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# Notetaking Difficulties and Approaches Reported by University Students with Learning Disabilities

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## Abstract

*Thirty-one university students with learning disabilities (LD) were interviewed to determine their specific notetaking approaches, difficulties encountered, and requested accommodations related to notetaking. Results revealed that few students used comprehensive and effective notetaking approaches, with only a small number requesting notetaking accommodations. Major areas of difficulty included speed of writing, paying attention, making sense of notes after the lecture, and deciding what information to record in notes. Implications for future notetaking programming as well as research are discussed.*

In colleges and universities across the country, postsecondary educators are confronted with the challenge of providing appropriate academic and support services for the growing number of students with learning disabilities (LD) (Bursuck, Rose, Cowen, & Yahaya, 1989; McGuire, Norlander, & Shaw, 1990; Shaw & Norlander, 1986). Appropriate services should include programs that will enable students with LD to meet the demands of required college courses. Effective notetaking skills are critical in university courses because the majority of professors rely on lecture presentations to disseminate important course content (Carder, Williams, & Dalgaard, 1988; Westendorf, Cape & Skrtic, 1982), and thus, college success is highly dependent upon a student's ability to record and remember key lecture information. Despite the importance of notetaking skills, little is known about the notetaking characteristics of college students with LD or effective notetaking interventions for this population.

Self-reported notetaking characteristics constitute one important source of information critical to designing effective notetaking interventions. An extensive review of the notetaking literature (Suritsky & Hughes, 1991) and the literature pertaining to college students with LD (Hughes & Smith, 1990) revealed limited research on the self-reported notetaking skills of university students with LD. In one study (Cowen, 1988), 72% of college students with LD reported difficulty in taking adequate notes. Similarly, one-half of 48 surveyed students reported problems in recording notes fast enough (Bireley,

Landers, Vernooy, & Schlaerth, 1986). However, in both studies, researchers did not evaluate specific areas of notetaking difficulty, nor were the reasons for students' difficulty investigated. Consequently, it is not known which factors contribute most to students' specific areas of notetaking difficulty. In addition, neither survey focused on the approaches that university students with LD use when recording notes. Kiewra (1988) criticized the emphasis of notetaking research on stimulus and outcome variables (e.g., presentation rate, information density of lecture content) and suggested the need to examine the active role of the learner (e.g., the approaches used by the notetaker during lectures), because this information has important implications for the development of effective lectures as well as the design and implementation of suitable notetaking interventions.

Accordingly, the purpose of this study was to investigate the self-reported notetaking difficulties and approaches used by university students with LD. It was hypothesized that findings should contribute to an empirical base needed to design effective notetaking interventions and /or modify suggested approaches used in existing university-based programs for students with LD.

## **Method**

### **Subjects**

Subjects were 31 college students with LD from a large northeastern state university who volunteered to participate in the interview. Participation of subjects was solicited by a letter sent to all students who had at some point been evaluated by or received services through the university's LD program (N = 50). Students had been diagnosed as LD based on a severe discrepancy between achievement and ability. The sample of 29 undergraduate and two graduate students included 21 males and 10 females. Mean age of the subjects was 23.52 (SD = 6.62); mean grade-point average was 2.73 (SD = .51) on a 4.0 scale. Initial diagnosis of the subjects' learning disability was made in a variety of settings with 17 (55%) subjects evaluated in a public or private school, 9 (29%) in a college or university, 3 (10%) in a private clinic, and 2 (6%) in a hospital setting. Twenty-one subjects (68%) reported that they were currently receiving services through the university's LD program.

Intelligence (IQ) scores from the Wechsler Adult Intelligence Scale-Revised (Wechsler, 1981 ) were on file for 26 subjects--with a mean verbal score of 100.85 (SD = 22.37), mean performance score of 103.39 (SD = 12.62), and mean full scale IQ of 104.39 (SD = 11.54).

### **Instrument**

An interview form was developed (Hughes, Smith, & Suritsky, 1989) to evaluate students' self-reported difficulties in meeting setting demands in required college courses. Prior to developing the form, the researchers conducted a thorough review of the literature pertaining to academic setting demands in both secondary (Capazzoli, 1984;

Moran, 1980; Schumaker & Deshler, 1984) and college classrooms (Westendorf, Cape, & Skrtic, 1982). The interview form consisted of Likert-type items pertaining to academic areas of difficulty and open ended questions pertaining to reasons for difficulty, approaches to academic tasks, and requested accommodations. Interview questions incorporated eight setting-demand areas: studying for tests, taking tests, time management, reading, lecture/notetaking, writing, speaking, and foreign language.

An interview was employed instead of a survey because the researchers anticipated that subjects would discuss more detailed information than they would write. In an interview situation, researchers could provide prompts to elicit more specific information. In addition, many college students with LD experience difficulties with written expression, and thus, the use of an interview format could circumvent these difficulties.

## Procedure

The interview form was field-tested on several college students to assess the clarity and appropriateness of questions and to evaluate approximate time needed to conduct the interview. Based on the students' suggestions, interview questions were revised. On the basis of the field testing, approximately 1 to 1-1/2 hours was allotted to conduct each interview. The lecture/notetaking section of the interview lasted approximately 10 to 15 minutes. Subjects were interviewed by one of the three persons who developed the interview form. A description of procedures and summary of results are reported here only for the lecture/notetaking section.

Notetaking Skill	Mean Rating of Difficult	Subjects Assigning a Rating of 4 or 5 N	Subjects Assigning a Rating of 4 or 5 %	Subjects Assigning a Rating of 3 N	Subjects Assigning a Rating of 3 %
Writing fast enough	3.30	14	45	8	26
Paying Attention	2.89	7	23	12	39
Making sense of notes	2.87	8	26	9	29
Deciding important information to note	2.57	8	26	9	29
Understanding the professor	2.32	3	10	11	35
Understanding overheads/notes written on board	1.93	3	10	6	19
Hearing the professor clearly	1.71	2	6	2	6

Seeing overhead/notes written on board	1.50	1	3	2	6
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[Scale: 5 - extreme difficulty; 3 - some difficulty; 1 - no difficulty.]

First students were asked to employ a 5 point Likert scale (1 = no difficulty, 3 = some difficulty, 5 = extreme difficulty) to evaluate the amount of difficulty they experienced with eight notetaking skills: writing fast enough, paying attention, making sense of notes, hearing the professor clearly, understanding the professor, deciding which information to record in notes, seeing overhead transparencies or notes, and understanding overhead transparencies or notes. In several instances students requested a written copy of the scale for use when responding because they experienced difficulty in remembering the corresponding levels of the scale. If students reported ratings of 3, 4, or 5 they were asked to explain why they experienced difficulty.

Next, the interviewer reads the following scenario:

You are in a large lecture class where the professor is giving a lot of new information and hardly ever writes anything on the board. You know that the material from this lecture will be important for you to know for the next test. What will you do to make sure you have all of this information in your notes?

Students were also asked to describe techniques that professors could use to improve lectures and thus, make notetaking easier for students. Finally, they were asked whether or not they requested notetaking accommodations, what accommodations they requested, and whether or not professors were willing to provide these adjustments.

### Interrater Reliability

During the interview, respondents' ratings for notetaking difficulty were recorded directly on the interview form. All other responses were tape recorded and later transcribed. Responses to open-ended questions then were coded into specific categories.

The reliability of lecture transcriptions was determined for eight (26%) lecture tapes that were randomly selected and then transcribed by a second rater who also coded open-ended responses into categories. Initial point-by-point agreement for the lecture transcriptions was 98%. Point-by-point agreement for the assignment of responses into categories, ranged from 96% to 100% (X=98%).

Notetaking Approaches	Subjects Using the Approach N	Subjects Using the Approach %
During the Lecture		
Highlight important	8	26

information		
Try to keep up with notetaking	8	26
Tape record lectures	6	19
Record key lecture ideas	4	13
Attend to lecturer's cues	2	6
Use a shorthand system	0	0
After the Lecture		
Borrow a classmate's notes	17	55
Use the textbook to clarify lecture content	5	16
Request a copy of the professors notes	1	3
Add personal details/elaborations	0	0

### **Difficulties and Reasons for Difficulties**

Table I displays the mean ratings of difficulty for the eight notetaking variables and the percent of subjects who rated the variable a 4 or 5 (e.g., reported that they experienced a lot or extreme difficulty) and subjects who rated the variable a 3 (e.g., reported that they experienced some difficulty).

Writing fast enough had the highest mean difficulty rating and the highest percentage of four and five ratings (45%). Forty-five percent of subjects said they experienced difficulty due to written expression problems (e.g., slow writing speed, spelling difficulties) and 26% said difficulty was due to the lecturer's rapid presentation rates. Both paying attention and making sense of their notes after the lecture had mean ratings in the midrange of difficulty (2.89, 2.87 respectively). The major reason for difficulty paying attention was students' short attention span. Poor legibility of notes (29%) and lecture information missing in recorded notes (23%) were the most frequently reported reasons for difficulty in making sense of their notes after the lecture.

Deciding what is important to take notes on represented a serious problem for one fourth of subjects, and the reasons most commonly stated were lack of lecturer's cues (e.g., outlines or advance organizers) (23%) and the student's attempt to record a verbatim account of the lecture (16%). One other notetaking skill, understanding the professor, received a mean rating greater than 2; however, only 10% of subjects said this was a serious problem (i.e., rated it a 4 or 5). The three remaining notetaking skills (i.e., understanding overheads/notes, hearing the professor clearly, seeing overheads notes) had mean ratings of less than 2 on the 5point scale.

### **Approaches to Notetaking (Scenario Response)**

The percentage of subjects who reported using specific notetaking approaches during and after the lecture is provided in Table 2. These approaches were adapted from effective notetaking behaviors suggested by researchers (Hartley & Davies, 1978; Kahn, 1980; Kiewra, 1987). As illustrated in Table 2, the two approaches used most often during the lecture were to highlight information in notes (26%) and to "try to keep up with notetaking" (26%). More than half of the subjects (55%) reported borrowing a classmate's notes after the lecture, and 16% said they used the textbook to add information to their notes. No subject reported using a shorthand system while recording notes or adding personal details/elaborations after the lecture.

Few subjects reported using multiple notetaking approaches. Only 7 (23%) respondents used three approaches included in Table 2. The remaining 24 (77%) subjects used one or two suggested approaches.

### **Accommodations**

Seven (23%) respondents reported requests for accommodations. Subjects said they asked the professor to provide an outline (10%), to discuss notes outside of class (10%), and to provide a copy of his/her lecture notes (3%). In all cases, professors were reported to have provided the requested accommodations. Students also stated a number of requests that were not considered accommodations because typically these requests would be available to all students. These included asking a professor to repeat a definition, verbally present information written on the board, spell a new word, and answer questions during class regarding criteria for assignments.

### **Suggestions for Improving Lectures**

Students reported 23 different ways professors could improve lectures. The five most frequently reported suggestions and resulting percentage were as follows: (a) provide lecture handouts or outlines (42%), (b) decrease presentation rate (39%), (c) identify important lecture points (39%), (d) increase the use of overhead transparencies (16%), and (e) ensure a match between lecture content and test content (10%).

### **Discussion**

Results indicate that many university students with LD experience various difficulties related to notetaking. Consistent with the results of previous surveys (Bireley et al. 1986; Cowen, 1988), students in this sample reported difficulty recording notes fast enough. Subjects also verbalized problems paying attention during lectures and deciding what lecture information to record in notes. This is not surprising since students with LD often exhibit problems in maintaining attention (Keogh & Margolis, 1976; Kirk & Chalfant, 1984) and/or distinguishing between relevant and irrelevant information presented in lectures (Hallahan & Reeve, 1980).

Few students in this sample reported using effective or efficient notetaking approaches during the lecture. Approximately one-fourth of students said they simply try to "keep

up" during notetaking even though they reported numerous notetaking difficulties. No subject reported the use of a shorthand system while recording notes. Given that many students in this sample reported difficulty writing fast enough and that these students may have slower writing speeds than their nondisabled peers (Surlitsky, 1990), it may be effective to teach students with LD to use a shorthand system (e.g., use common abbreviations and symbols, write some words without vowels) during notetaking.

Consistent with recommendations from several researchers (Hartley & Davies, 1978; Kiewra, 1984; Norton, 1981), many respondents (71 %) reported that they revised their notes after the lecture (e.g., borrowed a classmate's notes or used the textbook to clarify noted information). However, the benefits of these strategies have not yet been tested. For example, research is needed to evaluate the quality of notes provided by classmates. Also, researchers should validate other recommended post lecture strategies, including purchasing notes from professional notetaking services (Kiewra, 1985), integrating lecture notes with textbook content and additional related reading (Hartley & Davis, 1978; Kiewra, 1987), and rewriting notes.

Few students reported requests for common notetaking accommodations (e.g., taping lectures, asking professor to provide his/her notes) (Bursuck et al., 1989; Nelson & Lignugaris/ Kraft, 1989) although many surveyed professors report willingness to permit these accommodations (Matthews, Anderson, & Skolnick, 1987; Nelson, Dodd, & Smith, 1990). In the future researchers should assess students' reasons for requesting or choosing not to request specific notetaking accommodations. Also, the usefulness of other possible notetaking accommodations (e.g., providing salaried peer notetakers, providing a trained person to correct students' notes) should be investigated.

Subjects' reported reasons for notetaking difficulty provide important implications for the design of effective lectures. Professors should present lectures at appropriate rates that allow students time to process information and record important lecture points. In addition, professors may use the pause procedure, a technique documented to improve the lecture recall of LD and low-achieving junior high school students (Hughes, Hendrickson, & Hudson, 1987), nondisabled college students (Ruhl, Hughes, & Schloss, 1987), and college students with LD (Ruhl, Hughes, & Gajar, 1990). The pause procedure consists of the placement of 2- to 3 minute pauses at logical breaks during a lecture. During the pause, students are instructed to discuss lecture content with a peer (e.g., ask questions regarding lecture information they could not record, ask for explanation regarding a particular lecture idea).

Professors also could provide cues to indicate the most important information in order to alleviate students' difficulties paying attention and deciding what information to note. Lecturers' cues may include nonverbal cues (e.g., writing information on the chalkboard or overhead transparency) and verbal cues (e.g., statements that indicate the organizational structure of the lecture information, including "You should remember that ...." and statements that indicate the organizational structure of the lecture information, including "When we discuss Sweden, be sure to note the population, government, and chief resources"). Professors also could provide handouts and outlines because these

notetaking aids focus students' attention to important lecture information, reduce the amount of content that needs to be noted, and increase students' recall of lecture facts (Collingwood & Hughes, 1978; Kiewra, 1985).

Results should be viewed tentatively for two major reasons. First, the sample was restricted to 31 subjects from only one university setting. In addition, data consisted of self-reported information that may not reflect actual difficulties. Future studies should incorporate a much larger sample of subjects selected from small and large universities that provide different types and amounts of notetaking services. Additionally, researchers should compare students' self-reported notetaking difficulties to their actual notetaking performance in order to ascertain the exact nature of problems.

Despite these limitations, results provide a framework for future notetaking programming as well as research efforts. Given that few students in this sample used effective and comprehensive notetaking approaches and/or requested notetaking accommodations, students with LD may require formal training in notetaking procedures. Researchers (Bretzing, Kulhavy, & Caterino, 1987; Kiewra, 1988) have recommended notetaking training for secondary and postsecondary students, however, the most effective training components have not yet been validated. In the future, researchers should validate effective components of formal notetaking training specifically designed for college students with LD. Undoubtedly, college professors will continue to rely on lectures to disseminate important course content, and thus, notetaking will remain a critical area for future research and programming, especially in relation to students with LD who experience notetaking difficulties.

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