study, it is not clear if all intervention steps must be implemented in order to have students successfully increase academic performance. However, Northup, Fisher, Kahang, and Harrell (1997) found that even partial success in completing intervention components may still elicit the desired intervention results. In this study, a clinical assessment of the effects of different levels of treatment implementation was conducted for a time-out procedure on disruptive behavior. Treatment components were systematically implemented at 100%, 50%, and 25% of the initial treatment recommendations as one measure of treatment strength. For all four participants, treatment effects were equally maintained when the intervention components were implemented at 50%, when compared to treatment implanted at 100% integrity, and for two of the participants, treatment effects were maintained at the lower

level (25%). A more comprehensive evaluation of program effects on study skill use and academic progress over time may provide useful information that may further enhance the efficiency of this program.

This study replicated and extended findings in the literature on study skill training in several ways. First, this study extended previous research by examining the specific effect of a study skills treatment package on a population that included only individuals with disabilities. In this way, at risk students with disabilities were distinguished from a general population of academically at risk college students. By dividing out students with disabilities from the general at risk student population, the results and their implications for individuals with disabilities were clearer. Spires (1993) approached the task of teaching students notetaking skills in a somewhat similar manner than the present study and found similar positive results. Some differences between the Spires study and the present study are that for the present study, an actual checklist was used to help students monitor their progress with explicit step-by-step instructions rather than having the students generate their own questions. Also, Spires only collected data on students' use of the skills learned during in-class practices for ten hours over a period of five weeks using a videotaped lecture. Conversely, the present study monitored student's use of notes in an actual academic course in the absence of the teacher who conducted the training sessions. Second, the utilization of permanent products provided a direct measurement of study skill use in the ongoing context of college course activities. Although there was some overlap between this study and Spires study on the criteria used to determine if adequate notes were produced, the present study had clearer, operationally defined criteria. Thus, this study was able to provide a replicable method

for training students with disabilities to practice and utilize study skills learned in a controlled environment and then transfer the use of those skills to a natural setting. Third, this study considered that because there are a wide variety of disabilities manifest in college students, modifications might need to be made to accommodate individual needs. The modifications made for the participants in this study were noted in such a way as to be reproducible. Finally, the acceptability ratings suggested that students found this to be a likable, helpful, and acceptable way for college students to learn study skills, and the majority of students would recommend this intervention to other students.

From a practical perspective, the findings from this study further extended the use of self-monitoring scripts and performance feedback as vital components to enhancing study skill acquisition for college-age students with disabilities (Richards, et al., 1976). Scripts are a simple method that requires minimal effort and has been used to guide participants through intervention steps (Brown & Frank, 1990; Dunlap & Dunlap, 1989). Scripts have also served as self-monitoring devices in several settings (Anderson-Inman, 1986; Ehrhard et al., 1996). A practical time saver was the administration of performance feedback in a group format. In this study, these two strategies were implemented by the teacher within the context of the classroom without the use of additional resources and required 3-5 minutes of class time. Also, it provided a means for students to self-monitor as well as have a guided prompt to facilitate transenvironmental usage of the skill in their paired course.

Given the constraints of class time, more emphasis needs to be directed to quick instruction of the skills that are most beneficial for learning. Hattie et al. (1996) found that programs of shorter duration would have greatest initial impact but this impact is not

maintained and initial positive outcomes are often reduced over time. The correlation between the effect size and the length of a program overall was -.14 (n=194); although there was a curvilinear trend. The effect size was greatest for the shortest programs. Programs longer than 30 days showed diminishing returns (r = -.16, n = 62). Possibly efforts and time are better spent in follow up procedures to monitor skill use in other subjects and setting rather than further skill instruction. The use of group performance feedback and scripts following a brief guided practice, allow for skill acquisition with minimal time investment.

The mixed results in this study during independent practice may have implications for training programs because students with disabilities in this study varied in the level of support needed when learning to implement study skills in college courses. For example, Karl and Ernesto initially had difficulty implementing study guides, although a brief booster session that required minimal teacher effort proved to be effective. Carol also had some low scores that could potentially have been due to either a skill or performance deficit. In her situation, it appeared to be a motivation problem because her scores were adequately high when she brought her materials. However, a booster session with her also increased her performance. Thus, what is not clear from this data is whether these students' lack of performance was due to a performance deficit or skill deficit. A skill deficit problem suggests that for some students a slower instructional pace and more opportunities for modeling and guided practice may be necessary for skill acquisition. Alternatively, a performance deficit requires reinforcement strategies in order to motivate the student to perform a skill that is already proficient. Results from this study suggest that students with initial low performance during independent practice

benefited from additional skill training because the only programmed contingency for accurate performance, a grade, was consistently implemented before and after the booster session. However, both of these alternative explanations for low performance and its relevance to training and intervention warrant further exploration.

There are several potential limitations of this study that should be noted and can be addressed in future studies. One limitation of this study included the potentially unequal response effort needed to implement the intervention steps for the study guide skill as opposed to the notetaking skill. According to student comments and indicated by baseline percentages, it appeared that the initial ten notetaking steps were easier to implement and less time consuming than the final ten study guide steps. On this skill, some students acquired and implemented the skills fairly quickly, whereas others lagged behind and required a booster session. It appeared that for some students more opportunities for modeling and guided practice would be necessary for skill acquisition for more difficult study skills. Future research may be devised to further examine the strength of the effects of this type of program if the intervention steps were split into three sub-parts to separately teach and assess notetaking, study guide creation, and self-testing skill.

Another limitation to consider was that because a multicomponent training package that incorporated several strategies was used in this study, it could not be determined if improvements in study behaviors were due to a portion of the intervention components or whether all intervention components were necessary for skill acquisition. Future studies examining isolated components should investigate the extent that various modifications may further enhance the feasibility and efficiency of this type of program.

For example, the pace of instruction could potentially be modified to determine the optimal level of modeling and guided practice to achieve the desired results while keeping the teacher investment minimal. In considering the ease of scripts, students may receive further benefit if they evaluate their own use of a skill using a script. Their scoring could then be compared with the independent evaluator's feedback for item match. Although not a primary purpose of this study, the function of performance feedback on study behavior is also unclear. The effects of feedback could be due to negative reinforcement, positive reinforcement, or simply serve as a source of information.

Time constraints imposed by the class structure led to several limitations of this study. The effectiveness of this program on student behaviors was evaluated for a limited number of sessions. Although change in academic performance is the primary outcome of increased study behaviors, the brief amount of practice opportunities for the second skill did not permit time to adequately assess academic gains before the end of the semester. There were variable levels of effect on GPA scores following intervention. Students course grades and semester GPAs are listed in Table 9. Three of the seven students had an increase in semester GPA scores following exposure to the study skills course. There was one student that did not get a grade in the study skills course because she dropped out at the end of the course. There were two students that failed their paired course. Due to the lateness of the actual implementation of intervention in the semester, it is difficult to gauge if the intervention had been implemented early enough to make a significant effect in the paired course. Because the experimenters did not have control of test frequency or test difficulty in the various college courses in which students practiced

Table 9

Students' Course Grades, Semester GPAs, and ACT Scores

Student	Study course grade	Paired course grade	College semester GPA pre-intervention	College semester GPA two semesters following intervention	ACT scores
Carol	Incomplete	F	First semester freshman	0.0	15
Ernesto	C	D	1.08	2.33	17
Jeremy	D	C-	3.0	3.0	14
Karl	A-	F	First semester freshman	0.0	21
Linda	A	A	2.76	4.00	Transfer student
Maria	D+	C-	1.67	3.35	14
Wynona	A-	A	3.25	Not retained	27

the skills, it was not possible to conduct a valid evaluation of change in academic performance.

Also, due to time constraints, we were unable to ascertain the degree to which skills would be maintained when performance feedback was removed. An extended analysis over time may reveal the extent that study skill performance would be maintained after performance feedback was terminated. For students who may need additional support, they could continue to have their notes evaluated by their disability resource counselor on a random, fading schedule during subsequent semesters.

A final limitation was that because this study primarily examined initial skill acquisition and use of skill in one college course, conclusions regarding long term effects or generalizability of these findings to other college courses are limited. The frequently used generalization strategy, "teach and hope," is limited, as evidenced in this study by the low skill implementation of some students during initial attempts at independent

practice. Evidently some students required additional support prior to independently utilizing the skills. Most studies only examine skill acquisition and subsequent skill use when teaching occurs rather than continued skill performance following teaching. This study did include fading of intervention supports by assessing student's performance after removing the teacher-guided stimuli and verbal prompts given during guided practice. Students were also required to implement the skills in subject area different than the course in which the skills were taught. This is a first step to fading the supports for skill implementation, but there is still a need to ascertain the long-term effectiveness of this approach once all intervention components are terminated. Due to time constraints, the additional generalization step of measuring student performance without feedback was not evaluated in this study. One practical suggestion to assist with generalization in a college setting would be to have students' disability or rehabilitation counselor (whom they meet with regularly anyway) periodically review the student's permanent products, assist with modification of checklist steps, and give feedback and suggestions for continued improvement. The frequency of this feedback could also be faded as student's performance continues to improve.

In conclusion, the current data add significant elements to existing literature. Overall, this study demonstrated a data-based approach to teaching and monitoring student progress and success in learning and practicing study skills in a postsecondary environment. The results of this study demonstrated that students with disabilities can be taught quickly and effectively how to engage in study skill habits that can help them be successful in a postsecondary setting with minimal accommodations and training. Moreover, notetaking and study guide skills can be taught with individual adaptations

while maintaining the underlying rationale for study behaviors for students with severe disabilities who have to rely on others to perform some skills for them.

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APPENDICES

Appendix A:

Specific Course Curriculum by Topic Areas

Self Advocacy and Disability Law

- Understanding the student's disability
- Differences in law from high school to college
- What are the student's responsibilities?
- Who are the student's resources?

Study Skills

- Reading, highlighting and outlining text
- Taking effective notes
- Taking tests
- Time management

Career Exploration

- Personality types and their match to career decisions
- How to use the campus Career Center facilities
- How to use other resources such as the internet to explore career options

Personal Adjustment/Assessment

- What do assessment results mean?
- Managing stress and anxiety
- Organization
- Risk taking, and goal setting
- Self-Esteem and assertiveness training

Appendix B:

Notetaking Steps

Before lecture starts:

- ☐ 1. USE A SUBJECT SECTION OR NOTEBOOK for the class
- ☐ 2. START NEW PAGE
- ☐ 3. WRITE THE DATE, COURSE AND MAIN TOPIC of the lecture
- ☐ 4. DRAW A RECALL COLUMN on the LEFT hand side

During lecture

- ☐ 5. MAKE IT READABLE. Write notes so you can read them to someone else
- ☐ 6. INDENT FOR DETAILS under main point
- ☐ 7. WRITE EXAMPLES under main points from lecture (at least 1)
- ☐ 8. USE ABBREVIATIONS

Immediately or within 24 hours after lecture:

- ☐ 9. BOX MAIN POINTS
- ☐ 10. MARK Q'S IN RECALL COLUMN to indicate unclear notes (at least 1)
    - This could be words you do not know, not sure what the professor means, unsure of what you wrote or any areas you missed during notetaking.

GRADE: To be filled out by instructor

____ Number of **in-class** steps completed

(10 steps completed = A)
(9 steps completed = B)
(8 steps completed = C)
(7 steps completed = D)
(0 to 6 steps completed = F)

Appendix C:

Notetaking and Study Guide Steps

Before lecture starts:

- ☐ 1. USE A SUBJECT SECTION OR NOTEBOOK for the class
- ☐ 2. START NEW PAGE
- ☐ 3. WRITE THE DATE, COURSE AND MAIN TOPIC of the lecture
- ☐ 4. DRAW A RECALL COLUMN on the LEFT hand side

During lecture

- ☐ 5. MAKE IT READABLE. Write notes so you can read them to someone else
- ☐ 6. INDENT FOR DETAILS under main point
- ☐ 7. WRITE EXAMPLES under main points from lecture (at least 1)
- ☐ 8. USE ABBREVIATIONS

Immediately or within 24 hours after lecture:

- ☐ 9. BOX MAIN POINTS
- ☐ 10. MARK Q'S IN RECALL COLUMN to indicate unclear notes (at least 1)
  - o This could be words you do not know, not sure what the professor means, unsure of what you wrote or any areas you missed during notetaking.

Create a study guide from your notes:

- ☐ 11. WRITE ANSWERS TO QUESTIONS in your recall column
  - o Find an answer to your Q's by either looking in your book or ask your instructor/TA
- ☐ 12. ADD MAIN TOPICS, EXAMPLES AND MEMORY CUES to recall column
  - o Include any relevant information from your text
- ☐ 13. WRITE A SUMMARY immediately after the lecture (about 7 to 10 lines)
- ☐ 14. CREATE A VISUAL STUDY GUIDE that matches the content you are studying using one of the following:
  - o Concept map (web)
  - o Comparison chart
  - o Process diagram (flow chart)
  - o Time line

15. STAPLE your Visual Study guide to your notes.

Within one week do a self-test:

- ☐ 16. After reviewing your notes, FOLD A BLANK PIECE OF PAPER IN HALF VERTICALLY OR DRAW A VERTICAL LINE DOWN THE MIDDLE OF THE PAGE
- ☐ 17. COVER YOUR NOTES and JOT DOWN as many main points, memory cues and relevant details you can remember in the LEFT HAND COLUMN
- ☐ 18. UNCOVER YOUR NOTES and COMPARE your main points and detail with your notes and Visual Study Guide.

19. WRITE A CHECK MARK on your self-test by the main points that you successfully remembered n a different colored pen.

- ☐ 20. WRITE ANYTHING THAT IS MISSING <u>with a different colored pen</u> in the right hand column

<u>GRADE: To be filled out by instructor</u>

____Number of **total** steps completed
(19 to 20 steps completed = A)
(17 to 18 steps completed = B)
(15 to 16 steps completed = C)
(13 to 14 steps completed = D)
(0 to 12 steps completed = F)

OPTIONAL:

❑Use a highlighter for main IDEA-97s
❑Rewrite notes
❑Redo in outline form
❑Tape the lecture (turn on only when you get lost then you don't have to listen to entire lecture again)
❑Practice reciting what you know from the notes (out-loud or using a tape recorder)

Appendix D:

Notetaking Data Recording Sheet

STUDENT NAME:_____

NOTE-TAKING STEPS

	BASELINE INFORMATION			GUIDED PRACTICE			INDEPENDENT PRACTICE		
	Baseline 1	Baseline 2	Baseline 3	Guided 1	Guided 2	Guided 3	Ind note 1	Ind note 2	Ind note 3
Date--->	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /
Before Lecture Starts									
1. Use a subject section or notebook									
2. Start new page									
3. Write date/course/main topic									
4. Draw a recall column on left side of page									
	Baseline 1	Baseline 2	Baseline 3	Guided 1	Guided 2	Guided 3	Ind note 1	Ind note 2	Ind note 3
Date--->	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /
During Lecture:									
5. Make it readable									
6. Indent for details under main point									
7. Write examples under main points									
8. Use abbreviations									
	Baseline 1	Baseline 2	Baseline 3	Guided 1	Guided 2	Guided 3	Ind note 1	Ind note 2	Ind note 3
Date--->	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /
Immediately or within 24 hours after lecture:									
9. Box main points									
10. Mark Q's in recall column									
Number of Steps Completed	0	0	0	0	0	0	0	0	0
	/10=	/10=	/10=	/10=	/10=	/10=	/10=	/10=	/10=
Percentage of Steps Completed	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Appendix E:

Study Guide Data Recording Sheet

STUDENT NAME:_____

STUDY GUIDE STEPS

	Baseline 1	Baseline 2	Baseline 3	Guided 1	Guided 2	Guided 3	Ind note 1	Ind note 2	Ind note 3
Date--->	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__
Create a Study Guide from Notes									
1. Write answers to questions									
2. Add Main Topics, Examples and Memory Cues									
3. Write a Summary									
4. Create a Visual Study Guide									
5. Staple study guide to notes									

	Baseline 1	Baseline 2	Baseline 3	Guided 1	Guided 2	Guided 3	Ind note 1	Ind note 2	Ind note 3
Date--->	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__
Within one week do a self-test									
6. Draw vertical line or fold paper in half vertically									
7. Review, cover notes and jot down from memory									
8. Uncover and compare									
9. ? correct main points with different colored pen									
10. Write missing info. with different colored pen									
Number of Steps Completed	0	0	0	0	0	0	0	0	0
	/10=	/10=	/10=	/10=	/10=	/10=	/10=	/10=	/10=

Appendix F:

Procedural Integrity Form for Study Skill Training Lecture

DATE: _____

Study skill: _____

TEACHER INTEGRITY during GUIDED practice with DIRECT feedback:

- ☐ Verbal directions for each step
- ☐ Written directions given (checklist)
- ☐ Demonstrated how to do each step
- ☐ Monitored as students practiced each step
- ☐ Reviewed each step and gave feedback (positive for correct and re-corrected any missed or inaccurate steps)
- ☐ Monitored as students redid any missed steps until 100% procedural integrity was obtained

Appendix G:

Treatment Acceptability Scale

NOTETAKING and TEST PREPARATION SYSTEM
RATING PROFILE

The purpose of this questionnaire is to obtain information about your reaction to the Notetaking and study guide lessons. Please circle the number which best describes your agreement or disagreement with each of the following statements.

1. This is an acceptable way of learning how to take notes and to prepare for tests.
Strongly disagree 1 2 3 4 5 6 Strongly agree

2. Most college students would find this program helpful when learning how to take notes and prepare for test for college courses.
Strongly disagree 1 2 3 4 5 6 Strongly agree

3. This learning program on taking notes and preparing for tests proved to be helpful in changing your study behavior in a college course.
Strongly disagree 1 2 3 4 5 6 Strongly agree

4. I would recommend this notetaking/test preparation program to other college students.
Strongly disagree 1 2 3 4 5 6 Strongly agree

5. Many college students need help with notetaking and test preparation skills
Strongly disagree 1 2 3 4 5 6 Strongly agree

6. Most students would find that this program for notetaking/test preparation can be used in college classes
Strongly disagree 1 2 3 4 5 6 Strongly agree

7. I would be willing to use this method of notetaking/test preparation for my other college classes.
Strongly disagree 1 2 3 4 5 6 Strongly agree

8. There were not any negative outcomes when learning how to take notes and test preparation.
Strongly disagree 1 2 3 4 5 6 Strongly agree

This program would be helpful to many college students.
Strongly disagree 1 2 3 4 5 6 Strongly agree
9. I was able to consistently use the notetaking skills and test preparation in my college course(s).
Strongly disagree 1 2 3 4 5 6 Strongly agree

10. This program was a fair way to learn how to take notes and prepare for tests.
Strongly disagree 1 2 3 4 5 6 Strongly agree

11. This program was a practical and reasonable way to learn how to take notes and prepare for tests.
Strongly disagree 1 2 3 4 5 6 Strongly agree

13. I liked the procedures used for teaching these study skills.
Strongly disagree 1 2 3 4 5 6 Strongly agree

14. This course is a good way to learn study skills.
Strongly disagree 1 2 3 4 5 6 Strongly agree

15. Overall, learning these study skills were helpful to me.
Strongly disagree 1 2 3 4 5 6 Strongly agree

1. What did you like about the notetaking and test preparation program?

_____

_____

_____

2. What did you not like about this program?

_____

_____

_____