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**IMPLICATIONS OF CHANGING TO 4 BY 4 SEMESTER BLOCK  
SCHEDULING FOR SECONDARY STUDENTS WITH  
LEARNING DISABILITIES**

**by**

**Sandra Kay Wayne**

**A Dissertation  
Submitted to the  
Faculty of The Graduate College  
in partial fulfillment of the  
requirements for the  
Degree of Doctor of Education  
Department of Special Education**

**Western Michigan University  
Kalamazoo, Michigan  
April 1998**

# IMPLICATIONS OF CHANGING TO 4 BY 4 SEMESTER BLOCK SCHEDULING FOR SECONDARY STUDENTS WITH LEARNING DISABILITIES

Sandra Kay Wayne, Ed.D.

Western Michigan University, 1998

The purpose of this study was to investigate the impact of changing from a traditional schedule to a block schedule on selected school-related behaviors and measures of secondary students with learning disabilities and their regular education teachers. Areas of impact that were addressed included school performance measures of student success rates, attendance rates, and discipline referrals as well as affective measures of levels of students' active engagement in learning activities, the variety of teaching and learning modes used, and the amount of individualized teacher attention given to students.

The research population consisted of six high schools in south and central Michigan. Three of these schools (target buildings) switched from traditional six period per day schedules in the 1995-96 school year to the implementation of comparable versions of a 4 by 4 semester block schedule during the 1996-97 school year. The remaining three schools (control buildings) had traditional six period per day schedules for both the 1995-96 and 1996-97 school years. Student subjects for the study had to meet predetermined criteria including: (a) be in 10th through 12th grade, (b) have a documented learning disability on an active individualized

education plan, and (c) be continuously enrolled in the school for the full 1995-96 and 1996 school years. Data collection occurred through two distinct methods: (1) a review of existing historical records, and (2) through direct classroom observation.

The findings show that the students with learning disabilities passed a lower percentage of classes, earned lower grade point averages, and had a higher number of days absent in the first year of the switch from the traditional to the block schedule. The teachers appeared to be more actively involved and the students engaged in more active learning activities in the block scheduled classrooms. There were no significant differences in discipline referrals, the classroom behavior of LD versus nondisabled students, or in the amount of individualized attention given to students in block-scheduled classrooms.

Implications for the education of students with learning disabilities are presented as are recommendations. Both limitations of the study and directions for further research are included.



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Sandra Kay Wayne

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## CHAPTER I

### INTRODUCTION

Designing and delivering an educational program that meets the unique needs of students with learning disabilities is a challenging task. This endeavor becomes even more complex as these individuals reach adolescence and enter the secondary school setting. The structure of the school day, established by the type of schedule a high school follows, has the potential to influence the success or failure a student experiences. This study looks at the influence schedule type may have on secondary students with learning disabilities.

#### Restructuring and the Traditional High School

High schools across America today are confronted with a myriad of problems and expectations. Many experts in education claim that present programs need to be reformed and updated to meet the needs of an increasingly complex society (Brandt, 1995; Canady & Rettig, 1995a; Cawelti, 1994; Dempster, 1993; Lammel, 1996). They indicate that there is great pressure to graduate a larger percentage of students than ever before and to have these graduates better educated both in breadth and depth.

Faced with growing demands, high schools are beginning to look at ways to restructure their organizations to meet the multiple demands being made upon them. This is no easy task as Carroll (1989) notes, "The American high school has been an enduring institution. For 3/4 of a

century, a period characterized by immense social, economic, and technological change, the high school has not changed its basic form of organization" (p. 21). In fact, the high school 'experience' has been one of society's commonalities as, regardless of whether a person attended school in a major city or in a small rural community, their memories of high school will be remarkably similar (Canady & Rettig, 1995a; Carroll, 1989; Cawelti, 1993).

A common pattern emerges which can be characterized by the following elements. The school day is typically divided into six or seven periods plus a lunch period. The classes average 45 to 50 minutes each regardless of their content. The building has a principal and the staff are organized into departments based on academic disciplines. Credit revolves around the Carnegie unit. Lecture, question and answer, and homework dominate the instruction. The curriculum is designed to cover the subject or material in either a semester or a full year of classes.

Given this common pattern, numerous problems have been identified. Criticisms include: classes are too large, too many classes per student or teacher, insufficient time for laboratory classes, too little individualized instruction, inadequate variety of instructional techniques, few team-teaching opportunities, high level of stress for both students and teachers, too many failures, and too many dropouts (Canady & Rettig, 1995a; Carroll, 1994; Ellis & Fouts, 1994; O'Neil, 1995; Salvaterra & Adams, 1995).

The growing knowledge stemming from the cognitive and biological sciences is used by some educational experts to validate many of



the concerns expressed by those calling for reforms to be made at the secondary level. TheodoreSizer's (1984) cry of "less is more" reverberates through discussions of learning in depth versus surface level knowledge (Caine & Caine, 1991; Dalheim, 1994; Dempster, 1993). The findings resulting from a growing body of knowledge relating to human learning have been used to provide a rationale that multiple complex and concrete experiences are essential for the occurrence of meaningful learning and teaching (Brooks & Brooks, 1993; Caine & Caine, 1991; Gardner, 1991; Marshall, 1992). To facilitate the occurrence of optimum learning, some educational experts state that learning needs to be integrated, interdisciplinary, meaningful for students, connected to real-life environments, involve active processing and problem solving, and involve all the senses and emotions (Caine & Caine, 1991; Good & Brophy, 1994; Kruse & Kruse, 1995; Harris & Pressley, 1991; Sizer, 1992; Sylwester, 1995). It has been further deduced that optimum learning does not occur by being exposed to knowledge in small non-relational blocks of time and can, in fact, be time-consuming (Good & Brophy, 1994; Kruse & Kruse, 1995).

### Block Scheduling

In order to address the many criticisms and become more efficient, high schools are having to take a close look at their current structure and organization. One result is that an emphasis on changing the school schedule is becoming a major trend in secondary school restructuring efforts (Ashby & Ducett, 1996; Canady & Rettig, 1995a.). The National

Education Commission on Time and Learning (1994) reported that "both learners and teachers need more time - not to do more of the same, but to use all time in new, different, and better ways" (p. 10).

The term 'block scheduling' is used in the literature to indicate that at least part of the school day is organized into larger blocks of time (more than 60 minutes). The use of block scheduling by high schools appears to be on the increase (Canady & Rettig, 1995a; Canady & Rettig, 1995b; Cawelti, 1993; Hackmann, 1995; O'Neil 1995). As one example, O'Neil (1995) states that while four years ago in Virginia fewer than five high schools used some form of schoolwide block schedule, "now 133 of the state's 290 high schools (46%) do" (p. 12).

This trend is also apparent in the state of Michigan. In a cursory search conducted by this author, 15 high schools in the lower one-third of the state were identified as using some type of block scheduling format. Of these 15 high schools, at least seven of them began the block schedule format in the 1995-1996 school year.

There are many benefits touted to be a result of block scheduling and the resulting differences that occur in the teaching and learning process. These include; increased student and teacher attendance, lower drop out rates, fewer discipline referrals, increased percentage of students on the honor roll, decrease in failure rates, increases in standardized test scores, and an increasing percentage of students who meet requirements for college entrance (Canady & Rettig, 1995a; Cawelti, 1993; Edwards, 1995a; Hackmann, 1995; O'Neil, 1995; The Wasson Block Plan, 1995; Salvaterra & Adams, 1995).

Despite the growing trend toward block scheduling and the many benefits touted as results, little empirical data is available to support its effectiveness (Edwards, 1995a; O'Neil, 1995). Systematic research designed to determine the efficacy of programs at the building level, especially in comparison to the more traditional scheduling format is needed to make meaningful decisions in this area (Ellis & Fouts, 1994; Canady & Rettig, 1995a; Carroll, 1994; Edwards, 1995b).

### Statement of the Problem

While there is little systematic data regarding the efficacy of block scheduling, the literature is especially void of any mention of the effects on the special needs population. It has, however, been consistently confirmed that attendance problems, high failure rates, multiple discipline problems, lack of sufficient individualized attention, and high drop out rates characterize secondary students with learning disabilities (Edgar, 1987; McIntosh, Vaughn, Schumm, & Harper, 1993; Rieth & Polsgrove, 1994; Swicegood & Parsons, 1991). These same characteristics appear to be positively affected by block scheduling (Canady & Rettig, 1995a; Cawelti, 1993; Edwards, 1995a; Hackmann, 1995; O'Neil, 1995; The Wasson Block Plan, 1995; Salvaterra & Adams, 1995).

The purpose of this study was to investigate the impact of changing from a traditional schedule to a block schedule on the school-related behaviors of secondary students with learning disabilities. A comparison was made of students with learning disabilities in block scheduled versus traditionally scheduled high schools. Administrative records were

reviewed to determine any differences in students' failure rates, attendance rates, and discipline problems. Classroom observations were made to investigate levels of active student engagement in learning, the variety of teaching and learning modes used, and the amount of individualized attention given to students in each setting.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

#### Introduction

The review of related literature will focus on five main areas. First, an overview of the common characteristics and needs of secondary students with learning disabilities will be presented. Second, a description of the traditional American high school will be given. Third, the restructuring movement as it relates to the traditional high school will be discussed. This will be followed by a description of the current reform movement characterized by block scheduling at the secondary level. The fifth and final section of this literature review will address block scheduling specifically as it relates to secondary students with learning disabilities and provide a rationale for studying the potential impact of block scheduling on this population of students.

#### Secondary Learning Disabled Students

With educational reform receiving much attention, there is, likewise, an increasing awareness of and focus being placed on those students having learning difficulties at the secondary level. In keeping with this trend, there is a growing body of research relating to the population of secondary students who have been diagnosed as having learning disabilities. Three areas relating to secondary students having

learning disabilities will be addressed in this section. First, a definition of learning disabilities and a brief discussion of service delivery will be presented. Next, common characteristics of secondary students with learning disabilities will be addressed with attention given to their passive learning style and high rate of school failure. The third area will provide a summary and address implications for the education of secondary students with learning disabilities.

### Definition and Delivery of Services

Learning disabilities, first recognized in the 1960s and currently the second largest subcategory of exceptionality, refer to a heterogeneous group of learners with the common feature being that they have trouble learning in school. The federal government (U.S. Office of Education, 1977) defines learning disabilities as:

a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, or do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia and developmental aphasia.

The term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage. (p. 65083)

While each state has either accepted or added to this definition, there are five common elements in all definitions: (1) neurological dysfunction, (2) uneven growth patterns in psychological processing, (3) difficulty in academic and learning tasks, (4) discrepancies between

achievement and potential, and (5) the exclusion of other disabling conditions (Chalfant & VanReusen, 1992; Lerner, 1985).

Even though learning disabilities were first recognized in the 1960s and educational guarantees were mandated by Congress in 1975, attention was initially focused only on those students with learning disabilities (LD) at the elementary level. For a number of years, services for secondary students with LD were neglected. Recent legislation, including a specific requirement for transition planning, now provides the legal foundation for providing quality services to students with LD at the secondary level (Razeghi, 1996; Schloss, Smith, & Schloss, 1995; Smith & Luckasson, 1992).

Many goals have been identified for secondary students with LD including: being educated in the least restrictive environment, earning a high school diploma, passing state-required minimum competency tests, developing independent learning and living skills, demonstrating social competence, developing and following an individualized transition plan, and preparing for a career (Chalfant & VanReusen, 1992; Razeghi, 1996; Schloss et al., 1995). While these goals are well-intentioned, they are confounded by a number of variables occurring in the secondary schools. Many of these interfering factors stem from the educational reform movement and its emphasis on increased academic performance. Increasing academic standards have raised graduation requirements, mandated higher performances on state-required minimum competency tests, and decreased the extent that elective and vocational components play in the secondary curriculum (Razeghi, 1996). Another set of

conditions that interplay with goals for secondary students with LD relate to the current trend to educate students in inclusive settings, minimizing the amount of time spent in any self-contained or special education only classes (McIntosh et al., 1993; Razeghi, 1996; Rieth & Polsgrove, 1994).

The overall result is that, while some special education courses are available to address the specific needs of secondary students with LD, these students overwhelmingly spend the majority of their time in regular education classrooms alongside their nondisabled peers (Hyerle, 1996; Razeghi, 1996; Schloss et al., 1995; Zigmond, 1990)). In a five year longitudinal study conducted by Rieth and Polsgrove (1994), they found that most secondary students with LD spend half to full time in regular education classes.

### Characteristics of Adolescents With LD

A major challenge for all adolescent learners is to acquire the tremendous amount of information presented in the secondary curriculum. For secondary students with LD the challenge is even greater. The academic and social difficulties experienced in the elementary and middle school years continue and may even intensify as these students enter the high school setting (Lerner, 1985).

Severe deficits in basic academic skills such as reading, spelling, and math limit the ability of secondary students with LD to comprehend material and apply skills (Rieth & Polsgrove, 1994; Schloss et al., 1995). Academic achievement levels have been found to be consistently low, often as much as 3 to 5 years behind the student's actual grade placement



(Zigmond, 1990). Kirk and Gallagher (1989), cite a year long study of adolescents with LD that found that these students had reached a plateau where they were making very little progress in academic skills. Specifically, tenth grade students were found to be reading and doing math at fifth and sixth grade levels.

Deficits in study skills such as listening well in class, note taking, monitoring writing errors, test taking skills, and scanning are also characteristic of secondary students with LD (Chalfant & VanReusen, 1992; Kirk & Gallagher, 1989; Lerner, 1985; Rieth & Polsgrove, 1994). Poor abilities in attention and concentration are also common (Chalfant & VanReusen, 1992; Razeghi, 1996). Given the emphasis on an academic curriculum at the secondary level, poor study skills and lack of concentration can seriously impede the progress of these students in school.

Another trait of adolescents with LD is social ineptitude (Chalfant & VanReusen, 1992; Lerner, 1985; Kirk & Gallagher, 1989; Smith & Luckasson, 1992; Razeghi, 1996; Schloss et al., 1995). They have inadequate interpersonal skills and have difficulty making and keeping friends (Rieth & Polsgrove, 1994). These students are less likely to pick up on social cues and incidental information, needing direct instruction and help in transferring concepts from one setting to another (Chalfant & VanReusen, 1992; Schloss et al., 1995). Poor self-concept and low self-esteem are common, often the result of years of failure and frustration. As Lerner (1985) states, "learning disabled adolescents feel little confidence that they can learn and achieve" (p. 244).

This lack of confidence, combined with the academic, social, and study skill deficits typically result in what is seen as passive academic involvement (Gardner, 1991). This behavior pattern of passive learning will be explored in more depth.

### Passive Learning

Students with LD have been characterized as 'inactive learners', remaining on the periphery of academic and social involvement at both the elementary and secondary levels (McIntosh et al., 1993). As a response to problem-solving situations, Lerner (1985) portrays these students as having developed an attitude of 'learned helplessness' whereby, instead of trying to solve a problem, they wait passively until a teacher directs them and tells them what to do. Brozo (1990) describes this behavior as 'mock participation,' where the students are giving an impression of academic engagement while actually employing coping strategies to avoid frustrating academic tasks such as reading.

Several studies have been conducted specifically to investigate the behavior of secondary students with LD in general education classes. One study conducted by Bender in 1985 (cited in Bulgren & Carta, 1992) found that students with LD demonstrated more passive off-task behavior than did their low-achieving peers, although during whole group instruction, both groups were more likely to be off-task in a passive manner than while they were doing seat work. A more extensive summary of the findings of two other studies will be presented.

Study One. Zigmond, Kerr, and Schaeffer (1988) conducted a study analyzing the competence of secondary students with LD compared with their nondisabled peers in regular high school content area subjects through direct observation of classroom behaviors.

Thirty-six students classified as LD from three public high schools in a large northeastern urban school district constituted the primary sample for this study. These subjects included 28 males and 8 females in grades 9 through 11 who were screened for maintaining good attendance records. The subjects spent one to two periods per day in special education classes, with the remaining five to six periods per day in regular education classes.

The subjects, along with randomly selected nondisabled control subjects, were observed in 23 different regular education classes across the subject areas of math, English, science, and social studies. Direct observations were carried out using a combination of event and interval recording. Interval recording captured students' on-task behaviors, while event recording captured the number of teacher-student interactions. Observational data was collected by trained observers having an overall inter rater observer reliability rating of .90.

The results of this study indicate that the students with LD were on-task about 60 per cent of the time. When the activities were teacher-directed the amount of time on-task increased to 70 percent. Teachers made few demands of the students with LD, calling on them to do something about two times per class period. Also, students with LD were asked for information more than eight times per period, with almost every one of these requests going unanswered. Students with LD initiated

content appropriate comments only once every seven class periods and asked a question only once in every four class periods. The authors summarize their findings saying that;

what emerges from these data is a picture of the LD student as a passive learner who comes to class ill-equipped for the lesson, goofs off during about 40 percent of class time, follows teachers' procedural directions, avoids giving information, and seldom volunteers a comment or asks a question. (p. 10)

Study Two. McIntosh et al. (1993) conducted a study examining how general education teachers' behavior toward students with LD compared with their behavior towards students without disabilities. In addition, this study looked at interactions between students and between students and teachers.

Sixty regular education teachers from a large southeastern urban school district, teaching in the areas of social studies and science across grades three through twelve, served as the primary subjects for this study. Each of these teachers had at least one student with LD identified as being in their class.

The Classroom Climate Scale, which was developed and extensively field tested by these authors, was used as an observation tool. Observations occurred over the spring semester with each classroom being observed three times for fifty minutes each time. Teachers were made aware of the observation times in advance. Observers randomly selected a nondisabled peer to act as a control subject for each student identified as having LD. The Wilcoxon Signed Ranks two-tailed test was used to test for differences between paired ratings for each item on the Classroom Climate Scale.

Study results show that teacher use of room arrangement, pairing or grouping activities, whole group instruction, and fairness or impartiality were the same for both students with LD and their nondisabled peers across all grade groupings. Significant differences did occur on all student participation and interaction items. Students with LD, across all grades, demonstrated significantly lower ratings for all student initiated behavior items including; asking for assistance, volunteering to answer questions, and engaging in class discussions.

Overall the study results confirm that students with LD displayed a response style that was passive and disengaged, with little self-monitoring of what was being learned or what parts of information or concepts were being missed. The authors contend that the study provides additional confirmation of this passive learning behavior based on the apparent lack of confusion or frustration that was displayed by the students with LD during classroom activities and while responding to requests from the teacher. Despite their low rates for requesting assistance, the authors state that if these students were actively engaged in the learning process, "there would surely be times when they recognized they were not following the idea and would ask for clarification, or otherwise demonstrate confusion" (p. 259).

The tendency of students with LD to avoid volunteering answers and asking for assistance during class is not surprising when consideration is given to the fact that a strong correlation exists between LD and a variety of language problems, including difficulties with expressive language (Pressley, Hogan, Wharton-McDonald, Mistretta, & Ettenberger, 1996).

Thus students with LD may be the least equipped to communicate their problems with academic tasks. This characteristic, in conjunction with their low achievement levels, deficits in study skills, poor social skills, and a general lack of self-confidence, places students with LD at greater risk than their nondisabled peers for school failure.

### School Failure

Students with LD bring a long history of academic failure with them when they enter the high school setting (Schloss et al., 1995; Zigmond, 1990). Rieth and Polsgrove (1994) found that of the students identified as having LD in their study, 73 percent were at least one year older than their nondisabled peers. These students were also significantly more likely to fail in regular education classes than in special education classes. A study conducted by Wagner in 1990 (cited in Rieth & Polsgrove, 1994) found that the likelihood of students with LD experiencing failure increased significantly "in relation to both the number of regular classes they were assigned and the length of time they remained in these classes" (p. 118). Additionally, Wagner found that the students with LD were at a greater risk of failure than their slow-achieving peers with nearly one in three of the students with LD receiving at least one failing grade in their most recent school year.

Generalized failure or below average performance in content area classes such as science, social studies, and health has been repeatedly confirmed. In a study conducted by Zigmond, Levin, and Laurie in 1985, it was reported that 20 percent of the secondary students with LD failed more

regular education courses than they passed. In another study conducted by Donahoe and Zigmond in 1990, 75 percent of their sample of secondary students with LD passed regular education health classes, with only 60 percent passing science, and less than 50 percent of the students earning passing grades in social studies.

Reasons for the high rate of academic failure appear to be fairly consistent across studies and research teams. Students with LD who fail regular education classes can be differentiated from those who pass on the basis of school attendance (failing students have significantly higher absence rates) and their lack of proficiency in learning strategies and organizational skills (Zigmond, 1990). Frequent trancies, absences, and tardiness have been found to be primary reasons for failing grades for students with LD (Rieth & Polsgrove, 1994; Zigmond, 1990). Disciplinary problems are also frequently cited as reasons for class failure among this population (Razeghi, 1996; Rieth & Polsgrove, 1994; Schloss et al., 1995).

Regardless of the reasons for school failure, a common result is that students with LD often drop out of school altogether.

### Drop Out Rate

National statistics indicate that of the students who begin ninth grade, approximately 28 percent fail to graduate (Roderick, 1993). Numbers for special education students, and especially for students with LD, appear to be even higher. Consistent findings across a number of studies indicate that students with LD drop out of school with greater frequency than their nondisabled peers. Statistics that range from 39 percent (Zigmond, 1990) to

42 percent (Edgar, 1987) to 47 percent (Schloss et al., 1995) to 53 percent (Rieth & Polsgrove, 1994) and to as high as 64 percent in urban districts (Razeghi, 1996) have been reported for students identified as LD who drop out of school.

School failure and disciplinary problems are the most frequently cited reasons for students dropping out of school (Edgar, 1987; Razeghi, 1996; Rieth & Polsgrove, 1994; Roderick, 1993; Schloss et al., 1995). Negative experiences in school, combined with an alienation from peers due to poor social skills, may cause an aversion to school-related activities that results in lower self-esteem and poor self-perception. Researchers have found measures of lower self-esteem and greater hostility among students who have dropped out than among students who have not dropped out (Razeghi, 1996; Roderick, 1993; Schloss et al., 1995).

In fact, there is clear agreement among experts who have identified key characteristics that are indicative of students who are at risk for dropping out of school. Included are such factors as; repeating one or more grades in school, failing grades in classes, poor attendance, disciplinary problems, lack of basic skills, poor peer relationships, limited participation in extracurricular activities, lower socioeconomic status, and being from a single parent household (Razeghi, 1996; Roderick, 1993; Schloss et al., 1995). Given these key characteristics, it becomes easy to see why students with LD are at such a high risk for quitting school.

Once these students do drop out, the research is clear that they become underemployed adults with significantly high involvement in criminal activity, 220 percent more likely to be adjudicated than their



nondisabled peers, and who experience difficulties in social adjustment (Razeghi, 1996; Schloss et al., 1995).

### Educational Implications

Educators in today's schools are quite familiar with the following portrait of the secondary student with LD: often achieving at least two or more grade levels below grade placement; exhibiting a passive learning style in most situations; having a history of academic failure; lacking in study skills such as note taking, listening comprehension, outlining, and scanning; demonstrating poor social skills; cutting classes or being tardy frequently; and coming to class unorganized or unprepared when they do come (Swicegood & Parsons, 1991). While researchers have helped us to become aware of common characteristics of secondary students with LD, they have also highlighted methods and strategies for optimizing the opportunities for success for these students.

In order for students with LD to experience success in school, experts agree that greater levels of individualized attention are needed (Bulgren & Carta, 1992; McIntosh et al., 1993; Wilson & Wesson, 1986). Secondary students with LD acquire information and skills at a lower rate than their nondisabled peers and thus require more time to learn (Schloss et al., 1995). They also require more opportunities for review and practice in order to maintain new skills and information (Lerner, 1985; Razeghi, 1996; Schloss et al., 1995; Smith & Luckasson, 1992). Individualized attention, often remedial in nature, along with curriculum modifications are necessary instructional components for these students (McIntosh et al.,

1993; Razeghi, 1996; Schloss et al., 1995; Smith & Luckasson, 1992; Swicegood & Parsons, 1991; Wilson & Wesson, 1986). Greater levels of individualized attention should, additionally, lead to higher levels of self-confidence and self-esteem, which may then serve to foster these students' social connections with their peers.

Research into the passive learning style of secondary students with LD indicates that these students are simply not very engaged in the learning process, either by their own or by the teacher's initiation (McIntosh et al., 1993). For this group of students the amount of time devoted to active learning and the number of interactions with teachers need to increase (Bulgren & Carta, 1992). Teachers must deliberately enhance these students' opportunities to respond actively, ask more of these students and do so more frequently, and likewise increase the amount and frequency of social reinforcement given to them (Bulgren & Carta, 1992; McIntosh et al., 1993; Schloss et al., 1995).

Studies examining the instructional contexts of secondary students with LD have certainly advanced our knowledge base. The results of these studies provide a foundation for further exploration regarding which instructional methodologies and other variables in the classroom setting can best enhance the active engagement and academic success of these students (Bulgren & Carta, 1992; McIntosh et al., 1993; Swicegood & Parsons, 1991). Bulgren and Carta (1992) note that data produced through an ecological assessment are especially sensitive to the effects of relatively small adjustments made in instructional methodologies or materials. The

time is ripe to explore the most effective teaching practices to best meet the unique needs of secondary students identified as having LD.

To further explore the conditions and the nature of the secondary school environment in which students with LD are expected to learn, the next sections of this literature review will be devoted to: (a) an historical description of the traditional American high school, (b) the educational reform movement as it impacts the traditional high school, and (c) one particular reform - block scheduling, which has the potential to significantly impact secondary students with LD.

### The Traditional American High School

This section will present a brief history of the high school in America, provide a description of the traditional high school, and point out concerns regarding the traditional high school. Special attention will be given to the concerns focused on time including; allocated time, instructional time, and engaged time.

#### A Brief History

Conceived of as 'the people's college,' the first high school opened in Boston in 1821 (Gorman, 1971). By 1860 there were 321 high schools with few enrolling more than 100 students (Gorman, 1971). Growth, both in numbers of high schools and in enrollments, continued at a rapid pace. In these early high schools, programs of study were extremely flexible with wide variations in courses offered and types of schedules the students followed (Canady & Rettig, 1995a; Gorman, 1971) This resulted in wide

differences in breadth and depth of knowledge displayed by high school graduates.

As these graduates moved on to American colleges, it became difficult to compare the freshman candidates and thus difficult to make decisions regarding admissions and scholarships. The pressure from American colleges was a contributing factor to the establishment of the National Education Association's Committee of Ten on Secondary Studies in 1892 (Gorman, 1971). This committee's report encouraged every high school to "center the work of each student upon five or six academic areas in each of the four high school years" (Gorman, 1971, P. 114). While this report was the center of much debate, it planted the seeds for a rigid high school curriculum (Canady & Rettig, 1995a).

The structure of the American high school received its final formalization as a result of a decision issued by the Carnegie Commission in 1909 (Canady & Rettig, 1995a; Canady & Rettig, 1995b; Gorman, 1971; Kruse & Kruse, 1995). The Carnegie Commission, originally working to define a pension plan for college professors, issued a definition of a high school credit (Gorman, 1971). The resulting Carnegie Unit awarded 'credit hours' based on the amount of time a student spends in an organized course of study. A total of 120 hours in one subject, divided over the course of the year and the days of the week, earns the student one 'unit of high school credit' (Canady & Rettig, 1995a; Canady & Rettig, 1995b; Edwards, 1993). Once the student obtains a sufficient accumulation of credits in each subject area, he becomes eligible to graduate from the high school. The resultant daily schedule of 40 to 60 minute blocks of time for

each subject became the standard structure for the high school and has remained relatively unchanged to the present day (Canady & Rettig, 1995a; Canady & Rettig, 1995b; Gorman, 1971; Kruse & Kruse, 1995).

### Description of the Traditional High School

Despite the vast social, political, economic, and technological changes over the last 86 years, the institution of the traditional high school, be it rural or urban, is little changed (Canady & Rettig, 1995a; Carroll, 1989). The school day is typically divided into six or seven periods plus a homeroom and a lunch period. Classes average between 40 to 60 minutes, regardless of content, and continue for the full 180 to 185 day school year. A student attending a school with a seven period day, a homeroom, and a lunch period, in the course of a six and one-half hour day, will be in nine different locations with nine different activities and potentially nine different teachers, each with his or her own set of student expectations. If one of the student's classes is physical education, the student may also have changed clothes twice and showered once (Carroll, 1994).

The students' job is to absorb the information presented in each of the six or seven subjects they are scheduled into on a daily basis. They are rated on how effectively they do their job by being given a letter grade of A, B, C, etc. For each class that they remain in for the full year and obtain a passing letter grade in, they earn one Carnegie Unit of credit. After four years they are able to accumulate enough credits to allow them to graduate. Most of the instruction in their classes consists of lecture and

question and answer, with the inevitable homework being given at the end of the period (Canady & Rettig, 1995a; Carroll, 1994;Sizer, 1984).

The high school typically has one principal and is organized into departments based on academic disciplines. The curriculum is designed to 'cover' the subjects and ensure that information is presented to the students in each subject area (Caine & Caine, 1991; Canady & Rettig, 1995a; Carroll, 1989;Sizer, 1984). The typical teacher teaches five or six classes a day, has a single 40 to 60 minute daily planning period, and sees anywhere from 125 to 180 students per day.

### Criticisms of the Traditional High School

Many criticisms of the traditional high school have been made including: (a) low achievement both on tests of basic skills and on tests of general knowledge in core subjects, (b) a need to move beyond basic skills and factual information towards critical thinking skills and problem-solving skills, (c) curriculum fragmentation that prevents students from seeing connections between school subjects and real life, and (d) a failure to provide the skills needed for transition to meaningful jobs and work after graduation (Cawelti, 1994). Additional criticisms commonly cited include; too many failures, too many dropouts, high levels of stress for both students and teachers, few team teaching opportunities, not being user-friendly workplaces, and the over use of the lecture as an instructional technique despite the overwhelming evidence that it produces the lowest degree of retention for most learners (Canady &

Rettig, 1995a; Carroll, 1989; Sousa, 1995; Stinson, 1994; The Wasson Block Plan, 1995).

Traditional high schools are often described as providing a fragmented, factory-like, assembly line education (Caine & Caine, 1991; Canady & Rettig, 1995b). The customary 50 minute period, regardless of subject content, limits the opportunities that teachers can provide for meaningful exploration, problem-solving, and in depth study of interrelated topics (Marshall, 1992). As Gardner (1991) states schools "have embraced 'correct-answer' compromises instead of undertaking 'risks for understanding' " (p. 141).

There are two major criticisms however, that appear to be more overarching than others. One of these criticisms is directed at the disconnected and separate classes that comprise the curriculum. By isolating the disciplines, it is felt that the students' grasp of the link between the subjects and life, essential for complex learning, is inhibited (Caine & Caine, 1991). The ability of the students to engage in higher level thinking and problem solving skills is limited (Buckman, King, & Ryan, 1995; Canady & Rettig, 1995a). Also, by scheduling each class for a standard length of time regardless of content, student comprehension is traded for the ability to cover the information (Caine & Caine, 1991; Canady & Rettig, 1995a; The Wasson Block Plan, 1995).

A second criticism involves the depersonalization of the high school. When teachers are responsible for from 125 to 180 students a day, and students answer to between six and nine teachers a day, it is nearly impossible to develop meaningful connections between students and

teachers (Canady & Rettig, 1995a; Canady & Rettig, 1995b; Carroll, 1989; Sizer, 1984). Students may go through several days without having a meaningful interaction with a teacher (Carroll, 1994; The Wasson Block Plan, 1995). The lack of these meaningful teacher-student connections has an exacerbating effect on discipline problems in the high school (Canady & Rettig, 1995a; Canady & Rettig, 1995b; The Wasson Block Plan, 1995). Another result of depersonalization is that it is unrealistic for teachers to provide the extra help needed by those students who learn at differing rates. Currently the system in place for allowing those students more time and help causes the teachers to give them an 'F' and requires the student to repeat the course during summer school when teacher loads are lessened (Canady & Rettig, 1995a).

While there are many criticisms of the traditional high school, the majority of the concerns center around the issue of time. There has been considerable attention given to the role time plays in the educational setting (Bulgren & Carta, 1992; Karweit, 1985; Lofty & Marnik, 1996; National Education Commission on Time and Learning, 1993; Rossmiller, 1983; Seifert & Beck, 1984). The following three concepts of time, as they relate to the traditional high school, will be looked at more closely: (1) allocated time, (2) instructional time, and (3) engaged time.

### Allocated Time

There are several different ways of thinking about time (Lofty & Marnik, 1996; National Education Commission on Time and Learning, 1993; Seifert & Beck, 1984). However, John Carroll's (1963) model of



learning, developed in the 1960's, still provides the foundation for most current discussion about time and learning (National Education Commission on Time and Learning, 1993). In Carroll's model, the student's success on a given task is proportionate to his spending the amount of time needed to learn the task. 'Opportunity to learn' was identified as a critical factor and defined as the amount of time allowed or allocated for learning (Carroll, 1963; Carroll, 1989). Allocated time has since been defined as the time available during school hours for a student to work on instructional objectives (Canady & Rettig, 1995a; Lammell, 1996; National Education Commission on Time and Learning, 1993).

A number of factors affect the time allocated for student learning. These include: the length of the school year, the number of days lost to employee professional development and inclement weather, and student absences (which are especially a concern at the high school level) (Justiz, 1984; Rossmiller, 1983). Taking an average school year of 180 days and a school day of six hours, yields a potential 1080 hours of allocated time. Assuming an average attendance rate of 90 percent, 108 hours of school time will be lost by the average student (Rossmiller, 1983). Also assuming that 5 percent of the scheduled school days will be lost as a result of inclement weather, employee professional development, and early dismissal due to special events, another 54 hours of allocated time is lost (Rossmiller, 1983). At this point the average student has only 918 of the original 1080 hours in which he or she is actually in school.

Additional factors affecting the amount of allocated time are related to the school day itself. Between assemblies, pep rallies, class changes,

lunch hours, and other regular noninstructional school functions more of the potential allocated time is lost. Various figures, ranging from 40 percent (Rossmiller, 1983) to more than 70 percent (Canady & Rettig, 1995a), have been given as the amount of time lost during the school day. The allocated time remaining at this point becomes available for use as instructional time.

### Instructional Time

Instructional time is defined as that portion of allocated time actually used for classroom instruction (Karweit, 1985). Ideally allocated time should be equivalent to the amount of instructional time. Unfortunately, many factors detract from the available amount of instructional time.

Beginning class a few minutes after the scheduled starting time, stopping the lesson a few minutes early, transitions from one activity to another, and talking about last week's 'big game' all consume valuable instructional time (Partin, 1989). Additional instructional time is absorbed by a variety of interruptions; drop-in visitors, outside noises, students arriving late, announcements, telephone calls, equipment breakdowns, taking attendance, and fulfilling other administrative processes. Perhaps the greatest detractor of instructional time results from the management of student behavior. Experts in the field have indicated that 16 percent to 18 percent of class time may be consumed by student discipline concerns (Canady & Rettig, 1995a; Justiz, 1984; Partin, 1989; Rossmiller, 1983). Poor preparation and planning on the part of the teacher such as; hunting for

misplaced papers and materials, clarifying directions, setting up audio-visual equipment, and distributing materials also take away from instructional time (Canady & Rettig, 1995a; Partin, 1989; Rossmiller, 1983). Instructional time that is remaining then becomes available to be used as engaged time.

### Engaged Time

For learning to occur, the student must be actively involved or engaged in the learning process. The Beginning Teacher Evaluation Study (Fisher, Berliner, Philby, Marliave, & Cahen, 1980), often cited as the landmark piece of research on time and learning, developed a measure of student classroom learning called Academic Learning Time (ALT). ALT was described as the amount of time a student spends engaged in an academic task that can be performed with high success by the student (Fisher et al., 1980). Interest in studying ALT grew rapidly and a variety of other names and definitions of student engagement or time-on-task are evident in the literature. For the purposes of this review, student engaged time or time-on-task is defined as the time during which the learner is 'paying attention' and 'trying to learn' and is determined by observers adhering to specific criteria set forth in their respective observation protocols (Karweit, 1985; Rossmiller, 1983).

The percentage of engaged time has been reported to range from 50 percent to 90 percent with an average student engagement rate of 70 percent of the instructional time (Karweit, 1985; Partin, 1989; Rossmiller, 1983). In a study conducted by Karweit and Slavin (1981), data from 12

classrooms in the same school district illustrate the diversity of classroom time use. Engaged time in these 12 classrooms ranged from 100 to 240 minutes of the day or from 42 per cent to 80 per cent of the instructional time.

In another study of high school general education classes conducted by Seifert and Beck (1984) the data were analyzed and then normalized into a 55 minute class length. Results indicated that the average number of minutes students were on-task was 28 and that individual classrooms reflected a range from a minimum of 17 minutes to a maximum of 34 minutes on-task during a typical 55 minute period. The data also showed relatively low engagement rates at the beginning of the class period, maximum engagement rates from 16 to 22 minutes into the class, and a second relatively low engagement rate at the end of the period. When the data were analyzed in comparison to particular instructional activities, the findings revealed that; students appeared more likely to be engaged during lecture/discussion formats, students were less likely to be engaged during block-of-time seatwork, and that 'waiting for help' appeared to cause the students to disengage from learning.

In general, wide variations in student engagement rates have been observed. The variations occur across days (Karweit & Slavin, 1981), throughout the day (Ebmeir & Zoimek, 1982), across seasons and types of weather patterns (Karweit & Slavin, 1981), across students (Ebmeir & Zoimek, 1982), and across classrooms (Karweit & Slavin, 1981). Individual student engagement rates have been described as being influenced by such things as interest in the subject (Ebmeir & Zoimek, 1982), attention span

(Ebmeir & Zoimek, 1982), motivation to achieve (Ebmeir & Zoimek, 1982), mode of instruction (Croll & Moses, 1988), behavior of classmates (Croll & Moses, 1988), skill of the teacher (Croll & Moses, 1988), physical conditions within the classroom (Karweit & Slavin, 1981), and the physical health of the student (Ebmeir & Zoimek, 1982). Higher engagement rates have been observed for girls, high ability students, and good readers (Ebmeir & Zoimek, 1982); while lower engagement rates have been found on Mondays, Fridays, and before and after holidays (Karweit & Slavin, 1981; O'Neil, 1995). The teaching format also influences student engagement. Teacher led discussion tends to elicit greater student involvement, while independent seatwork has been observed to provide the lowest levels of involvement (Croll & Moses, 1988; Seifert & Beck, 1984).

There has been much discussion regarding the relationship between engaged time and student achievement. It was originally thought that a direct and significant positive correlation existed, however more recent studies have indicated that student engagement has a moderately positive impact on student achievement (Karweit, 1985; Rossmiller, 1983; Seifert & Beck, 1984). Other factors such as student ability level, readiness for instruction, and the quality of instruction interact to affect the achievement gains (Karweit, 1985; National Education Commission on Time and Learning, 1993; Rossmiller, 1983).

Although the correlation between engaged time and student achievement is not as strong as first thought, it does play a critical role in student learning and concerns about the current levels of student engaged time appear warranted. Efforts to increase levels of student engagement,

coupled with efforts at increasing the appropriateness and quality of instruction are worthy of support (Karweit, 1985; National Education Commission on Time and Learning, 1993; Rossmiller, 1983; Wilson & Wesson, 1986).

### Summary

The traditional high school has changed little since the early 1900s. It has been characterized as factory-like and described as using an assembly line structure of getting information to students. Criticisms of the traditional high school include; low achievement rates, curriculum fragmentation, an over reliance on the Carnegie Unit of seat time, the use of out-dated teaching techniques, a lack of emphasis on higher-level thinking and problem solving skills, maintaining a depersonalized environment, making little connection or application to the real world, and an overall inefficient use of time. With the constant movement of students from room to room, the need for students to absorb information in each of six or seven different subjects on a daily basis, and with little opportunity to integrate the information absorbed, critics state that there is an urgent need to make better use of time (Boyer, 1983; Canady & Rettig, 1995a). Carroll (1990) provides perhaps the best summary of the traditional high school stating that "at no other time, whether at school or at work, is anyone placed in such an impersonalized, unproductive, frenetic environment" than in the typical high school (p. 365).

## Restructuring and the Traditional High School

Dissatisfaction with the programs, culture, and format of the traditional high school has been building over a number of years. As early as the late 1950's studies of the high school by James J. Conant (1959) raised concerns about the ability of high schools to serve our national needs. At the same time J. Lloyd Trump (1959) published Images of the Future: A New Approach to the Secondary School in which he challenged the use of staff and time in high schools.

Criticisms grew during the 1960s and 1970s and resulted in a number of reports to the public in the 1980s. "A Nation at Risk," the report of the National Commission on Excellence in Education (1983) and "Turning Points: Preparing American Youth for the 21st Century," a report released by the Carnegie Council on Adolescent Development (1989), are two examples of reports published in the 1980s. Similarly, a number of books written by acknowledged leaders in the field of education were written at this same time including, Ernest Boyer's High School in 1983, John Goodlad's A Place Called School in 1984, and TheodoreSizer's Horace's Compromise in 1984. A common thread through all of these books and reports was the agreement that America's schools were not performing satisfactorily and that great improvement was needed.

Dissatisfaction continues and high schools remain as the focus for many articles on school reform. The general criticism advocated by some experts that traditional high school programs are unsatisfactory is coupled with declining enrollments and an aging population. This combination has resulted in an erosion of the political base of support for public

education, thus making increased funding to improve program quality even harder to obtain.

In any attempt to improve quality, the literature has focused on three main issues: (1) the provision of an appropriate curriculum, (2) the provision of quality instruction, and (3) making the necessary accommodations to meet the needs of the diversity of learners. Each of these three areas will be looked at in terms of the traditional high school and the potential for reform.

### An Appropriate Curriculum

The literature indicates that high schools seeking to improve the quality of their curriculum encounter two main areas of concern, depth versus coverage and interdisciplinary studies. Each of these areas will be addressed in this section.

#### Depth Versus Coverage

Curriculum decisions in the traditional high school appear to be led by the conviction that 'more is better' and that anything that can enrich the meaning of the lesson will assist learning (Dempster, 1993). This has resulted in a curriculum of many courses, six or seven unrelated classes per day, taken in rapid succession. While such a curriculum enables the accommodation of numerous subjects, some critics argue that from the student's perspective each subject competes for time, and from an educational perspective it creates incoherence and promotes superficiality (Canady & Rettig, 1995a; Dempster, 1993;Sizer, 1984). Critics state that the



students' time is spent trying to keep pace, keep reacting, and keep adjusting to all the information with which they are presented (Raebeck & Beagle, 1988). This leads to little opportunity to think deeply or thoroughly about a topic or issue. Brooks and Brooks (1993) support this stance and note that, "for a good many students, success in school has very little to do with true understanding, and much to do with coverage of the curriculum" (p. 7).

Research on interference phenomenon (Blumenthal & Robbins, 1977; Brown, 1988; Dempster, 1988) has shown that the traditional coverage of the curriculum may even be detrimental to learning. Two types of interference, proactive and retroactive, are the most responsible. Proactive interference occurs when information previously presented obstructs the learning of new material. Retroactive interference results when new knowledge adversely effects the retention of previous learning. Dempster (1993) states that "the risk of interference is highest when a lot of similar information is presented and the material is not well-learned" (p. 435). Given the traditional high school schedule, with information being presented in each of six or seven classes through closely related instructional methodologies, the implications of interference phenomenon cannot be overlooked.

Prominent in the arena of school reform are calls for a new curriculum that teaches for depth and understanding rather than coverage of material and emphasizes higher-order thinking (Carnine, 1991; Dempster, 1993; National Education Commission on Time and Learning, 1993; Neumann, 1988;Sizer, 1984;Sizer, 1992). As Resnick (1987) so aptly

states, “although it is not new to include thinking, problem-solving, and reasoning in someone’s school curriculum, it is new to include it in everyone’s curriculum” (p. 7).

Because learning in depth and for understanding, rather than for memorization, takes more time, choices will have to be made about what content to include (National Education Commission on Time and Learning, 1993;Sizer, 1992). One example of these choices being made is occurring in the field of science and mathematics education. Both Project 2061 of the American Association for the Advancement of Science (1989) and groups such as the National Research Council (1989) and the National Council of Teachers of Mathematics (1989) have initiated major reform efforts that seek to restructure science and mathematics education in the United States. These organizations refer to the traditional science and mathematics curriculums as being “overstuffed and undernourished” and recommend that the “number of topics taught and their accompanying baggage of facts and terminology be greatly reduced” (Dempster, 1993, p. 434). The efforts of these organizations are striving toward the same goal based on the assumption that less material taught more effectively over several years will result in greater scientific and mathematical literacy for the general public.

In summary, proponents of depth versus coverage feel that decreasing the size of the curriculum will ultimately benefit the students. Exposing students to less content but in more depth will lead to greater learning than the current practice of exposing students to large amounts of

information with little true understanding taking place.Sizer's (1984) cry of "less is more" reverberates throughout the reform movement.

### Interdisciplinary Studies

During a typical day in the traditional high school students can see six or seven different teachers, each charged with teaching a different subject. Within this structure critics perceive that there is an isolation of curricular concepts and that students quickly come to perceive the content as separate pieces of unrelated information (Kruse & Kruse, 1995). Students are expected to independently process information for meaning with the assumption made that transfer of knowledge occurs automatically after a sufficient base of information is presented (Brooks & Brooks, 1993; Kruse & Kruse, 1995). Surveys of high school graduates negate this assumption however, as findings indicate that the knowledge base is "short-term and transfer occurs only sporadically" (Brooks & Brooks, 1993, p. 41).

Some experts theorize that the human brain as it attempts to store new information through reviewing, matching, comparing, and trying to pattern the new information with already existing knowledge will resist having isolated bits of information imposed on itself (Caine & Caine, 1990; Kruse & Kruse, 1995; Nummela & Rosengren, 1986). With this natural tendency to integrate information, any curriculum involving the presentation of information through separate and nonrelated means limits the students' ability to learn (Caine & Caine, 1991; Gunter, Estes, & Schwab, 1995; Kruse & Kruse, 1995).

These currently isolated curricular concepts however, are naturally connected in the real world and emphasizing these connections provides authenticity to the knowledge and assists the student in processing for meaning (Caine & Caine, 1991; Gunter et al., 1995; Kruse & Kruse, 1995). By looking through the eyes of different disciplines simultaneously, the student is able to see the interrelationships between the subjects and come to a truer understanding of the content (Gorman, 1971). Within such an interdisciplinary curriculum where subjects are integrated and overlap, the opportunities for making connections and extracting meaningful patterns and global relationships are enhanced (Caine & Caine, 1990; Caine & Caine, 1991; Kruse & Kruse, 1995).

### Summary

In order to provide a learning environment that emphasizes the connected, meaningful, and real understanding of information, the curriculum must consist of fewer subjects taken simultaneously. There must be a fuller integration of what is studied, with what has been and will be studied (Kruse & Kruse, 1995; Raebeck & Beagle, 1988). This is supported by a study on the restructuring of the American high school conducted by the National Association of Secondary School Principals (NASSP) in partnership with the Carnegie Foundation for the Advancement of Teaching (Lammel, 1996). The NASSP report, released in February of 1996, is divided into six areas of priority for renewal with one of those areas being the curriculum. The report lists the following recommendation for curriculum; "the high school will integrate its

curriculum to the extent possible and emphasize depth over breadth of coverage" (p. 6).

Part of the problem in bringing this recommendation to reality is that teaching for depth and understanding can be time consuming, taking up much more time than is typically allowed for within the traditional high school structure (Good & Brophy, 1994; National Education Commission on Time and Learning, 1993). The National Education Commission on Time and Learning (1993), based on numerous public hearings held across the country, has concluded that by treating time and not learning as the constant controlling factor, schools are acting as barriers as opposed to facilitators of improved learning. As Dalheim (1994) states, "one of the realities of schools today is that curriculum and learning are designed to fit time parameters, rather than time parameters designed to fit learning" (p. 21).

### Quality Instruction

Traditionally, the majority of instruction taking place in the high school has been focused on enabling students to memorize information. For the most part, it has been dominated by the teacher and relied heavily on textbooks, lectures, movies or videos. Assessment of learning has been based on quantitative data obtained through paper-pencil tests in multiple choice, true or false, or short answer formats that are designed to determine whether students can answer the teacher's or the textbook's questions. (Brooks & Brooks, 1993; Caine & Caine, 1995; Canady & Rettig, 1995a; Kruse & Kruse, 1995).

Critics of the traditional high school challenge many of the basic assumptions that they say have been inherent in traditional methods of instruction. Several main areas being challenged include the teacher's role in instruction, assessment of learning, and the influence of the learning environment. Each of these areas will be addressed.

### The Teacher's Role in Instruction

Whereas traditionally the teacher's role has been that of the 'purveyor of information', experts in education emphasize the need to change this role to one of the teacher acting as a 'facilitator of learning' (Poplin, 1988; Sylwester, 1995). This stems from the desire for instruction to be multifaceted, allowing students to experience from a variety of senses including visual, tactile, auditory, and emotional. Providing this type of an educational program requires utilization of a wide range of instructional approaches and methods, including classroom demonstrations, projects, field trips, visual imagery, best performances, stories, metaphors, and drama, while always placing a great emphasis on making connections to the real world (Caine & Caine, 1990; Lammell, 1996). Contrarily, some experts state that instruction that is not challenging or lacks the necessary complexity, will cause the students' attention to be diverted to whatever else is available (Nummela & Rosengren, 1986).

The teacher must be able to select from an array of methods and approaches that will enable the learners to experience the content in differing ways (Caine & Caine, 1990; Caine & Caine, 1991). These could

include questioning, using metacognitive strategies such as reflection and self-talk, and an interactive engagement with the content in order to construct new meaning that is personally relevant (Caine & Caine, 1990; Good & Brophy, 1994; Gunter et al., 1995; Harris & Pressley, 1991; Poplin, 1988). General techniques such as using a thematic or integrated subjects approach to content, offering frequent breaks and time for individual reflection, providing opportunities for hands-on activities, and encouraging group work through the use of cooperative learning strategies are recommended (Caine & Caine, 1991; Kadel, 1994; National Education Commission on Time and Learning, 1994; Swicegood & Parsons, 1991).

The ultimate responsibility for implementing instructional strategies belongs to the teachers. They will need to have skills in dealing with conflict and interpersonal communication, as well as be able to assist students in developing a metacognitive awareness of strategies of self-regulation (Caine & Caine, 1991). As teachers exercise these new skills, their role in the instructional process will be vastly different than that of a 'purveyor of information'.

### Assessment of Learning

While traditionally the assessment of student learning has been primarily based on quantitative data obtained through paper-pencil tests, it has recently been suggested that the assessment of student performance should rely heavily on qualitative measures. These measures may take the form of student products such as essays, letters, diaries,

advertisements, collages, dioramas, portfolios, self-ratings, and attitude surveys (Caine & Caine, 1991; National Commission on Time and Learning, 1993; Swicegood & Parsons, 1991). Placing emphasis on mutual respect and problem solving over traditional evaluation procedures is recommended (Caine & Caine, 1991; Carnine, 1991; Resnick, 1987; Sizer, 1992). In general, critics of traditional education purport that performance-based or authentic assessment techniques should prevail over traditional evaluation to continue the emphasis on meaningful learning for understanding.

### The Learning Environment

While traditionally the learning environment has often been ignored, some educational experts have noted the importance of the role that environmental conditions (light, noise, temperature, etc.), body language (gestures, posture, facial expressions, etc.), and tone of voice have on learning (Caine & Caine, 1990; Caine & Caine, 1991). An environment that involves low levels of threat and encourages feelings of self-confidence and relaxation is thought by some experts to enhance an individual's intrinsic motivation for learning (Gunter et al., 1995). The design of the classroom, the climate of the building, and the atmosphere of instruction in general, can either impede or contribute to the learning process (Gunter et al., 1995). Overall, some educational experts recommend that environmental choices should revolve around providing a stable, safe, and orderly learning environment while simultaneously providing for new and challenging stimuli (Caine &



Caine, 1991; Lammel, 1996; National Education Commission on Time and Learning, 1993).

### Summary

Traditionally, instruction at the high school level has taken the form of the teacher presenting information to the students, whose job it then was to independently remember, transfer, integrate, and be able to apply this information in a variety of contexts including putting the correct answer on paper-pencil tests. Critics to traditional schools are challenging this instructional methodology.

These educational critics suggest that content needs to be presented in multiple ways that utilize all the senses and emotions, new information must relate to prior knowledge, the entire learning environment must be taken into consideration and used, the student should be immersed in complex experiences that relate the knowledge to the real world, the student must be encouraged to actively question and reflect upon his or her understandings, self-concept must be fostered, and learning should take place in a risk-free environment where an emphasis is placed on mutual respect and problem solving. Above all, the responsibility for learning needs to be transferred from the teacher to the student (Good & Brophy, 1994). The best quality instruction is described by some to be multi-faceted, experientially-based, adapted to the students and the situation, and should take into account the purpose, goals, and subject matter.

## The Diversity of Learners

The traditional high school has been previously described as factory-like, impersonal, and utilizing a standardized structure for curriculum, instruction, and evaluation. It has been further described as a facility for 'batch processing' in which students are sorted by age or credits earned, and move in equal time allotments regardless of interest in the content and performance or level of understanding (National Education Commission on Time and Learning, 1993). Differences among students are especially apparent in regards to their rates of learning and their need for individualized, personalized attention. Each of these areas will be discussed further.

### Rate of Learning

Based on input gathered through numerous public hearings held across the country, the National Education Commission on Time and Learning (1993) concluded that traditionally, schools have been organized for teaching and not for learning. While predetermined schedules can be constructed for teaching, learning occurs on a far less predictable timetable. It is an indisputable fact that some students need more time to learn than do others.

Caine and Caine (1990) have stated there can be a five-year difference in maturation between any two 'average' students. Gunter, Estes, and Schwab (1995) note that five to six times the amount of time to learn may be needed by the lowest performing 10 percent of students compared to the 10 percent of students performing the highest. Learning

for depth and understanding takes time with estimates that some students may take as long as three weeks to learn some concepts (Gunter et al., 1995). Partin (1989) observed that most concepts and skills can be mastered by 80 to 95 percent of all students if they are given enough time. In a review of several observational studies, Partin (1989) found that teachers typically move on as soon as approximately 80 percent of the class has shown some level of mastery.

Given these differences in learning rates, the issue of finding a way to provide all students with the time they need to learn is critical. This was highlighted in a recent report issued by the National Education Commission on Time and Learning (1994) aptly titled Prisoners of Time which states:

Learning in America is a prisoner of time. For the past 150 years, American public schools have held time constant and let learning vary. The rule, only rarely voiced, is simple: learn what you can in the time we make available. It should surprise no one that some bright, hard-working students do reasonably well. Everyone else - from the typical student to the dropout - runs into trouble. Time is learning's warden. (p. 7)

### Individualized and Personalized Attention

Sylwester (1995) suggests that traditionally, schools have tended to be the most successful with motivated students of at least average intelligence who come from stable families and who can function reasonably well without much teacher assistance. Likewise, schools have been less successful with students who don't fit this profile (Sylwester, 1995). Given the diversity of today's student population, there are many

students who don't fit this profile and who do need more teacher assistance to experience success. The literature indicates consistently that students learn more efficiently when instruction is highly individualized and material is presented at the outer bounds of each student's zone of proximal development (Carroll, 1989; Carroll, 1990; Christenson, Ysseldyke, & Thurlow, 1989). Once the students receive the necessary individualized attention to experience success, that success breeds more success, and starts a spiral that pays instructional dividends, improves attitudes, and even lessens discipline concerns (Carroll, 1989).

Along with providing individual attention, establishing a personalized environment can enhance student learning (Ellis & Fouts, 1994; McLaughlin & Talbert, 1990;Sizer, 1984). Gorman (1971), in writing about the philosophical basis upon which high schools in America were built, contrasted the acknowledged goals of school with common practices. He included the following two points that address personalization:

We expect the student to discover and cultivate self, his own potential - but we present an impersonal and stereotyped curriculum.

We seek the students' respect and appreciation of others, but our highly formalized and routinized organization gives him little chance to really know others, either students or teachers, let alone appreciate them, understand them, take from them and give to them, (p. 135)

Personalization is often cited as a powerful means of promoting students' motivation for and engagement in the learning process, and appears to have particular benefit for 'at-risk' students (Ellis & Fouts, 1994; McLaughlin & Talbert, 1990;Sizer, 1986). A teacher's personal knowledge of the student makes it possible to assist that student in making

meaningful connections with the content, which then promotes learning (Caine & Caine, 1990; Caine & Caine, 1991; McLaughlin & Talbert, 1990; Schmoker, 1996). The Coalition of Essential Schools, an organization of schools across America that are actively working towards improving the quality of education, has made a commitment to increased personalization and paying closer attention to the needs and potential of each student (Sizer, 1986).

### Addressing the Diversity of Learners

Knowing that given enough time all students can learn, and that increased attention and creating a more personalized environment will enhance student learning; the question that arises is how schools can cause these things to happen. One common recommendation has been made that would enable schools to accomplish these goals, and includes the reduction of the number of classes students take and teachers teach (Canady & Rettig, 1995; Lammell, 1996; Sizer, 1984; Sizer, 1986). The Coalition of Essential Schools recommends that no teacher have direct responsibility for more than 80 students (Sizer, 1986). In *Breaking Ranks: Changing an American Institution*, a report of the National Association of Secondary School Principals (NASSP) study of the restructuring of the American high school, the recommendation states:

Each high school teacher involved in the instructional program on a full-time basis will be responsible for contact time with no more than 90 students during a given term so that the teacher can give greater attention to the needs of every student. (Lammell, 1996, p. 8)

### Restructuring Review

Restructuring calls for wholesale changes in the fabric of the structure or in the very nature of the educational organization. Using such a term meaningfully implies that the old structure cannot be reformed but must be replaced (Ellis & Fouts, 1994). In order for real changes to occur in classrooms, it has been said that a transformation of the definition of learning, of teaching, and of studenting will be required (Marshall, 1992). Attempts to restructure schools are tied to a general vision of improved environments for learning. Providing an appropriate curriculum, instruction of the highest quality, and the ability to successfully meet the needs of all students are admirable goals for any restructuring effort. Making the desired changes without any significant increases in funding, necessitates that schools become more efficient in their current use of all resources. One of the single most controllable, and therefore most powerful, operational decisions a school can make involves the allocation of time (Ryan, 1991). Time interacts with all the other features of a school's infrastructure (climate, facilities, governance, technology, etc.) to create a framework that affects almost everything about teaching and learning (Lammel, 1996; Lofty & Marnik, 1996; Shortt & Thayer, 1995). The importance of time is highlighted in the following excerpt taken from the National Education Commission on Time and Learning, 1994:

"Time" said Aeschylus 25 centuries ago, "teaches all things." Now at last we must learn its lesson about education: American students will have their best chance at success when they are no longer serving time, but when time is serving them. (p. 44)

## The High School and Block Scheduling

Changing the schedule has been identified as one of seven primary indicators of major restructuring occurring at the high school level (Canady & Rettig, 1995a; Cawelti, 1994). This section will focus on providing: (a) an historical view of scheduling variations, (b) a description of current block scheduling variations, (c) outcomes of block scheduling, and (d) drawbacks or concerns relating to block scheduling.

### Historical View of Schedule Variations

Flexibility in the construction and management of the high school schedule is not new. The schedule has always been amenable to some flexibility. For example, high schools, prior to the issue of the Carnegie report in 1910, offered many subjects on two, three, or four-day-a-week schedules (Gorman, 1971). Since the adoption of the Carnegie Unit, schedule flexibility has been characterized more by the addition of class choices or electives such as physical education, music, art, etc. and vocational classes such as home economics, shop, auto mechanics, etc. (Gorman, 1971). More recently, two major attempts at radical scheduling change have provided the basis upon which current schedule variations have been built. These are flexible modular scheduling and the Copernican Plan. Each of these will be discussed in more detail.

### Flexible Modular Scheduling

Forty years ago, educators were concerned about breaking down the barriers that inhibited schools from being responsive to learning. The

traditional organization of subject matter into classes of identical size, frequency, duration, and similar instructional patterns was viewed as being too inflexible and preventing individual student differences from being met (Goldman, 1983). Variations of schedules into block, back-to-back, rotational, and modular forms were tried (Carroll, 1989; Goldman, 1983; National Education Commission on Time and Learning, 1993). Flexible scheduling became the goal and as Goldman (1983) states, " what was being sought was continuing curricular adjustment, especially in time and instructional method, in order to respond to specific and changing needs of students" (p. 192).

The basic concept in flexible scheduling was that on any selected day, certain classes met for longer periods, and the schedule of the other classes was adjusted to accommodate the change (Carroll, 1989). Three main types of student groupings, each with different goals and related instructional methods, could be found in most flexible schedules (Goldman, 1983). Large group discussion was used as a format for the presentation of content through lecture, demonstration, and audiovisual aids. Small group discussion was aimed at inquiry, clarification, and debate around issues and ideas. Independent study for depth and extended exploration was conducted by one to three students working together with a teacher acting as an advisor and guide (Goldman, 1983).

The master schedule was constructed from basic building blocks called 'modules' which were units of time and class size. Modules of time generally ran in 20 minute increments, allowing for class lengths of 20, 40, 60, and 120 minutes etc.; while modules of class size were generally built



in groups of 10 students. Such a combination allowed for millions of combinations of times, class sizes, teachers, and rooms and often resulted in schedules that changed weekly, biweekly, or sometimes even daily (Goldman, 1983). At its zenith in the late 1960s and early 1970s, flexible modular scheduling (FMS) as it was known, was estimated to be in place in some form in about 15 percent of the high schools in the United States (Goldman, 1983).

Since these scheduling practices represented a radical departure from the long-established traditional high school schedule, they were soon the subject of many published articles and reports (Goldman, 1983). Many of the initial articles written on FMS consisted of unsubstantiated testimonials, stories of schedule development, and calls for advocacy of schedule change. In the late 1960s and through the 1970s, however, the literature on FMS began to become more evaluative in nature and attempted to provide some verifiable data (Goldman, 1983). An overview of the outcomes of FMS in each of the following areas will be given: (a) student outcomes including achievement, discipline, attendance, and use of individual study time; (b) teacher outcomes including teaching methods and behaviors; and (c) building outcomes including curriculum expansion, overall attitudes towards FMS, and other miscellaneous findings.

Student Outcomes. Many attempts, using various standardized tests, grades, and specific performance objectives have been used to measure the change in student achievement in FMS and traditionally scheduled schools (Goldman, 1983). One of the difficulties encountered by

researchers was the recognition that FMS was not a constant and that many variations of FMS occurred across schools limiting any generalization of results. In a comprehensive review of studies done on FMS, Goldman (1983) found student achievement to be, "probably no different, or at best mixed in different subjects or slightly better" in comparison to previous student achievement levels or when matched with control schools (p. 206).

Few studies reported data on student discipline and those that did showed no change in rate of major discipline problems, while showing large increases in minor offenses especially relating to poor student use of independent study time (Goldman, 1983). Similarly, few studies recorded student truancy or dropout data. Among the few that did address attendance, modest increases were shown (Goldman, 1983).

The largest single problem, indicated by the studies of FMS, was the students' use of unscheduled times that was intended to be devoted to independent study. The literature indicates that anywhere from 25 percent to 50 percent of the students abused or used this time poorly, often causing problems for others within the school (Goldman, 1983). This has often been cited as one of the major factors leading to the eventual discontinuation of FMS (Carroll, 1989; Goldman, 1983; National Education Commission on Time and Learning, 1993).

Teacher Outcomes. Enabling change in traditional instructional methods was a primary reason given by schools switching to FMS. Unfortunately, and despite a conspicuous dearth of studies on actual instructional methods used, little change was noted in teaching except that

traditional methods were used for different lengths of time and with different sized groups (Goldman, 1983). Additionally, it was found that individual student contact time did not increase and that teachers did not pursue opportunities to team teach or to otherwise pool their resources (Goldman, 1983).

Building Outcomes. Several building level outcomes of FMS were substantiated. FMS did serve to expand curricular offerings, especially in elective subjects (Goldman, 1983; National Education Commission on Time and Learning, 1993). Nearly all reports of FMS, anecdotal and empirical, note that use of the library increased tremendously (Goldman, 1983). Overall attitudes towards FMS appeared to be positive from both the students' and teachers' perspectives, but appeared less favored by parents and the community at large (Goldman, 1983). A large portion of the disapproval of FMS appeared to result from the concept of independent study time that quickly became free time and was often used by students for nonacademic pursuits (Carroll, 1989; Goldman, 1983).

### The Copernican Plan

The Copernican Plan is a much more recent attempt at radically changing the high school schedule and is directly responsible for much of the current focus on block scheduling. Joseph Carroll, a former superintendent of schools in Massachusetts, created and piloted what he called the Copernican Plan. The intent of the Copernican Plan was similar to that of flexible modular scheduling; the creation of an environment and structure that would accommodate better relationships between

teachers and students, enable better and more varied instructional practices, and would allow for a more manageable workload for both teachers and students (Carroll, 1989; Carroll, 1990; Kadel, 1994). The schedule change was seen as a means to an end rather than an end in itself.

In developing his plan, Carroll (1989) reviewed the literature in a number of areas. He looked at information on intensive learning and was especially interested in the role social relationships played in learning, in learning seen as an active process for students, and in the effects of retention of information. With respect to retention, Carroll found that the 'forgetting curve' levels out over time. Thus students would not forget any more by taking a course one fall and taking the next sequential course in that subject a year later, than they will forget over the typical summer vacation (Carroll, 1989). Carroll also looked at literature in cognitive psychology and the newer cognitive sciences, especially as it concerned learning for understanding and the need for learning to be individualized for each student by embedding learning in multiple experiences. The information on effective schools was also reviewed.

The result was a plan asking students to concentrate on one or two subjects at a time, each taught in an extended 'macroclass' of two to four hours in length (Carroll, 1989). The student would attend one four-hour class or two two-hour classes each day for 30 days. The student would also have a 35 minute lunch and an interdisciplinary 70-minute seminar daily that would focus on more complex, global issues in some depth (Carroll, 1989; Carroll, 1990). Similarly, the teacher would teach two two-hour

macroclasses or a single four-hour macroclass each day. This reduced the number of course preparations for teachers as well as reduced the student load to 50 to 75 students a day per term (Kadel, 1994).

The Copernican Plan was piloted for two years in Masconomet Regional High School in Boxford, Massachusetts. An evaluation of this pilot was conducted by a group of Harvard University faculty members over the same two-year period. The evaluation consisted of a series of interviews and questionnaires of students, faculty members, and parents, classroom observations, and an analysis of student performance on both standardized and teacher made assessments. Evaluation results showed: (a) higher levels of both student and teacher satisfaction with the education program, (b) closer student-teacher relationships, (c) both student achievement and retention of information were equivalent to that of students following the traditional schedule, and (d) students appeared to demonstrate significantly greater abilities to think through problems and to work cooperatively than students following the traditional schedule (Carroll, 1994).

Despite the positive findings, opposition from members of the school community not associated with the pilot program, coupled with general financial problems in the school district, resulted in the pilot program's demise at the end of the two-year period (Carroll, 1994). During the course of the two years that the Copernican Plan was in operation, it received national recognition and hosted visitors from across the country (Carroll, 1994). It set in motion a resurgence of attention on changing the

schedule as one means to aide in the restructuring of the traditional high school.

### High School Block Scheduling

The Copernican Plan has led to a trend toward scheduling larger blocks of time for classes during the school day. "Block scheduling" has been defined as the organization of the daily schedule into larger blocks of time (more than 60 minutes) to address curriculum fragmentation, to encourage teachers' use of more varied instructional activities, and to help provide more individual attention to students (Canady & Rettig, 1995a; Cawelti, 1993; Cawelti, 1994; National Education Commission on Time and Learning, 1994). While the basic purpose of block scheduling is to create a longer period of time for each class, there are a variety of ways that schools are going about doing this. The two most often used approaches are: (1) holding fewer classes per day that meet every other day for the full year (i.e. alternate-day, rotational block, A/B block, 8-block); and (2) scheduling fewer classes per term with the potential of more terms per year (i.e. trimester, quarter block, 4 x 4 semester block) (Block Scheduling Gaining Steam, 1996; Canady & Rettig, 1995a; Canady & Rettig, 1995b; Kadel, 1994; Kruse & Kruse, 1995). This manipulation of time still fulfills the seattime requirements of the Carnegie unit, though it does so in an accelerated fashion compared to the traditional schedule (Kruse & Kruse, 1995).

Block scheduling is currently on the increase in high schools across America. A survey of every accredited public and private high school in

the country, commissioned by the Alliance for Curriculum Reform in 1993, found that 11 percent of the near 3400 schools responding had instituted block scheduling (Stinson, 1994). It has been reported that up to 39 percent of high schools either had fully implemented, partially implemented, or were planning on implementing some form of block scheduling by the 1994-1995 school year (Canady & Rettig, 1995a; Hackman, 1995). The newsletter "CEC Today" (Block Scheduling Gaining Steam, 1996) stated that approximately 2,000 schools across the nation were using block scheduling, with many more taking it under serious consideration. The state of Virginia provides one example of the rapid growth of block scheduling. During the 1992-1993 school year only 5 of 285 high schools were operating a school-wide block schedule, however during the 1994-1995 school year this number had risen to 133 of 290 high schools (Canady & Rettig, 1995a; O'Neil, 1995).

While there are many versions of block schedules, this review will focus on the 4 x 4 semester block. In the 4 x 4 semester plan, students take four classes per semester with each class averaging 90 minutes in length. Students are able to complete a full year's credit in a subject in one semester and eight credits in a full school year. In contrast, a traditional schedule allows students to earn only six to seven credits per year, depending on the number of class periods per day.

A variety of effects or outcomes, attributed to be the result of switching to a block schedule, are reported in the literature. These effects will be presented next in terms of: (a) outcomes for students, (b) outcomes for teachers, and (c) general or building level outcomes.

### Student Outcomes

The literature indicates numerous outcomes for students under block scheduling. These outcomes fall into the following four general categories: (1) achievement, (2) attendance, (3) discipline, and (4) affective outcomes. Each of these will be addressed.

Achievement. Since the bottom line of any school reform is increased student success, monitoring student achievement is essential. Increased student achievement is consistently listed as an educational outcome of block scheduling (Buckman et al., 1995; Canady & Rettig, 1993; Canady & Rettig, 1995a). After one year on a 4 x 4 block schedule at Orange County High School in Orange County, Virginia, the percentage of students earning 'A's reached new highs in almost every department and at every grade level while the failure rate decreased (Edwards, 1995a). After one year on the 4 x 4 plan, Roy J. Wasson High School in Colorado saw a 6.7 percent increase in students on the honor roll and a 9.2 percent decrease in the failure rate (The Wasson Block Plan, 1995). Colonial High School in Orlando, Florida reported that from a random sample of 51 students in grades 10, 11 and 12, 54 percent of the students increased their grade point averages, while 10 percent maintained, and 35 percent decreased from the previous year (Buckman et al., 1995). Hatboro-Horsham Senior High School in Horsham, Pennsylvania reports that grades are up, more students are on the honor roll, and fewer students are receiving D and F grades or incompletes (Strocks & Hottenstein, 1994).



Dramatic improvements in the achievement of academically at-risk students have also been reported (Munroe, 1989).

Students taking advanced placement courses also appear to be major beneficiaries under the semester block plan. Overall increases have been noted in the number of students taking advanced placement classes and in the number of students passing the advanced placement exams (Edwards, 1993; Edwards, 1995a; Edwards, 1995b; Lammel, 1996; The Wasson Block Plan, 1995). Opportunities for dual post-secondary enrollment programs are also enhanced (Block Scheduling Gaining Steam, 1996; Brown, 1996; Cunningham & Nogle, 1996; Edwards, 1993). Because the 4 x 4 semester block enables students to earn credits faster than the traditional schedule (8 credits per year versus 6 or 7), required coursework could be completed earlier. This allows students the opportunity to devote a period of study in the area of the student's career choice (Edwards, 1993). The increased options resulting from the 4 x 4 plan can be summarized as:

Schools on semester block schedules give all students more flexibility as to graduation time, work schedules, and post secondary training. Some students earn enough credits to graduate early and start college or vocational training their junior year. Others attend school half a year and work half a year, an option employers like because it allows them to schedule students to work at times when they are most needed. (Block Scheduling Gains Steam, 1996, p. 9)

In general, the 4 x 4 semester block plan gives students the opportunity to complete more courses during their four years of high school. This is especially helpful for those students who may have failed a class or dropped out. Failed classes can be retaken the following semester

instead of waiting until the next school year so the students' progress toward graduation is not delayed (Brown, 1996; Edwards, 1993). Students who return to school after dropping out can make up credits in semesters rather than full years and this serves as a motivator to keep them in school (Brown, 1996; Kadel, 1994). Also students who may need more time to complete required courses can take them at a slower pace without adversely affecting their graduation status (Dalheim, 1994; Edwards, 1993; Kadel, 1994).

Attendance. Increased student attendance rates, along with decreases in truancy and tardy rates, are frequently reported outcomes of block scheduling (Canady & Rettig, 1993; Canady & Rettig, 1995a; Munroe, 1989). Roy J. Wasson High School reported a 4.4 percent increase in student attendance and decreased truancy and dropout rates after one year (The Wasson Block Plan, 1995). Attendance rose from 88 percent to 90 percent at Evans High School in Orlando, Florida after one year on the semester block schedule (Buckman et al., 1995). Colonial High School in Orlando, Florida reported dramatic improvements in attendance going from an average daily rate of 89 percent to 92 percent in the first year of the block plan (Buckman et al., 1995).

Discipline. Fewer suspensions and disciplinary infractions are often mentioned (Buckman et al., 1995; Canady & Rettig, 1993; Canady & Rettig, 1995a; Festavan, 1996). Edwards (1995b) stated that 59 percent of the teachers at Orange County High School in Virginia reported less inappropriate classroom behavior. While in a traditional schedule with

seven periods a day there are five between class transitions, a 4 x 4 semester block schedule has only three between class transitions. This is a significant reduction in time spent changing classes and can have a substantial impact on student behavior. The principal of North DeSoto High School in Stonewall, Louisiana stated that:

The first change we saw was almost immediate - a drastic reduction in discipline problems. Most discipline problems, especially fights, originate in the hallways between classes. Since students are spending more time in the classroom and less time in the hallways, the number of fights decreased. (Festavan, 1996, p. 19)

Affective Outcomes. One of the advantages for students on a semester block schedule appears to be a significant decrease in their perceived level of stress (Block Scheduling Gaining Steam, 1996; Munroe, 1989; Reid, 1995; The Wasson Block Plan, 1995). A schedule with fewer classes allows students to focus their attention on these classes and concentrate more on in-depth learning (Block Scheduling Gaining Steam, 1996; Lammel, 1996; The Wasson Block Plan, 1995). At Orange County Virginia High School, 72 percent of the students indicated that they found it easier to focus on assignments and 72 percent believed that they understood their lessons better (Edwards, 1995b). With no more than four teachers a day, students have fewer differences in learning and behavior expectations to address (Edwards, 1993). Students are able to learn more efficiently without becoming burned out and, even in the worst situations, both teachers and students know the relationship will end at the end of the semester as opposed to at the end of the year (Block Scheduling Gaining Steam, 1996; Carroll, 1989). Additionally, there appears to be an

increase in positive social interactions among students and a more positive attitude towards school in general (Buckman et al., 1995; Edwards, 1995b; O'Neil, 1995; The Wasson Block Plan, 1995).

### Teacher Outcomes

The literature indicates that semester block scheduling impacts teachers in two broad areas. First, the longer class time facilitates the use of innovative and varied instructional methodologies that more effectively involve students in their own learning. Second, the longer classes enable teachers to provide more individualized attention to those students in their classes who need more assistance. Each of these areas will be discussed in more detail.

Variety of Teaching and Active Learning Modes. The longer class periods allow teachers to offer learning activities that actively involve students and give them time to apply their understanding and skills to enhance their learning (Block Scheduling Gaining Steam, 1996; Buckman, et al., 1995; Lammel, 1996). With the longer time frames, teachers are able to structure full lessons, introducing concepts, discussing them, and bringing the class to a closure (Buckman et al., 1995; Shortt & Thayer, 1995). The fewer number of class preparations allows teachers on a semester block schedule to devote more time to planning instruction, to provide for more in depth coverage of the content, and to analyze the effectiveness of their instructional approaches (Block Scheduling Gaining Steam, 1996; Brown, 1996; Edwards, 1995a; Hackman, 1995). While critics often point out that semester length classes will prevent covering as much

of the curriculum as year-long classes do, teachers at Atlee High School in Hanover County, Virginia, reported that the longer classes gave them the opportunity to teach concepts they never had time to teach on the previous traditional schedule (Shortt & Thayer, 1995).\_

One of the main premises behind the creation of larger instructional blocks was that the extended class periods would give teachers more instructional flexibility (Carroll, 1990; Salvaterra & Adams, 1995; Sizer, 1992). Buckman et al. (1995) reports that major differences are occurring in teachers' methodologies including greater use of cooperative learning strategies, integrated curriculum offerings, and multi-intelligence instruction. At Orange County High School in Virginia, 84 percent of the teachers indicated that they were experimenting with new instructional techniques. Increased use of technology, cooperative learning, discovery learning, hands-on and other application-related instructional strategies are consistently reported (Block Scheduling Gaining Steam, 1996; Brown, 1996; Edwards, 1993; Festavan, 1996; Kadel, 1994; Munroe, 1989; Strocks & Hottenstein, 1994; The Wasson Block Plan, 1995).

Festavan (1996) reports that teachers across the building are using a greater variety of teaching approaches. The days of 'seatwork' or plain lecture for a full class period are gone as it is unrealistic to teach a 90-minute class using these techniques (Festavan 1996; Kadel, 1994). At L. D. Bell High School in Texas, the staff implemented the concept that the basic teaching techniques should change at least three times within the extended class period (Brown, 1996). The longer chunks of time devoted to each subject act as a catalyst for classroom innovation. As O'Neil (1995)

says, "the longer class periods liberate teachers whose innovative methods didn't fit the traditional schedule - and provide a nudge to teachers who 'stand and deliver'" (p. 12). Reports from schools switching to block scheduling confirm that teachers are able to shake off old instructional habits, however; the provision of quality teacher inservice and support is emphasized as being essential to this process (Cunningham & Nogle, 1996; Lofty & Marnik, 1996; O'Neil, 1995; Shortt & Thayer, 1995).

The block schedule offers promise in adding greater relevancy and authenticity to a school's curriculum (Kruse & Kruse, 1995). It allows for and appears to be resulting in teams of teachers sharing concepts, collaborating, and providing interdisciplinary courses (Kadel, 1994; Kruse & Kruse, 1995; Lofty & Marnik, 1996; National Education Commission on Time and Learning, 1994; The Wasson Block Plan, 1995). All of these things are expected by some experts to have a positive impact on the quality of instruction, and ultimately improve student performance (Edwards, 1993).

**Individualized Attention.** Ninety day courses and the four-period day significantly reduce the teachers' workload, allowing them to work with three-fifths as many students and have no more than three preparations. With fewer classes, fewer students, and 25 percent of their school time unencumbered, teachers are able to give greater attention to meeting the individual learning needs of their students (Edwards, 1993; Lammel, 1996; O'Neil, 1995). They are able to plan for small groups or even individual students in classes, preparing learning activities most appropriate for each student's learning style and designing lessons that

accommodate individual differences (Carroll, 1989; Kadel, 1994; Lammel, 1996).

The reduced student load enables teachers to get to know their students personally and thus to encourage connections with the content that are meaningful to individual students (Buckman et al., 1995). During the actual class periods, teachers report they now have the time to give students the more individualized attention that they need (Brown, 1996; Buckman et al., 1995; Edwards, 1993; The Wasson Block Plan, 1995). As Brown (1996) states, "the additional class time with slower achieving students is something every teacher wishes they had" (p. 37).

### Building Level Outcomes

Block scheduling has received strong positive support from teachers, students, parents, and the community-at-large. After one year on the 4 x 4 block schedule, 94 percent of the teachers and 93 percent of the students at Orange County High School in Virginia favored this schedule to the previous seven-period day (Edwards, 1995b). At four different high schools in the state of Colorado, interviews with teachers and students indicated that a clear majority favored the block schedule and urged that it be retained (Reid, 1995). Eighty percent of teachers and an even larger percent of the students respond positively in regards to continuing the block schedule according to Lynn Canady, an education professor at the University of Virginia and a consultant to schools adopting block scheduling (Block Scheduling Gaining Steam, 1996). Strong preferences for semester block scheduling over previous traditional scheduling

practices are commonly reported by all members of the school community (Cunningham & Nogle, 1996; Lofty & Marnik, 1996).

An increase in class options is also reported as an outcome of block scheduling (Robbins & Geiger, 1996). The 4 x 4 semester block plan allows students to take more courses over their high school careers, even providing for up to two years of post-secondary studies through dual enrollment to occur as part of a student's high school program (Edwards, 1995b).

Library use is drastically increased as students now have time to do quality research and work on independent projects as a part of their classes (Festavan, 1996). Along with use of the school's library, the greater flexibility offered by the semester block schedule allows schools to take advantage of instructional resources in the community such as; workplaces, community libraries, services and programs offered by community agencies, and cultural centers and events (National Education Commission on Time and Learning, 1994). An increase in school community partnerships, school and business partnerships, and the opportunity to incorporate community service into the curriculum are also indicated (Edwards, 1993; Edwards, 1995b; The Wasson Block Plan, 1995).

Greater levels of student participation in school-related activities have been reported (The Wasson Block Plan, 1995). An overall improvement in the building climate, described as "it seems less frantic" is frequently cited (Buckman et al., 1995; Hackman, 1995; Reid, 1995). Orange County High School in Virginia reported that an unexpected



outcome of its switch to block scheduling was the benefit gained by the ninth-graders. The transition to high school, often the most perilous time in a student's school career, was much more successful and this group of students appeared to outperform all the other students in terms of increased attendance, grades, and positive attitudes toward school (Edwards, 1995b). Miscellaneous building outcomes also include no additional costs for implementing a block schedule and the need for only half as many textbooks in any subject during a term (Edwards, 1993; Edwards, 1995b).

### Concerns Regarding Block Scheduling

While there appear to be many positive outcomes to be gained from switching to a semester block schedule, there are also areas of concern. Consideration needs to be given to the following issues: (a) the critical need for staff development, (b) retention of information, (c) procedural concerns, (d) student-centered concerns, and (e) program evaluation. Each of these areas will be addressed.

### Staff Development

Those familiar with the flexible modular scheduling movement of the 1960s and 1970s say that today's educators should learn from the lessons of that failed innovation. One piece that was missing then was any kind of systematic staff development (Canady & Rettig, 1995a; O'Neil, 1995). Staff development on instructional techniques and curriculum development is deemed as being vital for the success of block plans (Block

Scheduling and Inclusion, 1997; Canady & Rettig, 1995a; Cunningham & Nogle, 1996; O'Neil, 1995). Although longer classes support instructional innovation, they don't necessarily result in it. While advocates of block scheduling argue that by training teachers to vary their instructional methodology students will learn more, critics point out that in reality little actually changes and we are simply doing the same thing only "longer and harder" (Kruse & Kruse, 1995, p. 4).

Staff development needs to be an on-going process rather than a single-day inservice program with the focus on identifying effective teaching techniques (i.e. team-teaching, interdisciplinary teaching, cooperative learning, student assessment, classroom and time management, learning styles, and the use of technology) as well as long and short term planning (Block Scheduling Gaining Steam, 1996; Buckman et al., 1995; Canady & Rettig, 1995a; Cunningham & Nogle, 1996; Shortt & Thayer, 1995). The shift from a 45 - 55 minute class period to a longer block class requires that teachers rethink their daily lesson planning and change their attitudes towards planning in general (Buckman et al., 1995; Shortt & Thayer, 1995). Teachers have expressed concern over academic pacing when switching to a block schedule (Shortt & Thayer, 1995). It has also been reported that more time and involvement in planning for substitutes is necessary (Buckman et al., 1995).

### Retention of Information

Another serious concern raised about block scheduling is whether or not students learn as well and retain as much information as students taught in a traditional schedule (Block Scheduling Gaining Steam, 1996; Kadel, 1994; Shortt & Thayer, 1995). Questions have been raised about the time lag that could occur between sequential courses when following a semester block plan (Block Scheduling Gaining Steam, 1996; Shortt & Thayer, 1995). For example, students may complete Algebra I in the fall semester and not take Algebra II until the following fall semester,

Canady & Rettig (1995a) point to literature from the field of cognitive psychology indicating that less than a five percent difference in retention of information was demonstrated by groups of students tested immediately upon course completion, four months later, and 11 months later. This literature also indicated that retention over time was greatly affected by the degree to which students originally learned the information. Learning information at higher cognitive levels such as comprehension and application resulted in greater retention over time. A Harvard research team evaluating the pilot test of Joseph Carroll's Copernican Plan found that:

the block scheduled students learned at least as well or as much as the control group. The Copernican students also retained the learning over time; even when Copernican students took a test in December that the control group did not take until June, the groups scored equally well on the same test the following fall. (Kadel, 1994, p. 14)

Students who are preparing to enter end-of-year competitions or take advanced placement courses may be challenged by block scheduling

(Kadel, 1994; Shortt & Thayer, 1995). When these courses are taken during the first semester and the exam is not given until May, how does this time lag effect the student's level of success? On the other hand, if the advanced placement course is taught from January or February to June, will the student have covered the necessary material by the time the test is given in early May (Kadel, 1994).

### Procedural Concerns

One of the most difficult challenges of block scheduling occurs in relation to transfer students. The transfer issue, often difficult under normal circumstances, is exacerbated by block schedules (Block Scheduling Gaining Steam, 1996; Kadel, 1994; Shortt & Thayer, 1995). Problems arise when students transfer between blocked and nonblocked schools, between schools using different versions of blocked schedules, and are further affected by the time of year the transfer takes place (Block Scheduling Gaining Steam, 1996; Shortt & Thayer, 1995). Students may have difficulty adjusting to the different schedule, catching up, or transferring credits (Kadel, 1994).

Several other procedural issues also need to be addressed by schools considering switching to a blocked schedule. Attention needs to be given to potential conflicts with teacher contracts regarding the number of students taught, the number of contact hours per week or year, the length of the school day, and time for staff meetings and professional development activities (Shortt & Thayer, 1995). Long range planning needs to address any potential decrease in the number of faculty as a result

of teachers teaching more classes per year (Shortt & Thayer, 1995). Also, although the initial year of implementation may not appear to require additional funding, this issue may emerge in following years, especially if the number of electives increases (Shortt & Thayer, 1995).

### Student-Centered Concerns

A chosen block schedule may not necessarily be better for all students and flexibility in allowing for individual adjustments of the schedule will enable a better 'fit' for some students (Lofty & Marnik, 1996). For example, the balance between academics and electives may need special attention to meet the needs of certain students (Shortt & Thayer, 1995). Students, like adults, differ in the extent to which they are able to focus intensely on demanding materials for long periods (National Education Commission on Time and Learning, 1994). Also students who are assigned to a mediocre or weak teacher for one or more blocks may need extra support (Kadel, 1994). Students may have difficulty catching up after they have been absent, however advocates of block scheduling are quick to note that making up missed work is probably not any easier for students who miss six or seven classes per day than for those who miss four longer classes per day (Kadel, 1994).

Making school more manageable by implementing a simpler schedule may help motivated students, but there is some question regarding the impact on those students who are less motivated (Edwards, 1993). Edwards (1995b) indicates that based on first year data, "it appears that semester length courses make it easier for capable, motivated students

to improve their grades ... students who miss class or do not keep up with their studies are more likely to fail" (p. 27). Student attendance is a variable that needs to be carefully monitored to ensure student success under block scheduling.

### Program Evaluation

Although there are many arguments for schools to consider a move to block scheduling, hard data on the effects are scarce (Edwards, 1995b; Ellis & Fouts, 1994; O'Neil, 1995). The collection and analysis of objective data on the following behaviors is recommended as an aid in determining the effectiveness of the implementation of a block scheduling plan. Behaviors to monitor include: (a) student achievement, (b) performance on standardized tests or minimum competency exams, (c) student and teacher attendance, (d) discipline referrals, (e) dropout rate, (f) graduation rate, (g) comparisons with past student achievement even though there may be mitigating factors, (h) modified or changed teaching behaviors, (i) number of students enrolled in and passing upper level courses, (j) success of special needs students in finding meaningful employment after completing high school graduation requirements, (k) number of students who continue on to post-secondary education, and (l) parent, student, and faculty levels of satisfaction over time (Canady & Rettig, 1995a; Edwards, 1995b; Ellis & Fouts, 1994; Shortt & Thayer, 1995).

Much of the current literature on block scheduling is either anecdotal in nature or involves the reporting of internal results for individual high schools. Evaluation research designed to systematically

determine the efficacy of implementing block schedules, especially in comparison with similar districts following traditional scheduling practices, is lacking (Canady & Rettig, 1995a; Carroll, 1994; Edwards, 1995b; Ellis & Fouts, 1994; O'Neil, 1995). Such research however, is desperately needed to make meaningful restructuring decisions in this area (Carroll, 1994; Edwards, 1995b; Ellis & Fouts, 1994).

### Summary

Block scheduling has been described as one of the components of the school of the future (Kruse & Kruse, 1995; Trump, 1959). It is driven by a commitment to principles of learning that simply could not be accommodated by the old time slots and provides part of the structural foundation that supports curricular innovation and acts as a catalyst for change (Ashby & Ducett, 1996; Block Scheduling Gaining Steam, 1996; Cushman, 1989; Kadel, 1994). It enables more courses to be taught and taken each year; appears to positively affect student achievement, attendance, and discipline; encourages the use of a wider variety of teaching and active learning modes; enables high levels of individualized attention to be given to students; and increases opportunities for school-community partnerships. In general, there appear to be consistently positive attitudes towards block scheduling from students, staff, parents, and the community-at-large. Shortt and Thayer (1995) summarize that:

In the traditional school, time has drawn the schedule and forced classes to adhere to time restraints, encouraging teacher-directed lessons and discouraging highly interactive student learning.

In the school that uses a block schedule, time is a

resource that permits greater amounts of time for student learning, laboratory work, and student-directed interactive activities. (p. 62)

How block scheduling may specifically relate to the needs of secondary students with LD will be discussed next.

### Secondary Students With LD and Block Scheduling

As this review of literature has indicated, there are a number of characteristics common to adolescents with LD. Most notably these students are described as being passive learners who are simply not engaged in the learning process and who have a tendency to experience high rates of school failure, often resulting from excessive absences and disciplinary problems. In order for these students to experience success in school, they require greater levels of individualized attention, more time to acquire skills and concepts, and to be more actively engaged in the learning process.

This literature review also described the educational reform movement as it has impacted the traditional American high school and one reform in particular, block scheduling, that is on the increase in secondary schools across America. Student outcomes for which block scheduling is attributed as being the catalyst for change include; higher student achievement, higher attendance rates, decreased discipline problems, lower levels of student stress, more positive social interactions, and an increasingly positive attitude towards school. Teacher outcomes reported as resulting from changes facilitated by block scheduling include; an increase in the variety of teaching and learning modes utilized



accompanied by higher rates of active student engagement in the learning process, and the establishment of closer connections to students with the time to provide more individualized student attention.

When block scheduling is viewed in terms of the impact it could have on the population of secondary students with LD, it appears to enable many of their needs to be met. Specific advantages and concerns relating to block scheduling for secondary students with LD have been reported and will be addressed next.

### Advantages for Students With LD

The activities-based or hands-on approaches to learning that block scheduling allows for may in some ways be better suited to the learning strengths of secondary students with LD (Block Scheduling Gaining Steam, 1996; Marshak, 1997). These approaches emphasize active manipulation of concrete phenomena and de-emphasize the language and literacy requirements in which many students with LD are deficient (Scruggs & Mastropieri, 1993). The greater variety of learning activities also provides a better response to the learning style diversity among students and thus helps all students to be more fully engaged in the learning process (Marshak, 1997). As this variety of approaches often involves different group structures, social skill needs of secondary students with LD can more readily be addressed (Block Scheduling Gaining Steam, 1996; Marshak, 1997).

An additional advantage that block scheduling has for students with LD is in the reduced number of classes that students take at any one

time (Block Scheduling Gaining Steam, 1996). When these students must focus on only four subjects per semester, versus six or seven subjects in the traditional schedule, their chances for success may be greater (Canady & Rettig, 1995a). They have less information to remember, fewer classes to prepare for, and can concentrate on fewer subject areas at one time (Block Scheduling and Inclusion, 1997; Block Scheduling Gaining Steam, 1996). Under block scheduling, students could schedule two academic courses and two elective courses per semester, further limiting the amount of work on which they have to concentrate (Block Scheduling Gaining Steam, 1996). Another option would be for students to enroll in three academic courses per semester and schedule the fourth block as time to receive assistance from the special education teacher (Canady & Rettig, 1995a).

An increase in the amount of individualized attention that secondary students with LD are able to receive is also advantageous. In fact, some teachers say that it is easier to work with students having behavior or attentional problems because, in the block schedule, they are able to reinforce positive behaviors for a longer period of time (Block Scheduling Gaining Steam, 1996). Also it is possible for the special education teacher to travel to two or three different classes during a block, thereby providing additional student assistance without the need for clustering or tracking students into specific course sections (Canady & Rettig, 1995a).

Overall, those special education teachers and students whose high schools have switched to a block schedule praise the new schedule (Block

Scheduling and Inclusion, 1997; Block Scheduling Gaining Steam, 1996). Despite this praise, there have been some concerns raised regarding how block scheduling may impact students with LD.

### Concerns for Students With LD

Because block class periods often require students to become more active, self-directed, and responsible learners, they also tend to require a high level of student competence in terms of study and learning skills (Marshak, 1997). In one longer class period, a student may be required to do all of the following; listen carefully, take notes, use various kinds of text resources, read flexibly, participate in class or small group discussions, and use visual materials (Marshak, 1997). As has already been noted in this review of literature, many of these study and organizational skills represent deficit areas for students with LD.

Concern has also been expressed over the amount of work missed if a student is absent from a class, especially if the absence extends over several days due to student illness (Block Scheduling Gaining Steam, 1996). Results are also mixed on whether block scheduling reduces discipline problems for students with LD (Block Scheduling Gaining Steam, 1996). Finally, research has yet to be done on what effect block scheduling has, if any, on the achievement of this population of students (Block Scheduling Gaining Steam, 1996).

## Summary

Given the characteristics of secondary students with LD, the variety of instructional contexts they encounter each day, the numerous demands to which they need to respond, and the importance of time spent actively engaged in the learning process, careful research into quality teaching procedures is critical for the success of this group of students. While there is little systematic data regarding the efficacy of block scheduling, the literature is especially void of any mention of its effect on the population of secondary students identified as having LD.

Therefore the purpose of this study was to investigate the impact of changing from a traditional schedule to a block schedule on selected school-related behaviors of secondary students with LD and their regular education teachers. Areas of impact that were addressed included school performance measures of success rates, attendance rates, and discipline referrals as well as affective measures of levels of students' active engagement in learning activities, the variety of teaching and learning modes used, and the amount of individualized teacher attention given to students in each setting.

## Study Questions

The following six questions were used to provide a focus for this study:

1. Were there differences in students' success rates in each setting?
2. Were there differences in students' attendance rates in each setting?

3. Were there differences in the number and type of students' written discipline referrals in each setting?
4. Were there differences in the level of students' active involvement or engagement in learning activities in each setting?
5. Were there differences in the variety of teaching and learning modes used in each setting?
6. Were there differences in the amount of individualized attention given to students in each setting?

## CHAPTER III

### METHODOLOGY

#### Introduction

The purpose of this chapter is to present the overall methods and procedures used in this study along with supportive rationale where appropriate. Discussion includes: (a) a description of the research design, (b) a description of the research population, (c) data collection procedures, and (d) a description of the study questions, research hypotheses, and data analysis methods.

#### Research Design

The design of this study involved data collection from two data sources, historical records and direct observation. Data from historical records were collected and compared across school settings (target and control) and years (1995/96 and 1996/97) on student success rates, attendance rates, and discipline referrals. All data were collected as anonymous group data with no personally identifiable information recorded. Data were labeled only by building, schedule type, and year.

Data from direct classroom observation was collected for students with LD, their nondisabled peers, and their regular education teachers. This data was compared across school settings (target and control) on levels of students' active engagement in learning activities, the variety of

teaching and learning modes used, and the amount of individualized teacher attention given to students. Data was collected anonymously with no personally identifiable information and disaggregation was possible only for building and school setting.

Because this study involved human subjects, approval of the study methodology and related instrumentation was obtained from the Human Subjects Institutional Review Board at Western Michigan University (see Appendix A). Approval letters from each of the six schools can be found in Appendix B.

### Independent Variables

The independent variables for this study were the school year and the type of scheduling used by the high school. The two school years were 1995-1996 and 1996-1997. The two types of scheduling used in this study were 4 by 4 block scheduling and traditional scheduling.

#### 4 x 4 Block Scheduling

The block scheduling format followed by the target schools in this study was called a 4 x 4 semester block schedule. It involved students taking four 90-minute classes per day with five to seven minutes allowed for passing time between classes. A full credit was earned for each class successfully passed at the end of an 18 week semester; with one-half credit earned for each class successfully passed at the end of a nine week quarter. Students were able to earn a maximum of eight credits per school year (during the regular school day).

### Traditional Scheduling

The traditional scheduling followed by the control schools in this study involved students taking six classes per day averaging 58 minutes in length with five minutes allowed for passing time between classes. A full credit was earned for each class successfully passed at the end of two 18 week semesters; with one-half credit earned for each class successfully passed at the end of one 18 week semester. Students were able to earn a maximum of six credits per school year (during the regular school day).

### Dependent Variables

The dependent variables in this study included: (a) the number of credits earned compared to credits attempted, (b) student grade point averages, (c) student attendance rates, (d) numbers and types of written student discipline referrals, (e) levels of student engagement in the classroom, (f) teaching strategies and student learning activities used in the classroom, and (g) levels of teacher attention given to individual students in the classroom.

### Research Population

Three high schools in southcentral Michigan which initially implemented comparable versions of a 4 by 4 semester block schedule during the 1996-1997 school year served as the target schools for this study: (1) Battle Creek Central High School, (2) Lakeview High School, and (3) Harper Creek High School. Each of these schools changed from a six period school day in the 1995-1996 school year to the new four period



school day starting in August of 1996. During the 1996-1997 school year, students at each of these schools took four 90-minute classes per day with five to seven minutes passing time allowed between each class. Classes at all three schools started at 7:45 in the morning and let out at approximately 2:50 in the afternoon.

In addition, both Battle Creek Central High School and Lakeview High School held half day classes on Mondays with all four classes scheduled for shortened periods of time during the morning. As a result, no observational data was collected from either of these schools on Mondays.

Three high schools having demographics similar to each of the selected target schools and which were following a traditional scheduling format were identified as control schools: (1) Lansing Everett High School, (2) Gull Lake High School, and (3) Charlotte High School. Students at each of these schools took six classes per day averaging 58 minutes in length with five minutes passing time allowed between each class. Classes started from 7:45 to 8:30 in the morning and let out from 2:50 to 2:57 in the afternoon.

Charlotte High School held shortened classes on Wednesdays, dismissing students one hour early. As a result, no observational data was collected from Charlotte on Wednesdays.

During the second semester of the 1996-97 school year, Lansing Everett High School scheduled only four classes on Tuesdays, Wednesdays, and Thursdays. All six classes were held on Mondays and Fridays and each class met four times per week. As a result, observational

data from Lansing Everett High School was collected only on Mondays and Fridays.

Primary demographic factors used for control school selection included socioeconomic status (determined through free and reduced lunch rates), student enrollment, and staff to pupil ratio. Other demographic factors taken into consideration during control school selection included; the percent of the school population identified as being eligible for special education services, student diversity, and geographical distance from the target schools. Table 1 summarizes the primary demographic factors for all the schools in this study.

Table 1  
Demographic Factors of Selected Schools

School	Free & Reduced Lunch Rate <sup>a</sup>	Student Enrollment	Staff to Pupil Ratio <sup>b</sup>
Target			
Battle Creek	34.8	1290 <sup>c</sup>	80.5
Lakeview	5.2	1015	75.9
Harper Creek	9.4	817	78.8
Control			
Lansing Everett	33.4	1754	81.4
Gull Lake	3.2	814	76.3
Charlotte	8.9	1003	80.5

**Note.** Data reported was from the 1995-1996 school year.

<sup>a</sup> All values listed in this column are percentages. <sup>b</sup> Ratio showing the number of staff members per 1000 students. <sup>c</sup> Battle Creek Central High School enrollment includes grades 10-12 only, while all other high schools include grades 9 -12.

## Subjects

Subject selection procedures were standardized for all six schools included in this study. The specific procedures used to select both the subjects for the historical record data collection and for the direct observation data collection are listed below. All subjects were identified by designated building contact persons as per a worksheet given to them by the researcher (see Appendix C). A designated building contact person was a member of the school staff with legal access to students' school records.

### Subjects for Historical Data Collection

All 10th through 12th grade students documented as having a learning disability (LD) on a current Individualized Educational Plan as of the fourth Friday of the 1996-1997 school year comprised the initial student sample. This initial sample was then screened to eliminate those students who had not been continuously enrolled at their respective schools from the beginning of the 1995-1996 school year. All students remaining after this screening process had been completed became the target subjects for the historical record data collection. Table 2 provides a summary of the numbers of target students for historical data collection from each school.

### Subjects for Direct Observation Data Collection

Teachers. Language arts teachers into whose class sections the target students for historical data collection were enrolled during the second semester of the 1996-1997 school year served as the teacher subjects for this

study. Only those class sections having a target student enrolled were observed. These teachers were identified by designated building contact person(s) and teacher names were not recorded in the data collection process. A meeting was held with these teachers and a handout provided (see Appendix D) to give an overview of this study prior to data collection. Table 3 provides a summary of the number of teachers and class sections used for observation data collection.

Table 2  
Subjects for Historical Data Collection

Target School	n	Control School	n
Battle Creek	16	Lansing Everett	18
Lakeview	18	Gull Lake	11
Harper Creek	14	Charlotte	14

Note. N is 91.

Table 3  
Subjects for Observation Data Collection

School		# Teachers to Observe	# Class Sections
Target Schools	Battle Creek	7	13
	Lakeview	7	10
	Harper Creek	3	3
Control Schools	Lansing Everett	9	14
	Gull Lake	6	12
	Charlotte	5	5

Target Students. Classroom teachers identified target students (students with LD) in each of their class sections that were observed based on information provided to them by designated building contact persons prior to the observation. These students were identified by description rather than by name (i.e. red shirt with glasses in front row or assigned seat marked on classroom seating chart).\_

Control Students. Control students (nondisabled peers) were randomly selected. They were chosen from the same half of the classroom (front or back) but on the opposite side (left or right) and were of the same gender as the target student whenever possible.

### Data Collection Procedures

Data collection occurred through two distinct methods: (1) a review of existing historical records, and (2) through direct classroom observation. Each of these methods are described below.

#### Historical Record Data

All historical record data was obtained from the designated contact person at each high school. A designated building contact person was a member of the school staff with legal access to students' school records and who was asked to summarize the data, deleting all personally identifiable information. This person had been given a worksheet detailing the information needed by the researcher at the beginning of the study (see Appendix C). The researcher was not given a list of target students and all

requested data had any personally identifiable information deleted prior to being received by the researcher.

### Student Success Rates

Copies of student report cards, student transcripts, or computerized student credit printouts, were requested to analyze student success rates. This data was requested for all historical record target students for both the full 1995-1996 and 1996-1997 school years. The numerical values assigned to each letter grade and used to calculate students' grade point averages are shown in Table 4.

Table 4  
Numerical Scale Used to Calculate Grade Point Averages

Letter Grade	Numerical Value	Letter Grade	Numerical Value
A	4.0	D	1.0
A-	3.73	D-	.75
B+	3.25	E	0
B	3.0	F <sup>-</sup>	0
B-	2.75	I	0
C+	2.50	G	not counted
C	2.0	H	not counted
C-	1.75	S	not counted
D+	1.25		

### Attendance Rates

Copies of student report cards or computerized student attendance printouts, were requested to analyze student attendance rates. Data

obtained from all schools was standardized to give the number of days or proportions of days absent for each student. This data was requested for all historical record target students for both the full 1995-1996 and 1996-1997 school years.

### Discipline Referrals

A coding system was developed for recording data from written student discipline referrals. The resulting code sheet was divided into three sections: (1) date of referral, (2) reason for referral, and (3) type of consequence (in school suspension, out of school suspension, after school, or other) and length of time for consequence. See Appendix E for a copy of the discipline referral code sheet.

Behaviors listed as reasons for written referrals were sorted by the researcher and validated by both a school psychologist and a secondary administrator (interrater agreement of 100 per cent) into four categories for purposes of data analysis. These four categories included: (1) procedural violations, (2) attendance related behaviors, (3) verbal and personal disrespect, and (4) physical aggression. A listing of specific behaviors included within each of the four categories is provided in Table 5.

Designated building contact persons were asked to pull all written discipline referrals for the historical data target students for both the full 1995-1996 and 1996-1997 school years. They were then asked to either use the code sheets to report the referral data or to make copies of the written referrals, deleting any personally identifiable information, so that the researcher could summarize the data onto the code sheets.

Three of the six schools provided the researcher with completed discipline code sheets, while the remaining three provided computerized discipline printouts for the researcher to summarize onto the code sheets. One school, Gull Lake, provided discipline data for only the full 1996-1997 school year and the researcher was unable to obtain data for the 1995-1996 school year. As a result, student discipline referrals from Gull Lake were not included in the data analysis.

Table 5  
Student Behavior Categories Used to Analyze Written Referrals

Category 1	Category 2	Category 3	Category 4
Procedural Violations	Attendance Related Behaviors	Verbal and Personal Disrespect	Physical Aggression
Parking Violations	Tardies	Profanity	Fighting
Driving Violations	Unexcused Absences	Defiance	Physical Assault
Off Campus for Lunch	Loitering	Rudeness	Destruction of Property
Failure to Sign Out	Failure to do Detention	Disrupting Others	Arson
Running in Hallway	Truancy	Cheating	Theft
		Possession of an Illegal Substance	Possession of a Weapon

**Note.** If Undecided between two categories, the lower category was used.



## Observational Data

In this study, classroom observational data was used to enable direct measures to be made of the following dependent variables: (a) levels of student engagement in the classroom, (b) teaching strategies and student learning activities, and (c) levels of attention given to individual students in the classroom. Observation measures, training and implementation procedures, and schedules are addressed next.

### Observation Measure: Project UPWARD - Modified

The observation system used in this study was a modified version of Project UPWARD (Haus, Rieth, Evertson, & Fuchs, 1987; Rieth, Haus, & Bahr, 1989) which was an observation system designed for use in an elementary setting. Project UPWARD was modified by this researcher to be appropriate for use in a secondary setting (see Appendix F). Input on modifications was provided by one secondary administrator and two secondary teachers (general education and special education). After making revisions based on this expert feedback, the modified system was field tested twice in secondary classrooms.

The observation system allowed for the input of general information, along with information in five categories relating to teacher behavior and three categories relating to student behavior. General information included: (a) the name of the school, (b) the time the class started, (c) the number of students in the room, and (d) the number of adults in the room. The five categories of teacher behavior included: (1) teacher posture, (2) hovering or physical location, (3) the teacher's overt

attentional focus, (4) the instructional activity, and (5) performance feedback. The three categories relating to student behavior included: (1) the sanctioned student activity, (2) student task orientation, and (3) student engagement.

This modified version of Project UPWARD was a computerized system that used a one minute time-sampling technique to collect both qualitative and quantitative data. It allowed trained observers to record, in real-time, actual teacher and student behaviors occurring in the classroom. Specifically, the observation system directed the observers to focus on the subject to be observed for eight seconds. The next 52 seconds were used for recording by prompting a series of choices to be made relating to the categories previously described. These choices detailed both the target students' and the teachers' behavior during the eight second observation period. The system also allowed the observers to enter any unusual occurrences or explanations at the end of the classroom observation in a special note section of data.

### Observer Training

Two graduate students were recruited and trained to collect observation data for this study. Two training sessions for a total of four hours were conducted prior to data collection. A third training session was held midway through the data collection to both refresh the observers and to determine reliability maintenance.

Training sessions included: (a) detailed information on using the observation system, (b) clarifications of the observation protocol and

narrative descriptions for each category, (c) practice using the computerized system, and (d) expectations for observers in the schools and classrooms (see Appendix G). Observers practiced using the observation system during multiple videotaped teaching sessions (prepared by this researcher) as well as in two classrooms of teachers not participating in this study.

During each training session, interrater reliability was calculated with a goal of reaching an agreement of at least .85 prior to data collection. Interrater reliability was calculated based on the following formula:

$$\frac{\text{\# of times observers agreed}}{\text{\# of agreements + disagreements}}$$

The resultant interrater agreements were .83 for the first training session, .96 for the second session, and .96 for the third training session. Specific instances of disagreement were discussed in depth during the following sessions to provide greater clarity of each behavior choice.

Controlling for Observer Bias. Observer bias refers to errors that are traceable to characteristics of the observer or to the observation situation (McIntosh, Vaughn, Schumm, Haager, & Lee, 1993). Five overt methods were used in this study to control for observer bias. First, since observers can be biased by knowledge of the research hypotheses (Repp, Nieminen, Olinger, & Brusca, 1988; Salvia & Meisel, 1980), they were not told the specific questions being researched. Second, since levels of exceptionality have been demonstrated to be a powerful biaser (Rep et al., 1988; Salvia &

Meisel, 1980), observers were not given any information regarding the students they were to observe other than number of students, locations, and times for each observation period. Third, to reduce the subjectivity involved in making judgment regarding behaviors observed, explicit response definitions and narrative descriptions were written for all choices under each category of behavior being observed (McIntosh et al., 1993; Repp et al., 1988; Salvia & Meisel, 1980). Specific prior training in using the coding system also reduced the subjectivity involved. Fourth, a check on observer accuracy was made midway through the observation periods to assist in reducing observer drift and to maintain the reliability of the data collected (Repp et al., 1988; Salvia & Meisel, 1980). Finally, interactions between observers during the course of the study were limited to the extent possible (Repp et al., 1988).

### Observation Schedules

Teachers were initially notified of the general intent of this project, to study student behavior across various types of high school scheduling conditions, during school staff meetings prior to the start of the observations. Teachers were informed that the observations would be used to record behavior, not to evaluate their ability or performance, and that data collected would remain anonymous and be reported as group data. They were told that the disaggregation of observational data would only be made at the building level.

Observations occurred over March, April, and May of 1997. Teachers were informed of the general time period when observations

would be made in the building, but were not given specific dates for when their classes would be observed. It was asked that the observer be introduced to the class as a research assistant from Western Michigan University assisting in a study of what high school classrooms were like, if an introduction was deemed to be needed. The observer was instructed to stay in the class for the entire period, ending the observation session at the end of the class period. In a few instances several shorter observations reflected single class periods as the observer had to end and begin the session anew each time the class changed location (i.e. classroom to library or computer lab).

Teachers had been notified prior to the observations of who the target students (students with LD) in each of their classes were by the designated contact person in each building. They had been instructed to identify these students to the observers by either description or location in the room at the beginning of the class period. Observers then coded target students by using odd numbers (1, 3, etc.) in the observation system. Control students (nondisabled peers) were then identified by the observers and coded in the observation system by the use of even numbers (2, 4, etc.).

An attempt was made to observe each class section two times. This was not always possible as an observation was unable to be made when either the target student or the teacher was absent. Table 6 shows the total number of observations, the total minutes of observation, and the average length of the observation period for each of the six schools. Overall, observations at the target schools ranged from 30 to 87 minutes in length; while observations at the control schools ranged from 25 to 60 minutes in

length. Target schools had 31 total observations with an average length of 67.9 minutes; while control schools had 44 total observations with an average length of 44.5 minutes.

Table 6  
Observation Numbers and Length of Observations

School	Observations n	Minutes			
		Sum	<u>M</u>	<u>SD</u>	
Target					
Battle Creek	12	903	75.3	10.67	
Lakeview	14	851	60.8	20.23 <sup>a</sup>	
Harper Creek	5	352	70.4	10.50	
Control					
Lansing Everett	21	929	44.2	8.06	
Gull Lake	19	857	45.1	7.78	
Charlotte	4 <sup>b</sup>	174	43.5	5.74	

<sup>a</sup> Observers experienced multiple power outages causing them to restart the observation system. <sup>b</sup> Missing observations due to unreadable data.

### Study Questions and Research Hypotheses

The questions that were the focus for this study are listed below. For each question a research hypothesis was written. The research hypotheses were intentionally written in the form of null hypotheses. Although the literature appeared to indicate a directional nature for each potential outcome of block scheduling, there was no data specific to the population of students with learning disabilities. Given the documented

concerns associated with this population, it was felt that taking a nondirectional and more conservative approach was merited.

### Study Question 1

Were there differences in LD students' success rates in each setting?

### Research Hypothesis 1

There are no significant differences over time (from the 1995/96 through the 1996/97 school years) or between school settings in the proportion of classes passed to classes taken between students with LD attending control (traditionally-scheduled) high schools and students with LD attending target (block-scheduled) high schools.

### Research Hypothesis 2

There are no significant differences over time (from the 1995/96 through the 1996/97 school years) or between school settings in the grade point averages between students with LD attending control (traditionally-scheduled) high schools and students with LD attending target (block-scheduled) high schools.

### Study Question 2

Were there differences in students' attendance rates in each setting?

### **Research Hypothesis 3**

There are no significant differences in the number of days absent over time (from the 1995/96 to the 1996/97 school years) or between school settings between students with LD attending control (traditionally-scheduled) high schools and students with LD attending target (block-scheduled) high schools.

### **Study Question 3**

Were there differences in the number and types of students' written discipline referrals in each setting?

### **Research Hypothesis 4**

There are no significant differences over time (from the 1995/96 to the 1996/97 school years) or between school settings between the number and types of written discipline referrals for students with LD attending control (traditionally-scheduled) high schools and students with LD attending target (block-scheduled) high schools.

### **Study Question 4**

Were there differences in levels of students' active involvement or engagement in learning activities in each setting?

### **Research Hypothesis 5**

There are no significant differences regarding student behavior, between students with LD or their nondisabled peers attending control



(traditionally-scheduled) high schools and students with LD or their nondisabled peers attending target (block-scheduled) high schools.

#### Study Question 5

Were there differences in the variety of teaching and learning modes used in each setting?

#### Research Hypothesis 6

There are no significant differences regarding teacher behavior between classrooms having students with LD in control (traditionally-scheduled) high schools and classrooms having students with LD in target (block-scheduled) high schools.

#### Research Hypothesis 7

There are no significant differences regarding sanctioned student activities between classrooms having students with LD in control (traditionally-scheduled) high schools and classrooms having students with LD in target (block-scheduled) high schools.

#### Study Question 6

Were there differences in the amount of individualized teacher attention given to students in each setting?

### Research Hypothesis 8

There are no significant differences in the amounts of individualized teacher attention (verbal or nonverbal) given to students with LD or their nondisabled peers attending control (traditionally-scheduled) high schools and students with LD or their nondisabled peers attending target (block-scheduled) high schools.

### Data Analysis Procedures

A repeated measures, multiple analysis of variance (MANOVA) was used for research hypotheses one through four (Popham & Sirotnik, 1992). Wilks' lambda (Norusis, 1993a) was used as the test statistic. A predetermined alpha level of .05 (Hinkle, Wiersma, & Jurs, 1988) was used to indicate significance. Any resulting significant differences were further explored using either paired samples or independent samples *t*-tests (Norusis, 1993b; Norusis, 1994).

Research hypotheses five through eight each involved the use of a MANOVA (Popham & Sirotnik, 1992) with Pillai's Trace (Norusis, 1993a) used as the test statistic. A predetermined alpha level of .05 (Hinkle et al., 1988) was again used to indicate significance. Any resulting significant differences were further explored using independent samples *t*-tests (Norusis, 1993b).

## CHAPTER IV

### RESULTS

#### Introduction

The purpose of this study was to investigate the impact of changing from a traditional schedule to a block schedule on selected school-related behaviors and measures of secondary students with LD and their regular education teachers. Areas of impact that were addressed included school performance measures of success rates, attendance rates, and discipline referrals as well as observed measures of levels of students' active engagement in learning activities, the variety of teaching and learning modes used, and the amount of individualized teacher attention given to students in each setting.

Each of the eight research hypotheses is restated and addressed in turn, accompanied by descriptions of the analytical procedures and a summary of the findings.

#### Research Hypothesis 1

Research hypothesis one states that there are no significant differences over time (from the 1995/96 through the 1996/97 school years) in the proportion of classes passed to classes taken between students with LD attending control (traditionally-scheduled) high schools and students with LD attending target (block-scheduled) high schools.

A repeated measures, MANOVA was calculated using year and schedule type as the independent variables and the proportion of classes passed to classes taken per student as the dependent variable. Table 7 shows that significant differences were indicated at the  $p < .01$  level for schedule type and at the  $p < .001$  level for year by schedule.

Table 7  
Repeated Measures Multiple Analysis of Variance  
for Student Rates of Success

Source	df	F Value
Between Subjects		
Schedule Type	1	7.347 **
Between Subjects Error	89	(2.2E-02)
Within Subjects		
Year by Schedule	1	12.032 ***
Within Subjects Error	89	(1.1E-02)

Note. Values listed in parentheses represent mean square errors.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

To further investigate these differences both paired samples and independent samples  $t$ -tests were computed. The results, shown in Table 8 and illustrated graphically in Figure 1, indicate that at the  $p < .001$  level, students attending the control schools passed higher proportions of classes than students attending the target schools during both the 1995/96 and 1996/97 school years.

Results of the paired samples t-tests indicate that no significant differences exist over time for students attending the control schools. However, a significant difference at the  $p < .001$  level does exist over time for students attending the target schools. Students attending target schools passed a significantly lower proportion of classes in the first year after changing to the new 4 by 4 semester block schedule ( $M = .8057$ ,  $SD = .192$ ) compared with the previous school year ( $M = .9019$ ,  $SD = .114$ ).

Table 8  
t-test Comparisons of Student Rates of Success

Variable	Group	<u>M</u>	<u>SD</u>	<u>df</u>	<u>t-value</u>
Year 1995/96	Control	.9593	.071	42	.86
Year 1996/97	Control	.9475	.091		
Year 1995/96	Target	.9019	.114	47	3.59***
Year 1996/97	Target	.8057	.192		
Passed 1995/96	Control	.9593	.071	89	12.458***
Passed 1995/96	Target	.9019	.192		
Passed 1996/97	Control	.9475	.091	89	17.577***
Passed 1996/97	Target	.8057	.192		

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

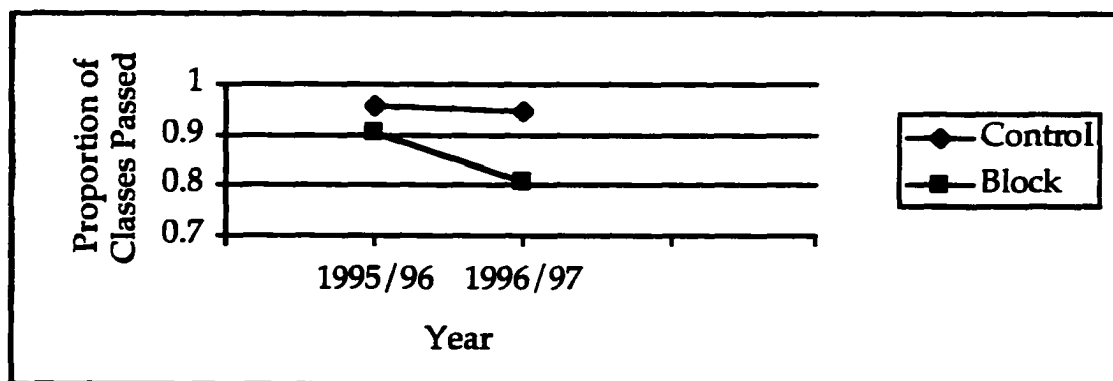


Figure 1. Comparisons of Group Means for Student Rates of Success.

Based on these results, research hypothesis one was rejected. Significant differences at the  $p < .001$  level were found to exist between schedule types and over time.

### Research Hypothesis 2

Research hypothesis two states that there are no significant differences over time (from the 1995/96 through the 1996/97 school years) in the grade point averages between students with LD attending control (traditionally-scheduled) high schools and students with LD attending target (block-scheduled) high schools.

A repeated measures, MANOVA was calculated using year and schedule type as the independent variables and grade point average per student as the dependent variable. Table 9 shows that while no significant difference was found between schedule types, a significant difference was indicated at the  $p < .05$  level for year by schedule.

To further investigate this difference paired samples  $t$ -tests were computed. The results, shown in Table 10 and illustrated graphically in

Figure 2, indicate that a significant difference at the  $p < .05$  level does exist over time for students attending the target schools. Students attending the target schools had significantly lower grade point averages in the first year of the new block schedule ( $M = 1.9400$ ,  $SD = .835$ ) compared with the previous year ( $M=2.1607$ ,  $SD = .672$ ).

Based on these results, research hypothesis two was rejected. A significant difference at the  $p < .05$  level was found to occur over time.

Table 9  
Repeated Measures Multiple Analysis of Variance  
for Student Grade Point Averages

Source	df	F Value
Between Subjects		
Schedule Type	1	.835
Between Subjects Error	89	(.839)
Within Subjects		
Year by Schedule	1	4.362 *
Within Subjects Error	89	(.245)

**Note.** Values listed in parentheses represent mean square errors.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Table 10

## t-test Comparisons of Student Grade Point Averages

Variable	Group	<u>M</u>	<u>SD</u>	<u>df</u>	t-value
Year 1995/96	Control	2.4956	.695	42	-.72
Year 1996/97	Control	2.5820	.727		
Year 1995/96	Target	2.1607	.672	47	2.51*
Year 1996/97	Target	1.9400	.835		

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

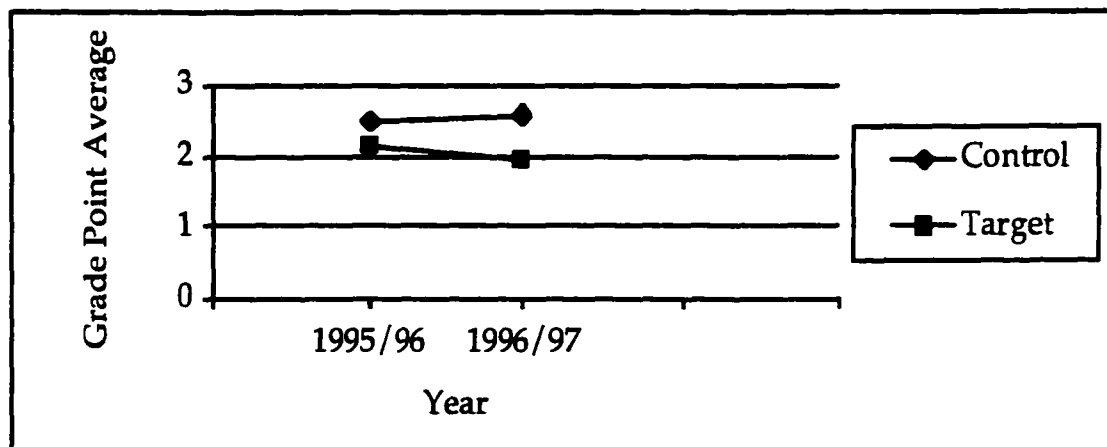


Figure 2. Comparisons of Group Means for Grade Point Averages.

### Research Hypothesis 3

Research hypothesis three states that there are no significant differences in the number of days absent over time (from the 1995/96 to the 1996/97 school years) between students with LD attending control



(traditionally-scheduled) high schools and students with LD attending target (block-scheduled) high schools.

A repeated measures, MANOVA was calculated using year and schedule type as the independent variables and number of daily absences per student as the dependent variable. Table 11 shows that significant differences were indicated at the  $p < .01$  level for year by schedule and at the  $p < .001$  level for schedule type.

Table 11  
Repeated Measures Multiple Analysis of Variance  
for Student Daily Absences

Source	df	F Value
Between Subjects		
Schedule Type	1	18.118 ***
Between Subjects Error	89	(74.183)
Within Subjects		
Year by Schedule	1	6.952**
Within Subjects Error	89	(27.946)

Note. Values listed in parentheses represent mean square errors.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

To further investigate these differences both paired samples and independent samples t-tests were computed. The results, shown in Table 12 and illustrated graphically in Figure 3, indicate that no significant differences exist over time for students attending the control schools.

However, a significant difference at the  $p < .001$  level does exist over time for students attending the target schools. Students attending target schools had a significantly higher number of days absent during the first year after changing to the new block schedule ( $M = 11.3698$ ,  $SD = 9.512$ ) compared with the previous year ( $M=5.9594$ ,  $SD = 5.633$ ). Results also indicate, at the  $p < .01$  level, that students attending the target schools had more daily absences than students attending the control schools during the 1996/97 school years. Based on these results, research hypothesis three was rejected. Significant differences were found to occur over time and for schedule type.

Table 12  
t-test Comparisons of Student Daily Absences

Variable	Group	<u>M</u>	<u>SD</u>	<u>df</u>	t-value
Year 1995/96	Control	9.5212	6.874	42	1.08
Year 1996/97	Control	8.2498	5.693		
Year 1995/96	Target	5.9594	5.633	47	-5.18***
Year 1996/97	Target	11.3698	9.512		
Absences 1995/96	Control	9.5212	6.874	89	.257
Absences 1995/96	Target	5.9594	5.633		
Absences 1996/97	Control	8.2498	5.693	89	7.877**
Absences 1996/97	Target	11.3698	9.512		

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

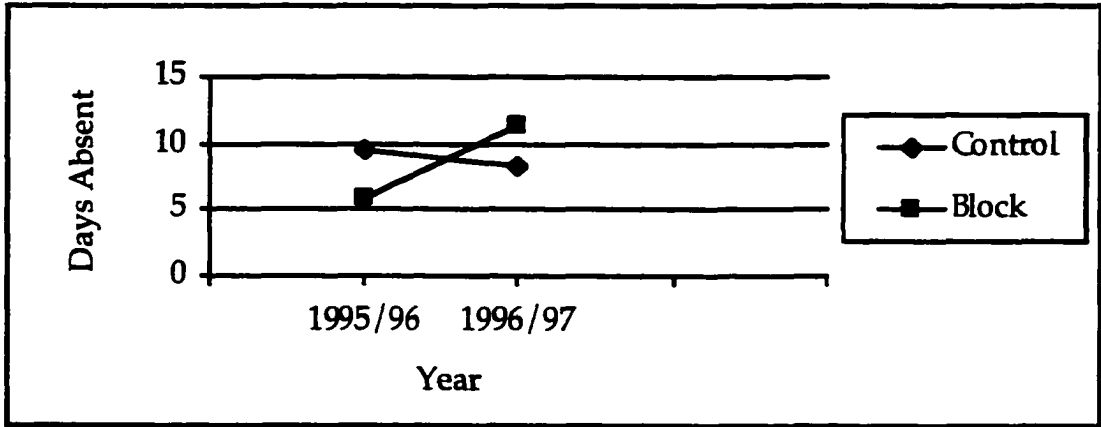


Figure 3. Comparisons of Group Means for Number of Days Absent.

#### Research Hypothesis 4

Research hypothesis four states that there are no significant differences over time (from the 1995/96 to the 1996/97 school years) between the number and types of written discipline referrals for students with LD attending control (traditionally-scheduled) high schools and students with LD attending target (block-scheduled) high schools.

Written discipline referrals were sorted into the four previously described categories of: (1) procedural violations, (2) attendance related behaviors, (3) verbal and personal disrespect, and (4) physical aggression. Descriptive statistics were calculated and are reported in Table 13 and illustrated graphically in Figure 4.

A repeated measures MANOVA was calculated using year and schedule type as the independent variables and the number of referrals in each of the four categories as the dependent variables. Table 14 shows that only one significant difference was found. Category one, procedural violations, was found to be significant at the  $p < .05$  level for schedule by

year. No significant differences were found to exist between schedule type in any of the four categories.

Table 13  
Means and Standard Deviations for Referral Categories

Variable	Cat. 1 M (SD)	Cat. 2 M (SD)	Cat. 3 M (SD)	Cat. 4 M (SD)	Total M (SD)
Target 1995/96	.04 (.20)	.96 (1.64)	.42 (.90)	.19 (.50)	1.60 (2.57)
Target 1996/97	.12 (.53)	1.08 (2.0)	.29 (.58)	.06 (.24)	1.56 (2.53)
Control 1995/96	.31 (1.0)	.19 (.59)	.34 (.65)	.16 (.45)	1.00 (2.00)
Control 1996/97	.09 (.30)	.81 (1.94)	.19 (.54)	.09 (.30)	1.19 (2.46)

**Note:** Cat. 1 = procedural violations. Cat. 2 = attendance related behaviors. Cat. 3 = verbal and personal disrespect. Cat. 4 = physical aggression.

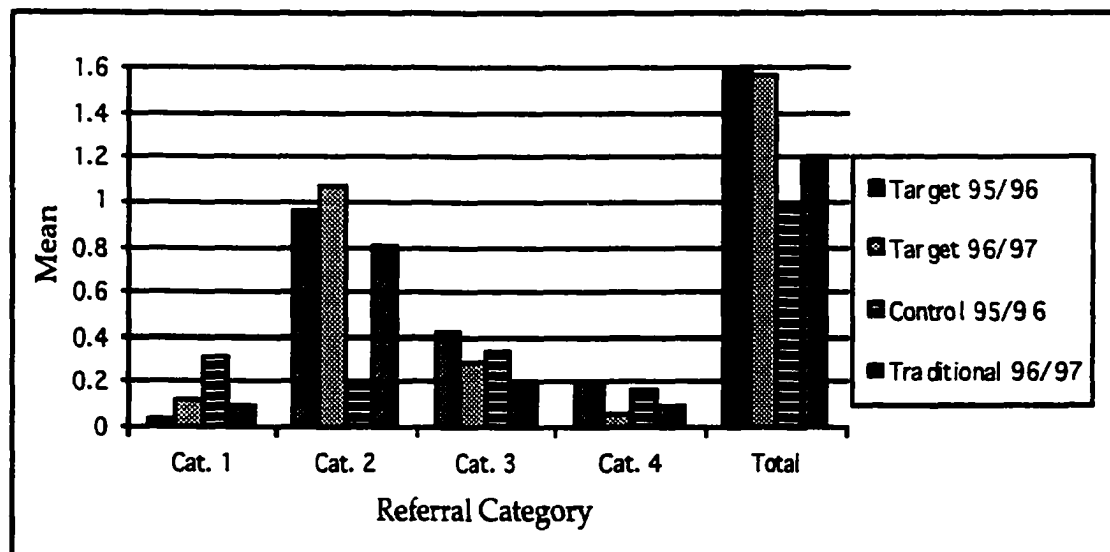


Figure 4. Comparisons of Means for Referral Categories.

Table 14

## Repeated Measures Multiple Analysis of Variance for Referral Categories

Source		df	F Value
Between Subjects			
Category 1	Schedule Type	1	1.29
	Between Subjects Error	78	(.55)
Category 2	Schedule Type	1	2.61
	Between Subjects Error	78	(10.42)
Category 3	Schedule Type	1	.41
	Between Subjects Error	78	(.30)
Category 4	Schedule Type	1	.00
	Between Subjects Error	78	.00
Total 95/96	Schedule Type	1	.98
	Between Subjects Error	78	(9.20)
Within Subjects			
Category 1	Schedule by Year	1	4.39 *
	Within Subjects Error	78	(.88)
Category 2	Schedule by Year	1	3.23
	Within Subjects Error	78	(5.40)
Category 3	Schedule by Year	1	3.16
	Within Subjects Error	78	(.76)
Category 4	Schedule by Year	1	2.49
	Within Subjects Error	78	(.34)
Total 96/97	Schedule by Year	1	.08
	Within Subjects Error	78	(.20)

**Note.** Values listed in parentheses represent mean square values.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

To further investigate this difference paired samples t-tests were computed for referral category one, procedural violations. The results, shown in Table 15, indicate that the only significant difference occurred between the target and control schools for the 1995-96 school year.

Based on these results, research hypothesis four was rejected. One significant difference between the numbers and types of written discipline referrals for students with LD attending control or target schools was found to exist.

Table 15

## t-test Comparisons of Procedural Violations Referral Category

Variable	Group	<u>M</u>	<u>SD</u>	<u>df</u>	t-value
Cat. 1 - 1995/96	Control	.3125	.998	31	1.49
Cat. 1 - 1996/97	Control	.0938	.296		
Cat. 1 - 1995/96	Target	.0417	.202	47	-1.27
Cat. 1 - 1996/97	Target	.1250	.531		
Cat. 1 - 1995/96	Control	.3125	.998	78	14.254***
Cat. 1 - 1995/96	Target	.0417	.202		
Cat. 1 - 1996/97	Control	.0938	.296	78	.501
Cat. 1 - 1996/97	Target	.1250	.531		

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

### Research Hypothesis 5

Research hypothesis five states that there are no significant differences regarding student behavior between students with LD or their nondisabled peers attending control (traditionally-scheduled) high schools, and students with LD or their nondisabled peers attending target (block-scheduled) high schools.

A MANOVA was calculated using schedule type and student group (general education or learning disabled) as the independent variables and a list of dependent variables including: percent of time on task, percent of time off task, and the following four modes of student engagement; (1) engaged - passive, (2) engaged - verbal, (3) engaged - motor, and (4) multiple modes of engagement. Table 16 shows that there were no significant differences for percent of time on or off task.

Table 16

#### Between Subjects Effects for Percent of Time On and Off Task

Source		df	F Value
Schedule Type		2	.312
	% time on task	1	.061
	% time off task	1	.369
Student Group		2	1.293
	% time on task	1	1.587
	% time off task	1	2.564
Schedule Type x Student Group		2	.006
	% time on task	1	.004
	% time off task	1	.000

Table 16 - Continued

Source		df	F Value
Between Subjects Error	% time on task	186	(5.4E - 02)
	% time off task	186	(4.3E - 02)

**Note.** Values listed in parentheses represent mean square errors.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Table 17 shows that a significant difference was found for multiple modes of engagement for schedule type (control school or target school) at the  $p < .05$  level. No significant differences were found to exist between student groups (students with LD or their nondisabled peers).

Table 17

## Between Subjects Effects for Modes of Engagement

Source		df	F Value
Schedule Type		4	1.265
	Engaged-Passive	1	1.391
	Engaged-Verbal	1	.001
	Engaged-Motor	1	.000
	Multiple Modes	1	4.742 *
Student Group		4	.308
	Engaged-Passive	1	.516
	Engaged-Verbal	1	1.207
	Engaged-Motor	1	.019
	Multiple Modes	1	.014



Table 17 - Continued

Source		<u>df</u>	F Value
Schedule Type x		4	.212
Student Group	Engaged-Passive	1	.131
	Engaged-Verbal	1	.003
	Engaged-Motor	1	.387
	Multiple Modes	1	.326
Between	Engaged-Passive	186	(6.7E - 02)
Subjects Error	Engaged-Verbal	186	(4.5E - 02)
	Engaged-Motor	186	(1.2E - 03)
	Multiple Modes	186	(7.7E - 03)

Note. Values listed in parentheses represent mean square errors.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

To further investigate this difference, an independent samples  $t$ -test was conducted for multiple modes of engagement by schedule type. The results, shown in Table 18 and illustrated graphically in Figure 5, indicate that a significant difference at the  $p < .001$  level does exist for multiple modes of engagement. Students attending control (traditionally-scheduled) schools had a significantly higher level of multiple modes of engagement ( $M = .0338$ ,  $SD = .111$ ) compared with students attending target (block-scheduled) schools ( $M = .0055$ ,  $SD = .025$ ).

Table 18

## t-test Comparison of Multiple Modes of Engagement

Variable	Group	M	SD	df	t-value
Multiple Modes of Engagement	Control Schools	.0338	.111	188	14.633 *
	Target Schools	.0055	.025		

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Based on these results, research hypothesis five is rejected. A significant difference at the  $p < .001$  level was found to occur regarding student behavior by type of schedule.

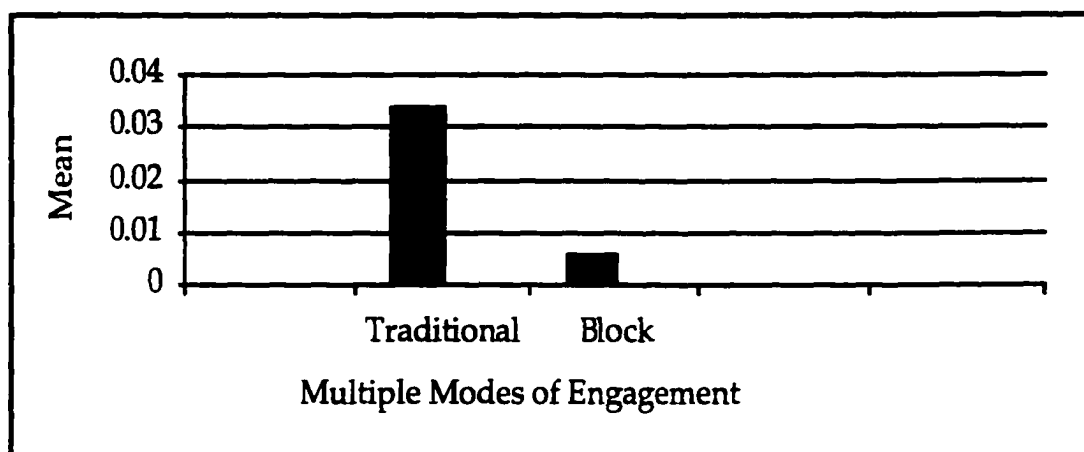


Figure 5. Comparison of Means for Multiple Modes of Engagement.

### Research Hypothesis 6

Research hypothesis six states that there are no significant differences regarding teacher behavior between classrooms having

students with LD in control (traditionally-scheduled) high schools and classrooms having students with LD in target (block-scheduled) high schools.

For this research question MANOVAs were calculated using schedule type (control or target) and student group (general education or learning disabled) as the independent variables. Five categories of teacher behavior taken from the observation protocol served as the dependent variables: (1) teacher posture, (2) hovering or physical location, (3) teacher's overt attentional focus, (4) instructional activity, and (5) performance feedback. Each of these five categories contained from four to nine subcategories of more specific behaviors

Table 19 shows that there were significant differences at levels ranging from  $p < .05$  to  $p < .001$  for schedule type (control schools or target schools) in four of the five categories of teacher behavior. No significant differences were found for student group (students with LD or their nondisabled peers).

Table 19  
Between Subjects Effects for Categories of Teacher Behavior

Category	Source	df	F Value
Teacher Posture	Student Group	3	.085
	Schedule Type	3	9.374 **
	SG x ST	3	.016
Hovering or Physical Location	Student Group	5	.168
	Schedule Type	5	1.354
	SG x ST	5	.116

Table 19 - Continued

Category	Source	df	F Value
Teacher's Overt Attentional Focus	Student Group	6	.304
	Schedule Type	6	2.266 *
	SG x ST	6	.071
Instructional Activity	Student Group	8	.074
	Schedule Type	8	1.992*
	SG x ST	8	.037
Performance Feedback	Student Group	3	.093
	Schedule Type	3	7.447 ***
	SG x ST	3	.234

Note. SG = schedule group, ST = schedule type.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Table 20 investigates the subcategories of specific behaviors included in the four categories of teacher behavior showing significant differences for schedule type. In the category of teacher posture, two behaviors, walking or pacing and sitting, were found to be significant at the  $p < .001$  level. In the category of teacher's overt attentional focus, two behaviors, not attending to students and small group - not target student, were found to be significant at the  $p < .05$  level. In the category of instructional activity, one behavior - structuring or directing (active), was found to be significant at the  $p < .05$  level. In the category of performance feedback, four behaviors were found to be significant. Both no feedback occurring and academic feedback were significant at the  $p < .01$  level. While social feedback and positive feedback were significant at the  $p < .05$  level.

Table 20

Between Subjects Effects for Schedule Type on Teacher Posture,  
Teacher's Overt Attentional Focus, Instructional Activity and  
Performance Feedback

Category	Behavior	df	F Value
Teacher Posture	Teacher Out of Room	1	2.218
	Walking or Pacing	1	21.946 ***
	Standing	1	.861
	Sitting	1	12.590 ***
Teacher's Overt Attentional Focus	Not Attending to Students	1	4.493 *
	Large Group	1	2.652
	Small Group - Not Target	1	5.530 *
	Small Group - With Target	1	.011
	Individual - Not Target	1	.503
	Individual - Target	1	.736
Instructional Activity	No direct instruction	1	.534
	Lecturing	1	.826
	Didactic - Teacher/Student	1	.000
	Listening or Monitoring	1	2.532
	Structuring or Directing	1	6.327*
	Management of	1	.265
	Misbehavior		
	Test or Quiz	1	.030
	Audio-visual Program or Guest Speaker	1	1.833
Performance Feedback	No Feedback Occurring	1	8.353 **
	Academic Feedback	1	7.417 **
	Social Feedback	1	5.641 *
	Positive Feedback	1	6.387 *
	Negative Feedback	1	1.748

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

To further investigate these differences, independent samples *t*-tests were conducted for each of the significant subcategories. The results, shown in Table 21 and illustrated graphically in Figure 6, indicate that significant differences at the  $p < .05$  to  $p < .001$  levels exist for all of the significant subcategories of teacher behavior.

Table 21

*t*-test Comparisons of Significant Subcategories of Teacher Behavior

Subcategory	Schedule Type	<u>M</u>	<u>SD</u>	<u>df</u>	<u>t-value</u>
Walking or Pacing	Control Target	.0770 .1864	.121 .199	188	4.71***
Sitting	Control Target	.5696 .3902	.332 .351	188	-3.57***
Not Attending to Students	Control Target	.3633 .2532	.366 .322	188	-2.13*
Small Group - Not Target	Control Target	.0244 .0593	.068 .134	188	2.36*
Structuring or Directing (Active)	Control Target	.0838 .1361	.098 .186	188	2.53*
No Feedback Occurring	Control Target	.2690 .1620	.343 .257	188	-2.91**
Academic Feedback	Control Target	.6603 .7947	.354 .294	188	2.74**
Social Feedback	Control Target	.0381 .0176	.069 .037	188	-2.38*
Positive Feedback	Control Target	.6797 .8028	.352 .291	188	2.53*

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

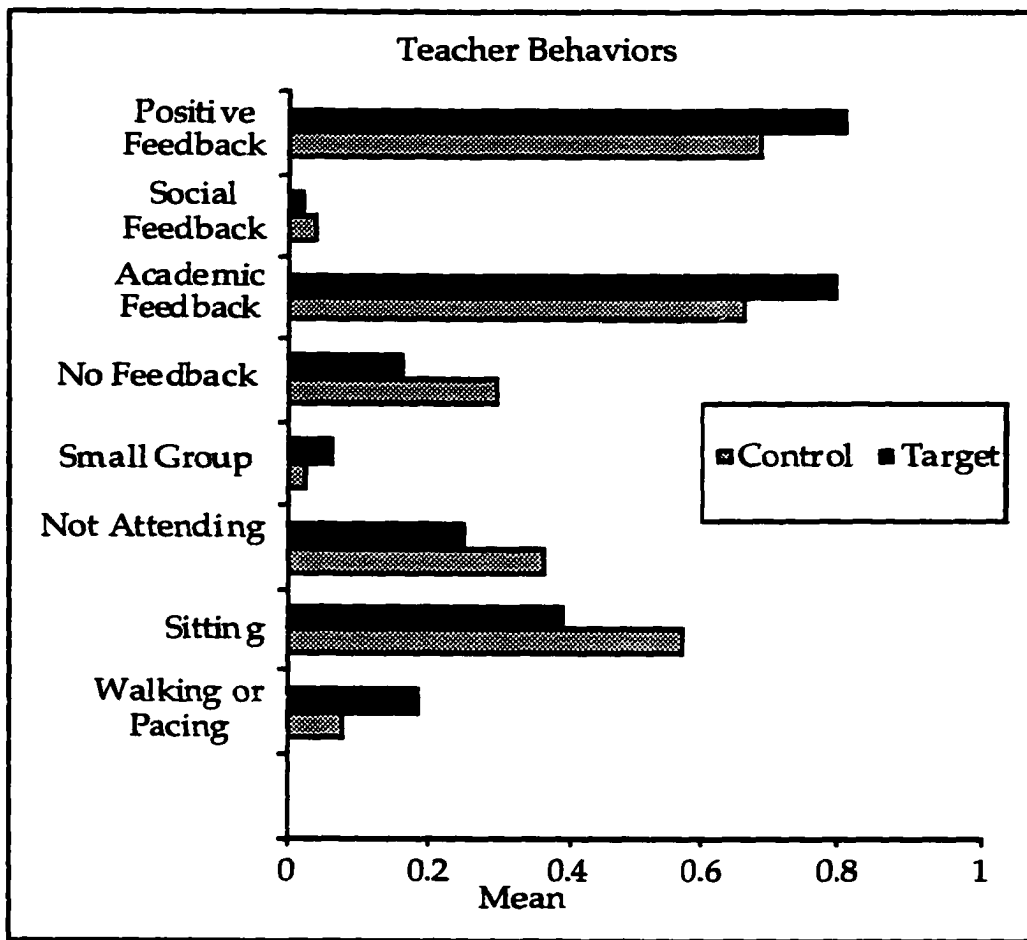


Figure 6. Comparison of Means for Subcategories of Teacher Behavior.

Two of the subcategories of teacher behavior were found to be significant at the  $p < .001$  level. Teachers in target (block-scheduled) schools had a higher level of walking or pacing during the class period compared with teachers in control (traditionally-scheduled) schools. Similarly, teachers in control (traditionally-scheduled) schools had higher levels of sitting during the class periods compared with teachers in target (block-scheduled) schools.

Two of the subcategories of teacher behavior were found to be significant at the  $p < .01$  level. Teachers in control (traditionally-scheduled) schools had a higher level of giving students no feedback during the class period compared with teachers in the target (block-scheduled) schools. Teachers in block-scheduled schools had a higher level of giving students academic feedback during the class period compared with teachers in traditionally-scheduled schools.

The remaining five subcategories of teacher behavior were found to be significant at the  $p < .05$  level. Teachers in control (traditionally-scheduled) schools had higher levels of not attending to students during the class period and of giving students social feedback students during the class period compared with teachers in target (block-scheduled) schools.

In contrast, teachers in target (block-scheduled) schools had higher levels of attending to small groups - not including the target student, actively structuring or directing during the class period, and giving students positive feedback during the class period; compared with teachers in control (traditionally-scheduled) schools.

Based on these results, research hypothesis six is rejected. Significant differences regarding teacher behavior between classrooms having students with LD in control (traditionally-scheduled) high schools and classrooms having students with LD in target (block-scheduled) high schools were found to exist.



### Research Hypothesis 7

Research hypothesis seven states that there are no significant differences regarding sanctioned student activities between classrooms having students with LD in control (traditionally-scheduled) high schools and classrooms having students with LD in target (block-scheduled) high schools.

For this research question a MANOVA was calculated using schedule type (control or target) and student group (general education or learning disabled) as the independent variables. Twelve categories of sanctioned student behavior taken from the observation protocol served as the dependent variables: (1) transition - active, (2) demonstration or presentation to class, (3) computer use or other technology, (4) no assigned activity, (5) reading or researching, (6) watching or listening, (7) large group discussion, (8) small group work, (9) hands on motor activity, (10) drill and practice activity, (11) writing or notetaking, and (12) test or quiz.

The results, shown in Table 22, indicate that significant differences were found to exist only for the independent variable of schedule type (control or target school). No significant differences were found to exist for the independent variable of student group (general education or learning disabled).

For the independent variable of schedule type, two sanctioned student activities, reading or researching and watching or listening were significant at the  $p < .001$  level. Three sanctioned student activities: (1) computer or other technology, (2) no assigned activity, and (3) small group work, were significant at the  $p < .05$  level.

Table 22

## Multiple Analysis of Variance for Categories of Teacher Behavior

Category	Source	df	F Value
Transition - Active	Student Group	1	.096
	Schedule Type	1	.008
	SG x ST	1	.032
Demonstration or Presentation to Class	Student Group	1	.528
	Schedule Type	1	1.275
	SG x ST	1	.002
Computer Use or Other Technology	Student Group	1	.002
	Schedule Type	1	4.300*
	SG x ST	1	.002
No Assigned Activity	Student Group	1	.086
	Schedule Type	1	5.790*
	SG x ST	1	.149
Reading or Researching	Student Group	1	.000
	Schedule Type	1	13.019***
	SG x ST	1	.007
Watching or Listening	Student Group	1	.037
	Schedule Type	1	14.695***
	SG x ST	1	.000
Large Group Discussion	Student Group	1	.013
	Schedule Type	1	1.196
	SG x ST	1	.003
Small Group Work	Student Group	1	.044
	Schedule Type	1	4.947*
	SG x ST	1	.009
Hands - On Motor Activity	Student Group	1	.002
	Schedule Type	1	.177
	SG x ST	1	
Drill and Practice Activity	Student Group	1	.067
	Schedule Type	1	2.886
	SG x ST	1	.080
Writing or Notetaking	Student Group	1	.015
	Schedule Type	1	.984
	SG x ST	1	.001
Test or Quiz	Student Group	1	.059
	Schedule Type	1	.798
	SG x ST	1	.120

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

To further investigate these differences, independent samples *t*-tests were conducted for each of the significant sanctioned student activities by schedule type. The results, shown in Table 23 and illustrated graphically in Figure 7, indicate that significant differences were obtained for all five.

Table 23

*t*-test Comparisons of Significant Sanctioned Student Activities

Sanctioned Activity	Schedule Type	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i> -value
Computer Use or Other Technology	Control	.0514	.215	188	-2.08*
	Target	.0000	.000		
No Assigned Activity	Control	.0540	.099	188	-2.42*
	Target	.0239	.054		
Reading or Researching	Control	.1185	.245	188	3.63***
	Target	.2844	.386		
Watching or Listening	Control	.4737	.383	188	-3.85***
	Target	.2690	.318		
Small Group Work	Control	.0242	.143	188	2.24*
	Target	.0804	.203		

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Two of the subcategories of sanctioned student activities were found to be significant at the  $p < .001$  level. Students in target (block-scheduled) schools spent significantly higher amounts of their class time reading or researching compared with students in control (traditionally-scheduled) schools. While students in control (traditionally-scheduled) schools spent

significantly higher amounts of their time watching or listening during the class period compared with students in the target (block-scheduled) schools.

Three of the subcategories of sanctioned student activities were found to be significant at the  $p < .05$  level. Students in control (traditionally-scheduled) schools spent significantly higher amounts of their time both using computers or other technology during the class period and in having no assigned activity during the class period, compared with students in target (block-scheduled schools). Finally, students in target (block-scheduled schools) spent significantly higher amounts of their time doing small group work during the class period compared with students in the control (traditionally-scheduled) schools.

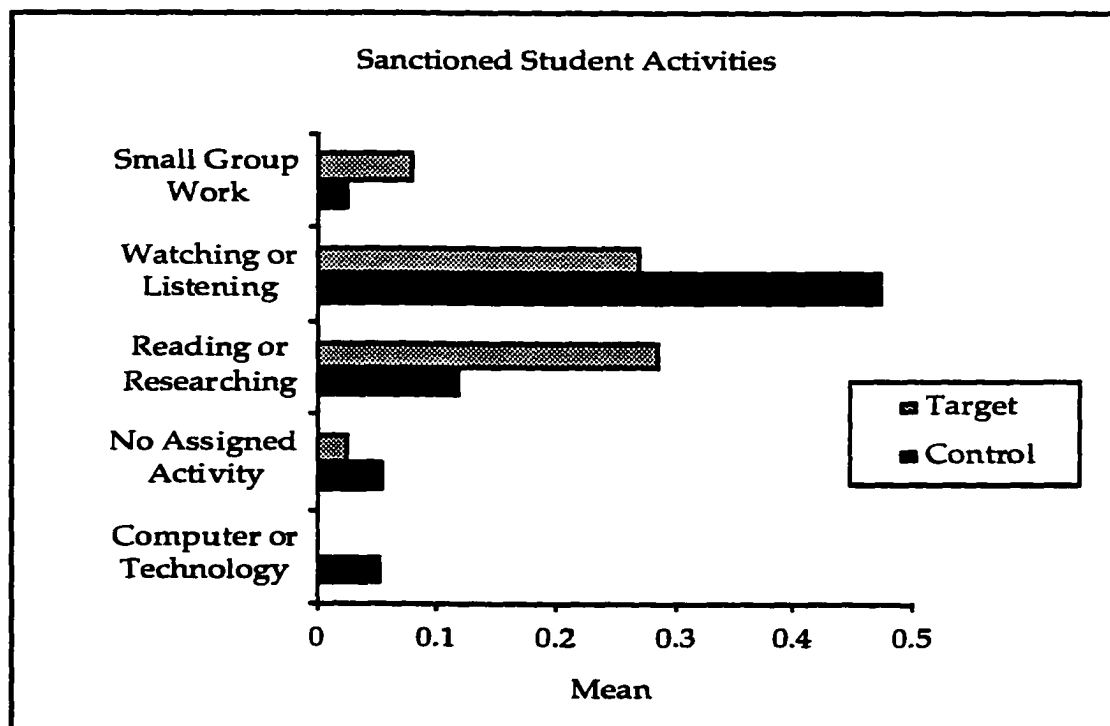


Figure 7. Comparison of Significant Sanctioned Student Activities.

Based on these results, research hypothesis seven is rejected. Significant differences regarding sanctioned student behavior between classrooms having students with LD in control (traditionally-scheduled) high schools and classrooms having students with LD in target (block-scheduled) high schools were found to exist.

### Research Hypothesis 8

Research hypothesis eight states that there are no significant differences in the amounts of individualized teacher attention (verbal or nonverbal) given to students with LD or their nondisabled peers attending control (traditionally-scheduled) high schools and students with LD or their nondisabled peers attending target (block-scheduled) high schools.

For this research question a MANOVA was calculated using schedule type (control or target) and student group (general education or learning disabled) as the independent variables. The dependent variable consisted of a composite variable identified as individual attention. This composite variable represented a combination of three of the following specific subbehaviors taken from the observation protocol: (1) hovering - individual student, (2) attending - individual student, and (3) attending - target student.

Table 24 shows that no significant differences in levels of individual attention received by students was found to exist for either of the independent variables. Based on these results, hypothesis eight was accepted.

Table 24

## Multiple Analysis of Variance for Level of Individual Attention

Source	df	F Value
Student Group	1	.27
Schedule Type	1	.52
Schedule Type x Student Group	1	.03

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

## CHAPTER V

### DISCUSSION

#### Introduction

The purpose of this study was to investigate the impact of changing from a traditional schedule to a block schedule on selected school-related behaviors and measures of secondary students with LD and their regular education teachers. Data collection occurred through two distinct methods: (1) a review of existing historical records, and (2) through direct classroom observation. Historical records were used to analyze the school performance measures of success rates, attendance rates, and numbers and types of discipline referrals. Data obtained through direct classroom observation was used to analyze levels of students' active engagement in learning activities, the variety of teaching and learning modes used, and the amount of individualized teacher attention given to students in each setting.

#### Overview of Chapter

The purpose of this chapter is to discuss the results obtained from this study along with implications for education and recommendations, where appropriate, for educational practices as they relate to secondary students with LD. Discussion includes: (a) a summary of the findings, (b)

implications and recommendations, (c) limitations of this study, and (d) directions for further research.

## Summary of Findings

### Research Hypotheses One Through Four

Research hypotheses one through four focused on school performance measures of student success rates, attendance rates, and discipline referrals. An analyses of existing historical records was conducted to determine the outcomes of these hypotheses. The results obtained for each of these areas of focus are summarized below.

#### Student Success Rates

The literature consistently lists increased student achievement as an educational outcome of block scheduling (Buckman et al., 1995; Canady & Rettig, 1993; Canady & Rettig, 1995a; Edwards, 1995a; Strocks & Hottenstein, 1994; The Wasson Block Plan, 1995). This study analyzed student success rates from two perspectives: (1) the proportion of classes passed to classes taken, and (2) student grade point averages.

The results indicate that secondary students with LD both passed a significantly lower proportion of classes and earned significantly lower grade point averages in their first year of the new block schedule as compared with their previous year under traditional scheduling. Similar differences were not found to exist over time for those students attending the control schools using traditional scheduling formats for both years. Thus the findings of this study, showing a decrease in overall student



success rates of secondary students with LD under the first year of block scheduling, are in direct opposition to the student achievement outcomes cited in the literature.

### Student Attendance Rates

The literature frequently lists increased student attendance rates as an outcome of block scheduling (Buckman et al., 1995; Canady & Rettig, 1993; Canady & Rettig, 1995a; Munroe, 1989; The Wasson Block Plan, 1995.) This study analyzed the number of daily absences per student for secondary students with LD attending both the control and the target schools.

The results show that secondary students with LD in the target schools had a significantly higher number of days absent in their first year of the new block schedule as compared with their previous year under traditional scheduling and as compared with their peers attending control schools during the same time period. Again, the findings of this study, showing a decrease in attendance rates for secondary students with LD, are contrary to the student attendance outcomes cited in the literature.

### Discipline Referrals

Fewer numbers of student suspensions and disciplinary infractions are outcomes commonly cited in the literature on block scheduling (Buckman et al., 1995; Canady & Rettig, 1993; Canady & Rettig, 1995a; Edwards, 1995b; Festavan, 1996). This study analyzed the numbers and

types of written student discipline referrals for secondary students with LD in both the control and target schools.

No significant differences in overall numbers of discipline referrals were found and only one significant difference was found to exist in the types of discipline referrals. Category one, procedural violations, was found to occur significantly more often in the control schools than in the target schools for the 1995/96 school year.

This result caused this researcher to reject the null hypothesis of no significant differences. However, the fact that this difference occurred only in the 1995/96 school year, when all schools followed a traditional scheduling format, suggests that there may have been some initial differences between the sample groups. As no other significant differences were found to exist, it can be concluded that block scheduling did not have a significant impact on student discipline referrals. This finding is contrary to the positive impact that was suggested by the literature.

#### Research Hypotheses Five Through Eight

Research hypotheses five through eight focused on levels of students' active engagement in learning activities, the variety of teaching and learning modes used, and the amount of individualized teacher attention given to students. An analysis of data collected through direct classroom observation was conducted to determine the outcome of these hypotheses. The results obtained for each of these areas of focus are summarized below.

### Differences in Student Behavior

The literature on block scheduling suggests that this type of scheduling format facilitates greater levels of students' active engagement in learning activities (Block Scheduling Gaining Steam, 1996; Buckman et al., 1995; Edwards, 1995b; Festavan, 1996; The Wasson Block Plan, 1995). This study analyzed levels of students' active engagement in learning activities from two perspectives: (1) percent of time on or off task, and (2) modes of engagement (passive, verbal, motor, or multiple modes).

The results indicate that there were no differences in the percent of time spent on or off task between secondary students with LD attending the control or the target schools. Also, no differences were found between the percent of time on or off task between students with LD and their nondisabled peers in either setting.

An analysis of the modes of engagement of secondary students with LD found only one significant difference. Students attending the control (traditionally-scheduled) schools were significantly more apt to be engaged in activities utilizing multiple modalities than were the students attending the target (block-scheduled) schools. No differences were found to exist between groups of students (LD or their nondisabled peers) within either school setting.

The difference found in modes of engagement is curious, as the literature on block-scheduling leads the reader to believe that the format of block scheduling would enhance the occurrence of hands-on and group activities which are multimodal in nature. Instead, multiple modes of engagement occurred more frequently for students in the traditionally-

scheduled classroom format. This researcher has no explanation for this outcome at this time.

It should be noted that there were no differences in student behavior found between student groups (LD and their nondisabled peers) in either analysis. That is, the secondary students with LD and their nondisabled peers were more alike than different in their behavior in the classroom settings observed in terms of percent of time on or off task and in modes of engagement.

### Teaching and Learning Modes Used

The literature on block scheduling touts as one of its main advantages, the ability of the longer class periods in this type of scheduling format to allow for a greater variety of teaching strategies and to promote more active learning modes (Block Scheduling Gaining Steam, 1996; Brown, 1996; Buckman et al., 1995; Edwards, 1995a; Festavan, 1996; Kadel, 1994; Lammel, 1996; Short & Thayer, 1995; Strocks & Hottenstein, 1994). This study analyzed the teaching and learning modes used from two perspectives: (1) the classroom behavior of the teacher, and (2) the sanctioned student activities taking place in the classroom.

The results indicate that there were a number of significant differences in teacher behavior between the target and control schools. In the control (traditionally-scheduled) schools teachers spent significantly more of the class time: (a) sitting, (b) not attending to students, (c) providing no feedback, and (d) providing students with social feedback. In the target (block-scheduled) schools the teachers spent significantly

more of the class time: (a) walking or pacing, (b) working with small groups of students, (c) actively structuring or directing the class activity, (d) providing academic feedback, and (e) providing positive feedback.

Similarly, there were several differences in the types of sanctioned student activities taking place in the classroom. In the control (traditionally-scheduled) schools students spent significantly more class time: (a) using computers or other technology, (b) having no assigned activity, and (c) watching or listening. In the target (block-scheduled) schools students spent significantly more class time: (a) reading or researching, and (b) working in small groups.

With the exception of the finding involving using computers or other technology, these results appear to substantiate the claims made by the literature. Teachers in block-scheduled classrooms appear to be more actively involved in classroom activities offering more input and reinforcement to the students, while the students in these classrooms are engaged in activities that are more active than passive in nature. It is worth noting that none of the students in the block-scheduled classrooms were observed to be using computers or other technology ( $M = .0000$ ,  $SD = .0000$ ). It may be possible that the observations simply did not occur on days when this technology is used and thus the difference appeared to be significant.

Once again, it should be noted that there were no differences found in teacher behavior towards the two student groups (LD and their nondisabled peers) or in the sanctioned student activities of either student group. That is, the secondary students with LD and their nondisabled

peers were treated as more alike than different in terms of teacher behavior and their assigned activities in the classroom setting.

### Amount of Individualized Teacher Attention

The literature states that, with the significant reduction in the teachers' workloads afforded by the block-scheduling format, teachers are able to give greater attention to meeting the individual needs of their students (Edwards, 1993; Lammel, 1996; O'Neil, 1995). They also are able to provide for more individualized student attention during the class period (Brown, 1996; Buckman et al., 1995; Edwards, 1993; The Wasson Block Plan, 1995). This study analyzed the amount of individualized teacher attention (verbal or nonverbal) given to students in both the control and target schools.

The results indicate that there were no significant differences in individualized teacher attention, either by schedule type (block and traditional) or by student group (students with LD and their nondisabled peers). While this finding does not preclude that teacher attention was given to planning instruction to meet individual student needs, it does indicate that teachers in block-scheduled classrooms did not demonstrate the provision of any greater amounts of individualized attention for students than did teachers in traditionally-scheduled classrooms. Thus while the time during class may have been available to provide more individualized attention, it was clearly not utilized for this purpose by the teachers.

## Implications and Recommendations

The purpose of this study was to investigate the impact of changing from a traditional to a block schedule on the school related behaviors and measures of secondary students with LD and their regular education teachers. The findings from this study suggest that the impact from such a switch in scheduling formats does present a number of implications with the potential of affecting the school success of this particular population of students. These implications, with related recommendations, fall into two main areas: (1) student performance, and (2) classroom environment and expectations.

### Student Performance

The findings from this study indicate that in the first year of switching from a traditional to a block schedule, secondary students with LD passed fewer classes, had lower grade point averages, and had a higher number of days absent. Given the previously documented history of school failure (Kirk & Gallagher, 1989; Polsgrove, 1994; Rieth & Polsgrove, 1994; Schloss et al., 1995; Zigmond, 1990), deficits in study skills (Chalfant & VanReusen, 1992; Kirk & Gallagher, 1989; Rieth & Polsgrove, 1994), and high drop out rates of this population of students (Edgar, 1987; Razeghi, 1996; Rieth & Polsgrove, 1994; Roderick, 1993; Schloss et al., 1995; Zigmond, 1990); these findings warrant special consideration by educators.

A concerted effort is needed to ensure that secondary students with LD receive adequate levels of academic support to enable them to experience success in their school setting. As this study evidences, for

students attending block-scheduled schools, this support is even more critical. Both general and special education teachers need to exert greater levels of energy to help these students experience academic success. Special attention may need to be given to the scheduling of classes for these students. Special education service delivery may need to be reexamined to ensure that the academic needs of these students are receiving enough support.

All school staff may need to take extra steps to see that meaningful connections are made with these students in order to provide them with the amount of individualized attention that they require to experience success. What is clear from this study is that secondary students with LD are not getting any greater amounts of individualized attention in the classroom than are any of the other students. As the literature has made clear, greater levels of individualized attention are needed by these students if they are going to be successful in school (Bulgren & Carta, 1992; McIntosh et al., 1993; Razeghi, 1996; Swicegood & Parsons, 1991; Smith & Luckasson, 1992; Wilson & Wesson, 1986).

While the potential for block scheduling to positively impact the student performance measures of secondary students with LD appears to exist (Canady & Rettig, 1995a; Block Scheduling Gaining Steam, 1996; Block Scheduling and Inclusion, 1997), this reality is as yet unconfirmed.

### **Classroom Environment and Expectations**

The findings from this study indicate that the classroom environment is somewhat different in the block-scheduled school. There



appears to be more active learning taking place in several ways: (a) students are spending time reading or researching versus watching or listening, (b) students are working in small groups versus having no assignment, (c) the teacher is walking around the room or pacing versus sitting, and (d) the students are receiving academic or positive feedback versus social or no feedback.

While the more active learning environment initially may appear to be advantageous for students with LD by affording more opportunities for performance-based or hands-on approaches to learning (Block Scheduling Gaining Steam, 1996; Marshak, 1997; Scruggs & Mastropieri, 1993), such an environment also presents some special challenges for this population. The literature confirms that poor self-concept and social skills are traits commonly associated with adolescents with LD (Chalfant & VanReusen, 1992; Rieth & Polsgrove, 1994; Schloss et al., 1995; Smith & Luckasson, 1992). Yet in a classroom environment structured with more emphasis on small group work, these deficit areas create additional obstacles for students with LD to overcome. Additionally, the passive or inactive learning style often associated with this population of students (Brozo, 1990; Bulgren & Carta, 1992; Lerner, 1985; McIntosh et al., 1993) is going to present a challenge in a classroom environment emphasizing a more active learning approach.

As a result, students with LD are going to need to develop and utilize some metacognitive skills and strategies. They will need to be able to ask for help when needed, request clarification of information, and let their teachers or group members know when they don't understand

directions or content. These students will need to be able to self-analyze their progress and be able to share their areas of strength and weakness with others.

Rather than attempting to cover up their disability in the classroom, these students are going to need to become assertive self-advocates. Developing and using these metacognitive skills and strategies needs, in turn, to become a focus for the direct instruction taking place in special education classrooms. Students will need opportunities to learn, practice, and become proficient at these skills.

The findings in this study confirmed earlier results (McIntosh et al., 1993; Zigmond et al., 1990), in that students with LD behave more similar to than different from their nondisabled peers in the general education classroom. In reality, however, these students are different and have unique learning needs that must be addressed in order to enable them to experience success in school. Educators must actively take on the challenge of assisting these students to learn and use the necessary skills and strategies that will allow them to meet the unstated classroom expectations in block-scheduled schools.

### Conclusions

This researcher believes that the block-scheduling format holds much promise for secondary students with LD. However, much concerted thought and effort are needed to enable the unique needs of this population of students to be met. Special educators need to change their past practices in instruction, stay current on best knowledge and practices

relating to teaching metacognitive skills, improve their connections to and communications with individual students, and work much more collaboratively with general educators to enable these students' needs to be met. Building and district administrators need to review their staffing patterns, their special education delivery model, class scheduling priorities, and opportunities for promoting staff development. Overall, the communication between all members of the school community, including the parents, must increase. Finally, continued systematic evaluation of all implemented school improvement strategies, including the educational outcomes facilitated by a switch to block scheduling, is critical.

### Limitations of Study

There are several clear limitations to this study which suggest that these results should be viewed cautiously. First, the research populations included only six schools in south and central Michigan. Different results might be obtained with a larger number of school sites or with sites spread over a wider geographic area. Second, both the student and classroom sample sizes were small. Larger sample sizes might yield different results.

Another limitation is that no attempt was made to control for the relationship or effects that extraneous variables may have had on the data that was collected. Extraneous variables such as grading practices between schools, class or class section tracking of students, overall school environmental factors, district policy on determining eligibility as a

student with learning disabilities, and classroom size may have influenced the results of this study.

This study is also limited by the dependent measures used during the direct classroom observations. The dependent measures of student engagement, variety of teaching and learning modes used, and the amount of individualized teacher attention given to students did not include any indication of the quality of the behavior being observed. Finally, with few empirical studies available, comparisons of the results of this study to others is severely limited.

A caution is urged in using percentages to compare the number of classes passed and the number of days absent. The opportunity to pass or fail a percentage of classes or to determine the average number of days absent changes with the number of classes that a student takes at any one time.

### Directions for Further Research

During the course of this study five areas meriting further study became apparent:

1. The replication of this study in additional school sites and across a wider geographic focus would add to the generalizability of the findings.
2. A longitudinal approach taking into account the impact of change beyond the initial year of implementation of a block study schedule would be valuable. It is possible that the results may change over time. As both students and teachers adjust to the different scheduling

routine, findings may more closely parallel the more positive effects of block-scheduling that are touted in the literature.

3. The research design should be expanded to include qualitative measures of the perceptions of students, teachers, administrators, and parents to the new scheduling format.

4. This study focused solely on the content area of language arts while collecting the classroom observational data. Expansion of the research design to include data collected from other content areas such as social studies, science, and mathematics would enhance the validity of the findings.

5. This study focused on the impact of making the switch to block-scheduling on selected school related behaviors and measures of secondary students with LD and their regular education teachers. Future research should include students with other areas of disability or specified at-risk criteria, as well as focusing on the behaviors of both special education and regular education teachers.

**Appendix A**  
**Human Subjects Institutional Review Board Approval Letters**



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## WESTERN MICHIGAN UNIVERSITY

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Date: 18 February 1997

To: George Haus, Principal Investigator  
Sandra Wayne, Student Investigator

From: Richard Wright, Chair

Re: HSIRB Project Number 97-02-03

This letter will serve as confirmation that your research project entitled "Implications of Changing to 4 by 4 Semester Block Scheduling for Secondary Students with Learning Disabilities" has been **approved** under the **exempt** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

**Please note:** On page 1 of your application, you indicated that the sites of the research activity would be six public high schools. Your application contained letters from only five sites. Therefore, you may only implement this research at the following five sites:

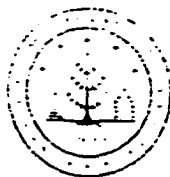
Harper Creek Community Schools  
Battle Creek Public Schools  
Lakeview School District

Charlotte Public Schools  
Gull Lake Public Schools

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination:



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## WESTERN MICHIGAN UNIVERSITY

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Date: 30 April 1997

To: George Haus, Principal Investigator  
Sandra Wayne, Student Investigator

From: Richard Wright, Chair

Re: Extension of Approval, HSIRB Project Number 97-02-03

This letter will serve as confirmation that an extension to your research project entitled "Implications of Changing to 4 by 4 Semester Block Scheduling for Secondary Students with Learning Disabilities" has been granted by the Human Subjects Institutional Review Board. This extension provides the additional time necessary to collect data at the sixth site, Everett High School in the Lansing School District. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now continue to implement the research as described in the original application.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the continued pursuit of your research goals.

Approval Termination: 31 May 1997



**Appendix B**  
**Site Approval Letters**

# Charlotte Public Schools

378 State Street  
Charlotte, Michigan 48813  
(517) 543-2810  
fax (517) 543-8556

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*MARSHA A. WELLS, Associate Superintendent for Instruction*

## MEMORANDUM

To: Human Subjects Institutional Review Board  
Western Michigan University

From: Marsha Wells, Associate Superintendent for Instruction

Date: January 20, 1997

Subject: Research Project on Block Scheduling

I have reviewed Sandra Wayne's research proposal on block scheduling and am aware of the purpose and procedures involved in her study. I support this project and give Sandra permission to conduct this research at Charlotte High School, from February-April, 1997.

**"Where Learning Is A Lifelong Process For All"**

Charlotte Public Schools is an equal opportunity employer that offers student programs and services without regard to sex, race, creed, national origin or handicap.



# Gull Lake Community Schools

"Better Schools Make Better Communities"

Administration Office  
11775 East D Avenue  
Richland, MI 49083  
(616) 629-5880  
Fax (616) 629-5527

## MEMORANDUM

Gull Lake High School  
9550 East M-89  
Richland, MI 49083  
(616) 629-5803  
Fax (616) 629-4461

TO: Human Subjects Institutional Review Board  
Western Michigan University

FROM: Robert Sickles, Principal *Bob Sickles*

Gull Lake Middle School  
9500 N. 40th Street  
Hickory Corners, MI 49060  
(616) 671-5135

DATE: January 14, 1997

SUBJECT: Research Project on Block Scheduling

Thomas M. Ryan  
Intermediate School  
9562 East M-89  
Richland, MI 49083  
(616) 629-5851

I have reviewed Sandra Wayne's research proposal on block scheduling and am aware of the purpose and procedures involved in her study. I support this project and give Sandra permission to conduct this research at Gull Lake High School.

Bedford Elementary School  
315 Hutchinson Road  
Battle Creek, MI 49017  
(616) 964-4877

Kellogg Elementary School  
9594 N. 40th Street  
Hickory Corners, MI 49060  
(616) 671-5135

Richland Elementary School  
9476 East M-89  
Richland, MI 49083  
(616) 629-5880


Transportation Office  
11775 East D Avenue  
Richland, MI 49083  
(616) 671-5315



Administration Offices  
7290 B Drive North  
Battle Creek, Michigan 49014  
Telephone 616/979-1136

**MEMORANDUM**

**TO:** Human Subject Institutional Review Board  
Western Michigan University

**FROM:** David R. Buresh, Superintendent 

**DATE:** January 6, 1997

**SUBJECT:** Research Project on Block Scheduling

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I have reviewed Sandra Wayne's research proposal on block scheduling and am aware of the purpose and procedures involved in her study. I support this project and give Sandra permission to conduct this research at Harper Creek High School.

DRB:ef

CC: Dan Warren, Principal  
Harper Creek High School  
Steve Spurr, Director  
Special Education Services  
Harper Creek School District

*"Where Life and Education Merge..."*

Harper Creek High  
7290 B Drive North

Harper Creek Junior High  
7290 B Drive North

Beaure Lake Elementary  
8175 C Drive North

Sandwich Elementary  
2420 B Drive North

Warrior Park Elementary  
1325 S. W. 11th Ave.

# LAKEVIEW SCHOOL DISTRICT

*"Learner-Centered Schools in a Quality System"*

15 Arbor Street  
Battle Creek, MI 49015

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Robert D. Spencer, Ph. D.  
Superintendent of Schools

Telephone (616) 965-3080  
FAX (616) 965-3068

January 1, 1997

Human Subjects Institutional Review Board  
Western Michigan University  
Kalamazoo, Michigan  
49008-3899

Re: Research Proposal Presented by Sandra Wayne


Dear Board Members,

I have read the doctoral research proposal of Sandra Wayne and have discussed the proposal with her. Having done so, I am aware of both the purposes of and procedures involved in this study. Ms. Wayne has also given assurances that research participants will be assured anonymity and that no personally identifiable information will be collected.

Please be advised that I am supportive of Ms. Wayne's proposed research on block scheduling here in the Lakeview School District and that she has my permission to conduct this research at Lakeview High School. The research is timely in that a number of high schools are changing to the so called "block schedule" format. Quality research regarding the affects of such changes would be quite useful.

Please feel free to contact me regarding Ms. Wayne's proposed research.

Sincerely,



Robert D. Spencer, Ph. D.  
Superintendent of Schools

c: Mr. Bob Ward, Lakeview High School Principal

Lakeview is an Equal Opportunity Institution



April 4, 1997

Sandy Wayne  
306 Champion Street  
Battle Creek, MI 49017

Dear Ms. <sup>Wayne</sup>~~Champion~~:

In regard to the proposed study, "Implications of Changing to 4 by 4 Semester Block Scheduling for Secondary Students with Learning Disabilities", request to conduct the study in the Lansing School District has been approved.

The following comments apply to the study:

*Any staff or student participation is strictly voluntary. Parent consent forms must be on file with the school prior to any contact. Please contact me to work out the details of your contacts with Everett High School.*

If you have any questions or need additional information, please contact me (325-6460).

Thank you.

Marian Phillips  
Supervisor

MP/mlc

cc: Research Review Committee Members

Research & Evaluation Services Office  
500 W. Lenawee St.  
Lansing, Michigan 48933



# **BATTLE CREEK PUBLIC SCHOOLS**

BATTLE CREEK CENTRAL HIGH SCHOOL  
100 West VanBuren • Battle Creek, Michigan 49017

Phone: 616-965-9526  
Fax: 616-965-3851

BRUCE Z. BARNEY  
Principal

PETE LITCHKA  
High School Director of  
Curriculum and Instruction

**TO:** *Human Subjects Institutional Review Board  
Western Michigan University*

**FROM:** *Bruce Z. Barney, Principal*

**DATE:** *December 20, 1996*

**SUBJECT:** *Research Project on Block Scheduling*

*I have reviewed Sandra Wayne's Research Proposal on Block Scheduling and am aware of the purpose and procedures involved in her study. I support this project and give Sandra permission to conduct this research at Battle Creek Central High School.*

*lgl*

DAVID DILLMAN  
Grade Principal - 12th Grade

JOHN RASMUSSEN  
Grade Principal - 11th Grade

RUTH CARR  
Grade Principal - 10th Grade

**Appendix C**  
**Building Contact Person's Worksheet**



**General Information Needed:**

- 1996/97 course syllabus (also 95/96 if English courses have been changed)
- 1996/97 student handbook (also 95/96 if discipline referrals/consequences have changed)
- copy of master schedule for 2nd semester of 1996/97
- dates to avoid doing classroom observations (e.g. vacation, conferences, testing, special events)
- breakdown of student diversity in district/building
- % of handicapped students in the district
- contact person(s) - [names and phone numbers]
- date to meet with English department teachers prior to start of classroom observations

**Data Collection:**

- Identification of target students
  - obtain resource teacher caseloads
  - mark all Learning Disabled students in grades 10 - 12
  - delete any of the above not continuously enrolled since the fall of the 1995/96 year
  - remaining students constitute the target students for this study
- Observational data collection
  - list all English class sections currently offered including teacher, room #, and time period
  - list target students enrolled in each of the above class sections
  - delete any class sections with less than 2 target students listed
  - give list of remaining class sections to researcher
  - when notified of observation dates by researcher, distribute completed teacher observation notice sheets
  - prepare announcement of visitors in building/classrooms for daily announcements or inclusion in building daily/weekly news memo
- Historical data collection
  - obtain copies of target students' report cards or computer printouts of credits for the entire 1995/96 and 1996/97 school years
  - obtain copies of target students' attendance for the entire 1995/96 and 1996/97 school years [may already be on report card copies]
  - complete discipline referral code sheets for target students for the entire 1995/96 and 1996/97 school years
  - remove or make unreadable any personally identifiable student information on the above data
  - give data collected to researcher

**Appendix D**  
**Teacher Handout**

## **TEACHER HANDOUT DISSERTATION STUDY ON SCHEDULING FORMATS**

### **Statement of the Problem**

The purpose of this study is to investigate the impact of changing from a traditional schedule to a block schedule on the school related behaviors of secondary students with special learning needs.

### **Study Areas**

Comparisons of the school-related behaviors of secondary students with special learning needs in high schools using different scheduling formats will be made in the following general areas:

1. School performance measures (obtained from administrative records)  
success rates, attendance rates, and discipline referrals
2. Affective measures (obtained from classroom observations)  
levels of students' active engagement in learning activities

### **Design and Methodology**

#### **Research Locations**

Schools included in this study include Lakeview High School, Harper Creek High School, Battle Creek Central High School, Gull Lake High School, Charlotte High School, and Lansing Everett High School.

#### **Research Design**

The design of this study involves data collection from two data sources. Data from administrative records will be collected as anonymous group data with no personally identifiable information recorded. Data will only be disaggregated only by building and type of schedule. Data from direct classroom observation will be collected on levels of students' active engagement in learning activities. Project UPWARD, a computerized

observation system using a momentary time-sampling technique will be used by trained observers to collect classroom data. Data will be collected anonymously with no personally identifiable information and disaggregation will be possible only for building and schedule type.

### **Subjects for direct observation data collection**

**Teachers.** Language arts teachers into whose class sections target students are enrolled will serve as the teacher subjects for this study. Teacher names will not be recorded in the data collection process. Each selected class section will be observed a maximum of two scheduled class periods.

**Students.** Classroom teachers will identify (but not name) target students for the observers based on information provided to them by designated building contact persons prior to the observation. Control students in each classroom will be randomly selected.

### **Duration of Study**

Historical data collection will occur in the winter of 1997 and a final time at the close of the 1996/97 school year. Classroom observations will take place from February 1997 through June 1997.

## **Data Analysis, Results, and Discussion**

Appropriate statistical procedures will be used to analyze all data. Results will be presented and discussed with both limitations of the study and implications for education addressed. Recommendations will be made based on the findings of the study. A summary of the study results will be shared with participating schools at their request. The completion of the study is anticipated by the fall of 1997.

**Appendix E**  
**Discipline Referral Code Sheet**

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[illegible]

## **Appendix F**

### **Observation Protocol**

## **UPWARD OBSERVATION SYSTEM - MODIFIED OVERVIEW**

### **I. CLASSROOM IDENTIFICATION**

#### **A. GENERAL INFORMATION**

### **II TEACHER BEHAVIOR**

#### **A. TEACHER POSTURE**

#### **B. HOVERING OR PHYSICAL LOCATION**

#### **C. TEACHER'S OVERT ATTENTIONAL FOCUS**

#### **D. INSTRUCTIONAL ACTIVITY**

#### **E. PERFORMANCE FEEDBACK**

### **III. TARGET STUDENT BEHAVIOR**

#### **A. SANCTIONED STUDENT ACTIVITY**

#### **B. STUDENT TASK ORIENTATION**

#### **C. STUDENT ENGAGEMENT**



## UPWARD OBSERVATION SYSTEM - MODIFIED OUTLINE

### I. CLASSROOM IDENTIFICATION

#### A. GENERAL INFORMATION

- \_\_\_\_\_ NAME OF SCHOOL DISTRICT
- \_\_\_\_\_ NUMBER OF STUDENTS IN CLASSROOM
- \_\_\_\_\_ NUMBER OF ADULTS IN CLASSROOM
- \_\_\_\_\_ TIME CLASS IS SCHEDULED TO BEGIN

### II TEACHER BEHAVIOR

#### A. TEACHER POSTURE

- 0 NO TEACHER OUT OF ROOM
- 1 WK WALKING OR PACING
- 2 ST STANDING
- 3 SI SITTING

#### B. HOVERING OR PHYSICAL LOCATION

- 0 NO TEACHER OUT OF ROOM
- 1 HL HOVERING NEAR STUDENTS - LARGE GROUP
- 2 HS HOVERING NEAR STUDENTS - SMALL GROUP
- 3 HI HOVERING NEAR INDIVIDUAL STUDENT
- 4 NH NOT HOVERING NEAR ANY STUDENTS
- 99 CT CAN'T TELL

#### C. TEACHER'S OVERT ATTENTIONAL FOCUS

- 0 NO NOT ATTENDING TO ANY STUDENTS
- 1 AL ATTENDING TO LARGE GROUP
- 2 SN ATTENDING TO SMALL GROUP - NOT TARGET STUDENT
- 3 ST ATTENDING TO SMALL GROUP - WITH TARGET STUDENT
- 4 IN ATTENDING TO INDIVIDUAL - NOT TARGET STUDENT
- 5 IT ATTENDING TO INDIVIDUAL TARGET STUDENT
- 99 CT CAN'T TELL

**D. INSTRUCTIONAL ACTIVITY**

- 0 NO NO DIRECT INSTRUCTION OCCURRING
- 1 LC LECTURING
- 2 DI DIDACTIC - TEACHER / STUDENT EXCHANGES
- 3 LM LISTENING OR MONITORING (PASSIVE)
- 4 SD STRUCTURING OR DIRECTING (ACTIVE)
- 5 MA MANAGEMENT OF MISBEHAVIOR
- 6 TQ TEST OR QUIZ
- 7 AV AUDIO-VISUAL PROGRAM OR GUEST SPEAKER
- 99 CT CAN'T TELL

**E. PERFORMANCE FEEDBACK**

- 0 NO NO FEEDBACK OCCURRING
- 1 AP ACADEMIC FEEDBACK - POSITIVE
- 2 AN ACADEMIC FEEDBACK - NEGATIVE
- 3 SP SOCIAL FEEDBACK - POSITIVE
- 4 SN SOCIAL FEEDBACK - NEGATIVE
- 99 CT CAN'T TELL

**III. TARGET STUDENT BEHAVIOR****A. SANCTIONED STUDENT ACTIVITY**

- 0 NO NO ASSIGNED ACTIVITY
- 1 RD READING OR RESEARCHING
- 2 WL WATCHING OR LISTENING
- 3 DS DISCUSSION OR QUESTION/ANSWER - LARGE GROUP
- 4 GR SMALL GROUP WORK
- 5 MO MOTOR ACTIVITY (HANDS-ON CONSTRUCTION)
- 6 DR DRILL AND PRACTICE ACTIVITY
- 7 WR WRITING ASSIGNMENT OR NOTE TAKING
- 8 TQ TEST OR QUIZ
- 9 TR TRANSITION (ACTIVE)
- 10 DP DEMONSTRATION OR PRESENTATION TO CLASS

- 11 CO COMPUTER USE OR OTHER TECHNOLOGY
- 12 OT OTHER SANCTIONED ACTIVITY
- 99 CT CAN'T TELL

**B. STUDENT TASK ORIENTATION**

- 0 NO STUDENT OUT OF ROOM
- 1 TN ON TASK - NON DISRUPTIVE
- 2 TD ON TASK - DISRUPTIVE
- 3 NN NOT ON TASK - NONDISRUPTIVE
- 4 ND NOT ON TASK - DISRUPTIVE
- 99 CT CAN'T TELL

**C. STUDENT ENGAGEMENT**

- 0 NO STUDENT OUT OF ROOM
- 1 EP ENGAGED - PASSIVE
- 2 EV ENGAGED -VERBAL
- 3 EM ENGAGED - MOTOR
- 4 ME MULTIPLE MODES OF ENGAGEMENT
- 99 CT CAN'T TELL

## **UPWARD OBSERVATION SYSTEM - MODIFIED NARRATIVE**

### **I. CLASSROOM IDENTIFICATION**

This section provides basic demographic information regarding the specific classroom being observed.

#### **A. GENERAL INFORMATION**

The information in this section will provide general information regarding the classroom.

##### **----- NAME OF SCHOOL DISTRICT**

Enter the name of the school district in which the building is located.  
Example: Battle Creek, Lakeview, Charlotte, Harper Creek, Gull Lake, or Lansing.

##### **----- NUMBER OF STUDENTS IN CLASSROOM**

This is a physical count of the number of students in the classroom. This count should be made at the beginning of the observation and not changed if students enter or leave the classroom during the observation period.

##### **\_\_\_\_\_ NUMBER OF ADULTS IN CLASSROOM**

This is a physical count of the number of adults present in the classroom. Adults would include; teachers, teacher-assistants, paraprofessionals, guest speakers, administrators, parents, student interns, etc.

##### **----- TIME CLASS IS SCHEDULED TO BEGIN**

Enter the time that the class is scheduled to begin. Enter the scheduled time for the class to begin and not the time the teacher may actually start the class.

### **II. TEACHER BEHAVIOR**

Teacher behaviors are those activities that the teacher or other adult performs in the classroom. If the class is being taught by two or more adults, focus on the adult who is most active or who is leading the class during the observation time. If more than one adult is active, focus on the adult who

may be most likely to interact with the target student during the observation time.

#### **A. TEACHER POSTURE**

Teacher posture refers to the physical stance that the teacher is positioned in during the observation time.

##### **0 NO TEACHER OUT OF ROOM**

The teacher is not in the classroom during the observation moment.

##### **1 WK WALKING OR PACING**

Walking is the action of deliberately moving from one location to another by leg movement. Pacing is the action of moving back and forth within or across a prescribed space. The purpose of pacing is simply movement, rather than to get from one location to another. Pacing often occurs as teachers lecture or passively monitor.

##### **2 ST STANDING**

Standing is the action of having one's weight balanced on one's feet while remaining stationary. The teacher could be either in an erect position or in a squatting position.

##### **3 SI SITTING**

Sitting is the act of having one's weight supported on one's buttocks. Sitting may include being in a chair, on a table, or on a desk. The primary difference between sitting and standing is where the teacher's weight is supported.

#### **B. HOVERING OR PHYSICAL LOCATION**

Hovering is the teacher action of being in close physical proximity (at least within an arm's length) to students, with the purpose of being near those students. The teacher may or may not be interacting with the student(s) she or he is hovering near.

##### **O NO TEACHER OUT OF ROOM**

The teacher is not in the classroom during the observation moment.

## **1 HL HOVERING NEAR STUDENTS - LARGE GROUP**

The teacher is physically moving around or in close physical proximity to a large group. A large group is made up of more than six students. The purpose of the physical location of the teacher is to be near the group. Examples: the teacher is standing in the middle of the class giving directions, the teacher is walking around and looking over each student's shoulder and the focus of the teacher's attention vacillates among the individuals in the large group.

## **2 HS HOVERING NEAR STUDENTS - SMALL GROUP**

The teacher is physically near a small group of students (2-6 students). The teacher may or may not be moving about. The purpose of the physical location of the teacher is to be near the group. Examples: the teacher is answering questions for a small group, the teacher is listening to a discussion being held in a small group.

## **3 HI HOVERING NEAR INDIVIDUAL STUDENT**

The teacher is in the physical proximity of an individual student. The purpose of the physical location of the teacher is to be near that one student. The teacher may or may not be having a direct and on-going interaction with that student. Examples: the teacher is monitoring the compliance of a specific student, the teacher is helping a student who is having difficulties with an assignment.

## **4 NH NOT HOVERING NEAR ANY STUDENTS**

The teacher is not within arm's distance of any student.

## **99 CT CAN'T TELL**

It is unclear or impossible to determine if the teacher is hovering. There is no obvious instructional reason for the physical location of the teacher.

## **C. TEACHER'S OVERT ATTENTIONAL FOCUS**

This classification describes to whom or with what the teacher's attention is focused. If the teacher's attention is directed to a specific individual and that attention clearly benefits other members of the group, then code the teacher's attention as group, rather than individual. The general rule is that attentional focus for larger groups supersedes specific attentional focus for smaller groups. Examples: if,

during a whole class discussion, the teacher says, "Robert please tell us the answer to the first question," then the teacher focus would be coded as AL (attending to large group). Although the teacher singled out Robert, the teacher's instructional attention is clearly for the benefit of the whole class; if, during the same discussion, the teacher says, "Robert, sit down!" then the teacher's attentional focus would be coded AI (attending to individual) since the attentional focus was specific for Robert.

## **0 NO NOT ATTENDING TO ANY STUDENTS**

The teacher's attention is not directed toward a student or students. Included in this category are talking to another adult, grading papers, preparing for a lesson, passing out work sheets, and reading a book.

## **1 AL ATTENDING TO LARGE GROUP**

The teacher's attention is directed towards a large group (more than six students) that does not include the target student. Example: the teacher is reviewing the directions to a project for half of the class and the target student is working with a partner on a different assignment.

## **2 SN ATTENDING TO SMALL GROUP - NOT TARGET STUDENT**

The teacher's attention is directed towards a small group (2-6 students) that does not include the target student. The teacher is monitoring a cooperative learning group that does not include the target student.

## **3 ST ATTENDING TO SMALL GROUP - WITH TARGET STUDENT**

The teacher's attention is directed toward a small group (2-6 students) that includes the target student. Example: the teacher is monitoring a cooperative learning group that includes the target student, the teacher is helping a small group that includes the target student find some reference material.

## **4 IN ATTENDING TO INDIVIDUAL - NOT TARGET STUDENT**

The teacher's attention is directed specifically toward an individual student other than the target student. The attentional focus is intended to benefit that individual student rather than other students in the classroom. Examples: the teacher is working with an individual non-

target student at his desk, the teacher is writing a pass for a non-target student, the teacher is telling a non-target student to stop misbehaving.

## **5 IT ATTENDING TO INDIVIDUAL TARGET STUDENT**

The teacher's attention is directed specifically toward the target student and is intended to individually benefit the target student. Examples: the teacher tells the target student to turn to the correct page, the teacher is working individually with the target student, the teacher is checking the target student's pass.

## **99 CT CAN'T TELL**

It is unclear or impossible to determine the attentional focus of the teacher.

## **D. INSTRUCTIONAL ACTIVITY**

This category is used to record the instructional activity that the teacher was engaged in during the observation period.

## **0 NO NO DIRECT INSTRUCTION OCCURRING**

The teacher is not engaged in an instructional activity. This includes the preparation of materials for the next activity and transition times between activities. Examples: the teacher is not in the room, the teacher is grading papers or taking attendance, the teacher is telling a joke that is not related to the content of the instruction, the teacher is questioning a student about their attire.

## **1 LC LECTURING**

The teacher is presenting content specific information orally. An informative talk that is characterized by being prepared prior to the recitation. Example: The teacher is presenting to the class the social climate of Philadelphia during the writing of the Constitution.

## **2 DI DIDACTIC - TEACHER / STUDENT EXCHANGES**

Didactic instruction involves an interchange between student and teacher and could include the teacher behaviors such as modeling, demonstrating, explaining, discussing, and questioning or prompting. This type of instruction shares the common feature of presenting information or concepts.



### **3 LM LISTENING OR MONITORING (PASSIVE)**

The teacher is actively listening to a student talking about the content of instruction for 50% or more of the observation moment. **OR** The teacher is actively and directly monitoring a class/group/individual, by looking over the students' shoulders while they are working on a task. Student talk may include an extended response or a self-disclosure that relates content to the student's personal experiences.

### **4 SD STRUCTURING OR DIRECTING (ACTIVE)**

The teacher structures or gives verbal directions for an instructional task, gives a rationale for doing a task, or relates the present activity to a prior activity.

### **5 MA MANAGEMENT OF MISBEHAVIOR**

The teacher is actively managing student misbehavior. Student misbehavior is any action that is not sanctioned by the teacher and is disruptive to other students. Teacher management of misbehavior could include nonverbal intervention, verbal intervention, or punishment,

### **6 TQ TEST OR QUIZ**

The teacher is using a standardized or informal instrument to assess a student's present state of knowledge or skill development. The test or quiz may be oral, written or performance-based. Asking an occasional question in the context of a lesson is not considered testing.

### **7 AV AUDIO-VISUAL PROGRAM OR GUEST SPEAKER**

The teacher is providing the class with an audiovisual program (voice recording, television program, movie, film, computer presentation, etc.) or has arranged for a guest speaker to meet with the class. The teacher's responsibility is to facilitate the guest speaker or the presentation of the audiovisual material. The teacher may be in a listening mode during the observation moment, however the teacher is still the facilitator for the presentation.

### **99 CT CAN'T TELL**

It is unclear or impossible to determine if the teacher is engaged in an instructional activity.

## **E. PERFORMANCE FEEDBACK**

Performance feedback is any verbal or nonverbal action of the teacher which is performed to acknowledge student academic or social performance.

### **0 NO NO FEEDBACK OCCURRING**

The teacher is not giving either academic or social feedback.

### **1 AP ACADEMIC FEEDBACK - POSITIVE**

The teacher is providing positive feedback to a student or group of students on an academic topic. Positive feedback is an intervention intended to accelerate or maintain specific task engagement behavior(s). Positive feedback can be verbal or nonverbal, and includes praise, encouragement, acknowledgement, gestures, and facial expressions. It is not used to present, explain, or clarify academic content. Examples: the teacher smiles at a student when he hands in a paper, the teacher repeats a student's correct answer to other students, the teacher praises Joe for answering a question.

### **2 AN ACADEMIC FEEDBACK - NEGATIVE**

The teacher is providing negative feedback to a student or group of students on an academic topic. Negative feedback is a teacher intervention intended to decelerate or eliminate specific academic performance. Negative feedback can be verbal or nonverbal, and includes reprimands, discussions, lectures, gestures, and facial expressions. It is not used to present, explain, or clarify academic content. Examples: "Your answer is wrong, try again," the teacher puts his thumb down, the teacher marks a student's answer as being incorrect.

### **3 SP SOCIAL FEEDBACK - POSITIVE**

The teacher is providing positive feedback to a student or group of students for a social behavior. Positive feedback is an intervention intended to accelerate or maintain specific social behavior(s) of a student or students. Positive social feedback includes praise, encouragement, acknowledgement, gestures, and facial expressions. It is not used to present, explain, or clarify or teach behavior. Examples: "I'm happy to see you working so hard today," The teacher smiles at a student when he sits down after being told to do so.

#### **4 SN SOCIAL FEEDBACK - NEGATIVE**

The teacher is providing negative feedback to a student or group of students about a social behavior. Negative feedback is a teacher intervention intended to decelerate or eliminate specific social behaviors. Negative social feedback includes reprimands, discussions, lectures, gestures, and facial expressions. It is not used to present, explain, or clarify behavioral performance. Examples: "Reed, stop that!"; the teacher shakes his head back and forth when a student explains why she is late for class.

#### **99 CT CAN'T TELL**

It is unclear or impossible to determine if the teacher is engaged in giving feedback.

### **III. TARGET STUDENT BEHAVIOR**

Student behavior refers to what the target student is doing during the observation period.

#### **A. SANCTIONED STUDENT ACTIVITY**

Sanctioned student activity refers to what the student is supposed to be doing. Sanctioned activities are defined as any activity that is teacher approved for the student to be doing at that moment in time. Sanctioned activities may be transitory in that they may change several times during the class period.

#### **0 NO NO ASSIGNED ACTIVITY**

The target student has not been assigned an activity. It is improbable that the student knows what to actively do or the student is waiting for the teacher to give the next direction(s).

#### **1 RD READING OR RESEARCHING**

The target student's approved activity is reading silently or orally. This includes skimming for information as in doing research or searching for references and sources of information.

#### **2 WL WATCHING OR LISTENING**

The target student's approved activity is to watch or listen. This

activity may be directed toward a peer, the teacher, another adult, or a medial device. This may be either an individual or a group activity. This includes listening and watching the teacher lecture and present information.

### **3 DS DISCUSSION OR QUESTION/ANSWER - LARGE GROUP**

The target student's approved activity is having a discussion or participating in a question and answer session in a large group (7 or more persons). This includes both teacher-student and student-student interactions.

### **4 GR SMALL GROUP WORK**

The target student's approved activity is to be taking part in small group (2 - 6 persons) or cooperative learning activities. As a member of the small or cooperative learning group, the target student may be expected to talk, listen, read, write, or do some task.

### **5 MO MOTOR ACTIVITY (HANDS-ON CONSTRUCTION)**

The target student's approved activity is working on a hands-on project involving active physical construction of some type. Examples include: designing a diorama, making a poster, conducting an experiment, constructing a prop needed for a skit or play.

### **6 DR DRILL AND PRACTICE ACTIVITY**

The target student's approved activity is working on a drill-and-practice activity. A drill and practice activity may be oral, written, or kinesthetic. Drill and practice activities are characterized as being redundant activities designed to reinforce demonstrated skills, not to teach new or unique skills.

### **7 WR WRITING ASSIGNMENT OR NOTE TAKING**

The target student's approved activity is working on a written assignment or actively taking written notes. A written assignment is one in which the student is required (as part of the class activity) to put pencil to paper and create. Examples: creative writing, answering or writing questions, writing a report, copying information from the blackboard.

## **8 TQ TEST OR QUIZ**

The target student's approved activity is taking a test or quiz. These can be formal or informal. Answering a question during class is not considered a quiz.

## **9 TR TRANSITION (ACTIVE)**

The target student's approved activity is to be in transition or actively moving from one location to another either in or out of the classroom. Transition is the process of changing from one task to another.

Examples: assembling papers and pencils for a test, changing seats for a cooperative learning activity, turning in part one of an assignment before starting on part two.

## **10 DP DEMONSTRATION OR PRESENTATION TO CLASS**

The target student's approved activity is to provide the class, either individually or as a member of a group, with a demonstration or presentation. The purpose of the demonstration or presentation is to provide evidence of learning or understanding the academic content.

## **11 CO COMPUTER USE OR OTHER TECHNOLOGY**

The target student's approved activity is to be using a computer or operating other technology for purposes relating to the academic content of the class.

## **12 OT OTHER SANCTIONED ACTIVITY**

The student should be engaged in an approved activity that is not included above.

## **99 CT CAN'T TELL**

It is unclear or impossible to determine what the sanctioned activity is.

## **B. STUDENT TASK ORIENTATION**

Student task orientation refers to what the target student is doing in reference to the sanctioned activity he is "supposed" to be doing.

## **0 NO STUDENT OUT OF ROOM**

The target student is not in the room.

**1 TN ON TASK - NON DISRUPTIVE**

The target student is engaged in a sanctioned activity. The student is not disturbing other students.

**2 TD ON TASK - DISRUPTIVE**

The target student is engaged in a sanctioned activity but is disrupting other students, causing their attention to be diverted from the academic task.

**3 NN NOT ON TASK - NONDISRUPTIVE**

The target student is not engaged in a sanctioned activity. He is not disturbing other students.

**4 ND NOT ON TASK - DISRUPTIVE**

The target student is not engaged in a sanctioned activity. He is disrupting other students.

**99 CT CAN'T TELL**

It is unclear or impossible to determine if the target student is on or off task.

**C STUDENT ENGAGEMENT**

Student engagement refers to the activity that the target student is engaged in during the observation period. The behaviors may or may not be sanctioned.

**0 NO STUDENT OUT OF ROOM**

The target student is not in the room.

**1 EP ENGAGED - PASSIVE**

The target student is engaged in an activity but is not actively participating in the activity. Examples: The target student is listening to the teacher lecture.

**2      12      ENGAGED -VERBAL**

The target student is talking, humming, singing, shouting, etc.

**3      EM      ENGAGED - MOTOR**

The target student is engaged in an observable motor activity.

Examples: writing, walking to new location, kicking another student, etc.

**4      ME      MULTIPLE MODES OF ENGAGEMENT**

The target student is engaged in both verbal and motor activities.

**99      CT      CAN'T TELL**

It is unclear or impossible to determine what activity the student is engaged in.

**Appendix G**  
**Observer's Directions**



## CLASSROOM OBSERVATION

### General Instructions

1. Wear your name tag at all times in the buildings. Report either to the main office or other location as designated by the researcher.
2. When you enter the classroom, introduce yourself to the teacher(s). Establish a place to sit giving you access to an electrical outlet. Get target student information from the teacher as soon as possible once you are in the classroom.
3. If the teacher asks you to introduce yourself to the class, just say your name and that you are a research assistant for a study being conducted by Western Michigan University on what high school classrooms in different schools are like.
4. Try to limit your interaction with the students. Be polite, but fairly brief in your responses to them. [Hint: if you look busy either entering data or taking notes they will tend to ask you less questions.]
5. Start the LOOK program immediately, with data collection beginning as soon as you find possible after the bell rings.
6. Choose a control student for each target student. Choose from the same half of the room [front or back] but on the opposite side [left or right]. Choose someone of the same gender if possible.
7. **Watch the target or control student only during the observation period.** Spend any extra time either taking notes or watching the rest of the class.
8. The top of the computer screen will direct you to focus on either teacher or student behavior. Be careful about whose behavior you are entering for each category.
9. **If unsure about two behavior choices, choose the lower number.**
10. If you run into an emergency or the program gets stuck, press Control and Break simultaneously to abort the program. If this happens take out the bad disk and note on the label that you had problems. Insert a fresh disk and resume data collection as soon as possible.
11. End the program 2 - 3 minutes before the final bell rings to allow yourself time to enter any end notes. Be prepared to move out of the class right with or after the students.
12. Label each disk with your name, the date, and the building observed. Start each day with a fresh disk.

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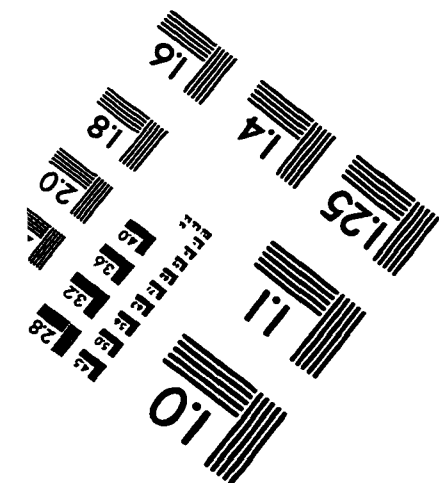
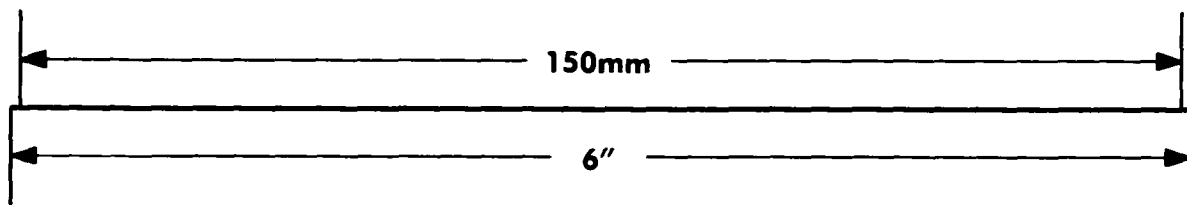
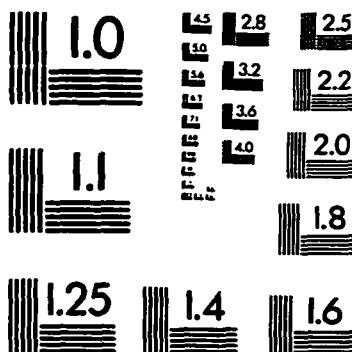
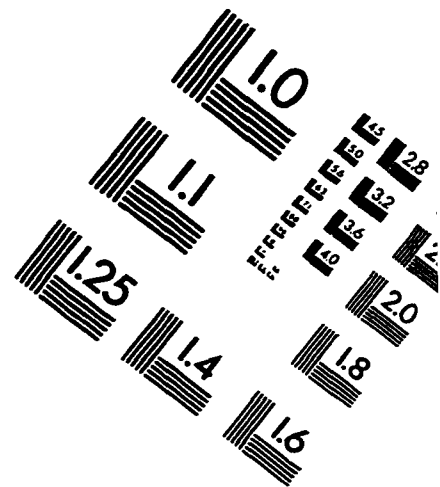
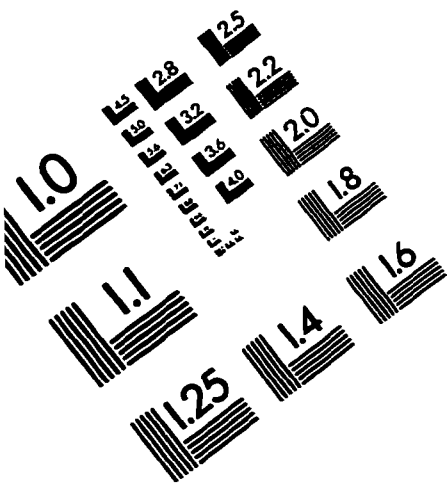
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# IMAGE EVALUATION TEST TARGET (QA-3)



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