INSTRUCTIONAL STRATEGIES AMONG HIGH SCHOOL TEACHERS UNDER THE BLOCK VERSUS TRADITIONAL SCHOOL SCHEDULE

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To the Graduate School:

We are submitting a field study by Patrice Turner entitled "Instructional Strategies Among High School Teachers Under the Block versus Traditional School Schedule." We recommend that it be accepted in partial fulfillment of the requirements for the Education Specialist degree in Education with concentration in Secondary Education.

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Instructional Strategies among High School Teachers Under the Block versus Traditional School Schedule

A Field Study

Submitted to the Graduate School

of

Austin Peay State University

in

Partial Fulfillment of the Requirements

for the degree of

Education Specialist

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Abstract

The purpose of this field study was to determine whether or not there were differences in instructional strategies among high school teachers of mathematics, science, social studies, and language arts teachers who teach under the block versus traditional school schedule. Subjects completed a survey adapted from Jenkins, Queen, and Algozzine (2002) pertaining to preferences for, use of, and training with respect to various instructional strategies. Data analysis revealed no significant differences in use of or preference for specific instructional strategies. Conclusions were that instructional strategies of block schedule teachers were no different than those of traditional schedule teachers.

Chapter I

Introduction

According to the National Commission on Time and Learning, teachers do not have enough time to teach critical information to students under the traditional school schedule (Arnold, 2002). In recent years block scheduling has emerged as an alternative method of time management in the education of students in grades 9 through 12. The traditional school schedule consists of one 45 to 55 minute block of time each day for each subject area. Advocates for educational reform argued that the task of teaching students the required subject matter on such a schedule often proved difficult. As a result, many administrators in public school districts across the United States have implemented the block schedule format to structure the school day. In contrast to the traditional school schedule, the block schedule format utilizes a 90 to 100 minute block of time per day for each course. Block schedules are usually implemented as the 4 X 4 block

schedule or the A/B block schedule (Arnold, 2002). The 4 X 4 schedule usually consists of four 90 minute classes for 90 days (or first semester) and four different 90 minute classes for the remaining 90 days (second semester) in a school year. The A/B block schedule consists of four 90 minutes classes on alternating days. Each schedule type allows students to take up to eight courses during the school year. Although the two former descriptions are general forms of the block schedule, many variations exist (Bottge, Gugerty, Serlin, & Moon, 2003).

Definition of Terms

Block Schedule: the structure of the school day consisting of 4 individual 90 to 100 minute classes taught daily or on alternating days.

Block(s): reference to individual class periods under the block school schedule.

Cooperative Learning: students working together (collaborating) on projects or tasks in pairs, groups, or teams. This strategy fosters development of interpersonal skills, responsibility, and teamwork.

Discovery Learning: students engage in research type activities to gather information about a topic. Students then share the information with their peers once they have verified their findings.

Traditional Schedule: the structure of the school day consisting of 6 to 8 courses taught in 45 to 55 minute segments daily.

Single(s): reference to individual class periods under the traditional school schedule.

Hybrid: a variation of the block schedule consisting of a combination of singles and blocks.

Pacing: The restructuring of curriculum to accommodate longer class periods in the block schedule.

Problem Statement

Research has shown that although classes were longer, block teachers maintained the traditional strategy of direct lecture instruction (Jenkins, Queen, & Algozzine,

2002). This practice is less conducive to learning than use of varied strategies in this type of schedule (Santos and Rettig, 1999; Fitzgerald, 1996; Hackman and Schmitt, 1997; Day et al., 1996). Some studies reported that block scheduling had no effect on students' academic achievement (Arnold, 2002; Bottge et al, 2003). Continued emphasis on lecture could contribute to the result that block scheduling had no effect on student achievement. Jenkins et al (2002) suggest one problem was that teachers under the block schedule did not receive proper relevant training prior to teaching in that format. The implication is that teachers are not using the variety in instructional strategies block scheduling permits. Further, curricular pacing has been neglected when teachers did not receive proper training pertaining to teaching under the block schedule. If teachers did not realign their curricular schedule as a result of longer class periods, they might have fallen behind in their teaching. The result is that students don't get the exposure to required relevant subject matter necessary for success in subsequent courses.

Purpose of the Study

The purpose of this field study is to determine whether there is a difference in instructional strategies among teachers of core academic subjects under block versus traditional school schedules. The types of instructional strategies teachers implement have a direct effect on students' academic experiences, which in turn, affect academic achievement. With the progress of education reform, many effective Best Practice techniques have emerged (Zemelman, Daniels, Hyde, 1998). Some Best Practice techniques require a move away from direct instruction or lecture-a move that has often been met with resistance from veteran teachers (Jenkins et al, 2002). The analysis for reasons for similarity in instructional strategies of teachers under the block versus traditional school schedule may explain why block schedules reportedly do not enhance students' academic achievement.

Research Questions and Hypotheses

In researching the block schedule and its impact on student academic achievement, questions pertaining to types of instructional strategies were raised. "Is there a difference in instructional strategies among teachers under

the block versus traditional school schedule?" Some courses better lend themselves to varied instructional strategies; thus, the question may not be relevant to subjects such as music, physical education, or other specialty courses (e.g. Home Economics, Wood Shop, etc.). Hence, the specific question addressed focuses on differences in instructional strategies among teachers of core academic subjects. The research questions for this study were:

1. Is there a significant difference in instructional strategies among teachers of high school mathematics under the block versus traditional school schedule?

2. Is there a significant difference in instructional strategies among teachers of high school science under the block versus traditional school schedule?

3. Is there a significant difference in instructional strategies among teachers of high school Language Arts under the block versus traditional school schedule?

4. Is there a significant difference in instructional strategies among teachers of high school Social Studies under the block versus traditional school schedule?

5. Is there a dominant mode of instruction in core subject high school classrooms?

6. Does professional development impact the use of diverse instructional strategies in classrooms of teachers under the block schedule?

7. Does professional development impact the use of diverse instructional strategies in classrooms of teachers under the traditional schedule?

Another important question is "What is the most commonly reported method of instruction in high school core academic subjects?" These research questions lead to the following null hypotheses:

1. There is no significant difference in instructional strategies among high school

teachers of Mathematics under the block versus traditional school schedule.

2. There is no significant difference in instructional strategies among high school teachers of Science under the block versus traditional school schedule.

3. There is no significant difference in instructional strategies among high school teachers of English/Language arts under the block versus traditional school schedule.

4. There is no significant difference in instructional strategies among high school teachers of Social Studies under the block versus traditional school schedule.

5. There is no significant difference in teachers' preference for instructional strategies.

6. There is no instructional strategy that is most commonly utilized by high school teachers of core academic subjects under the block versus traditional school schedule.

7. There is no significant difference in training versus use of varied instructional strategies for block or traditional schedule teachers.

Limitations

The research conducted surveyed Math, Science, Social Studies, and English/Language Arts teachers in five high schools in Middle Tennessee. Three of the schools operate under the block schedule and two schools operate under the traditional schedule. The result was a smaller sample than anticipated. Because of the small sample size, the results may not be generalized.

The research instrument was obtained from researchers who conducted a study similar to this study (Jenkins et al, 2002). One adjustment made to the instrument was the addition of a question pertaining to responding teachers'

certification status. A copy of the modified research instrument is located in appendix C of this study.

Assumptions

It was assumed that the teachers were on staff at respective schools (i.e. not substitute teachers), and the specified teachers completed their own surveys. It was also assumed that integrity was employed in the responses to the questions on the research instrument.

Chapter 2

Review of Literature

The Block Schedule Defined

There are two general types of block schedules. They are the 4 X 4 block and the A/B block schedule (Irmsher, 1995). The 4 X 4 schedule is structured such that four 90 minute classes meet every day for 90 days (or one semester). The following semester, four different 90 minute classes meet each day, thereby allowing students to earn 8 Carnegie units per year. This is more than the typical 6 to 7 units per year under the traditional school schedule. The A/B schedule is structured such that four 90 minute classes meet on alternating days for the entire school year. This type of block schedule also allows students the opportunity to earn 8 units in one school year. When modifications are made to either type of block schedule, the result is what is known as a Hybrid schedule (Boarman and Kirkpatrick, 1995). Many variations of block

schedules exist. One other type of alternative schedule is that of a block schedule with five classes meeting for 70 minutes for twelve weeks at a time. This schedule is organized around a trimester calendar as opposed to the semester calendar.

Pros and Cons of the Block versus Traditional Schedule

The block schedule has been in existence since the 1980s (Jenkins et al., 2002). In response to the release of *A Nation at Risk,* education reformers advocated the block schedule as a way to manage time and allow for variation in instructional strategies. One other effect of block schedules is reduction in student misbehavior and indirectly, absence from school. As a result, the block schedule has become increasingly common in middle and high schools nationwide (Kennedy and Witcher, 1998).

Reports discussing positive aspects of the block schedule include more opportunities for students to engage in active learning, reduction in make-up work after missing school, fewer absences, improved discipline overall, and lower failure and dropout rates (Bottge et. al., 2003). Researchers report that the block schedule allows students to focus on fewer classes daily (Shortt & Thayer, 1999),

and that students have higher academic achievement (Hess et al, 1999). This finding contradicts those in another research study. Bottge et al reported that there was no significant difference in students' academic achievement when those on the block were compared to those on the traditional school schedule. However, the limitations reported could have contributed to the contradictory findings because the research included one school and that particular school operated under a radically modified hybrid block schedule.

When Wilson and Stokes (2000) studied students' perceptions of the effectiveness of block scheduling versus traditional schedule. They found that students' perceptions of effectiveness were related to the variety of teaching strategies used in block schedule classes (Wilson and Stokes, 2000). Students and teachers report higher teaching and learning efficacy when a variety of instructional strategies are used. One reported reason for teacher efficacy was contact with fewer students and fewer classes to prepare for each day (Irmsher, 1995). Students also have fewer classes to juggle under the 4 X 4 block schedule. The daily load under the 4 X 4 schedule is lighter, but under the A/B schedule, students ultimately

juggle 8 classes for the entire school year. However, transition time between classes is cut tremendously and the overall school climate is better, as there are fewer opportunities to release hundreds, even thousands of students into the hallways between classes. Fewer opportunities for contact present fewer instances for interpersonal conflict (Hackmann, 1995, and Shortt and Thayer, 1999).

Students' Academic Achievement

Research findings regarding the effectiveness of the block versus traditional school schedule with regard to student achievement have shown no advantage of one schedule over the other (Bottge et al, 2003). However, one item these research reports failed to show was the existence of differences in instructional strategies used by teachers in comparisons of block versus traditional class sessions. Jenkins, Queen and Algozzine (2002) report that little research exists on the use of varied instructional strategies under traditional and block schedule high schools. Several other research studies report that block scheduling has no effect on student achievement (Arnold, 2002; Bottge et. al., 2003; Hess, Wronkovich, & Robinson,

1999). However, one problem with the study conducted by Hess et al. was that students had a choice of whether or not they wanted to attend school in the block schedule format, and if so, there were several variations of block scheduling employed at one time, in the same school. The major problem was that students had a choice, which could ultimately have affected the results of the research; however, the outcome was there was no change in academic performance regardless of schedule. This common finding has led some administrators to return to traditional school schedules (Rettig & Canady, 2003). Rettig and Canady attributed the "change back" to concerns such as a) flawed decision-making processes to adopt the block schedule, b) poor preparation for teaching in the block, c) unclear goals, and d) lack of rigorous formal evaluation.

Teacher Development and Training

Queen, Algozzine, and Isenhour reported, "…success in the block is a direct result of paced, interactive teaching" (1999, pg. 1). In their report, they also stated that teachers who would not or could not use more effective instructional strategies would either lecture for an entire 90 minutes or lecture for the traditional thirty to forty

minutes and allow students to do homework or nothing for the rest of the class period. Such practices present major problems with block scheduling and prompt the need for inquiry into why and how often they occur. Several references advocating the use of block schedules reiterate that professional development is necessary so that teachers are able to employ new instructional and assessment strategies (Wyatt, 1996; Hackman, 1995; Staunton, 1997; Hackman & Schmitt, 1997; Fitzgerald, 1996; Santos, 1999; Craven, 2001; Queen et al., 1999; Jenkins, et al., 2002).

Research suggests that professional development be ongoing with reference to block scheduling (Day et al., 1996; Hackmann, 1995). One study reports that teachers who received no professional development still adjusted their instructional strategies to those better suited under a block schedule (Wyatt, 1996). The reason given for this adaptation was the belief that lecture instruction would perpetuate the failure of the block schedule. Teachers in the study by Wyatt "felt their way through the dark" (1996, para 4) during the pilot year of block scheduling and found that a minimum of three activities per block was a good way to keep students engaged and enhance the "total learning experience."

Diversity in Instructional Strategies

A study done by Arnold (2002) reports that the block schedule gave teachers the benefit of fewer students to teach each day, fewer classes to prepare for, and more opportunities to use a variety of instructional strategies. This study also examined the differences in instructional strategies between teachers on the block versus traditional school schedule. The revelation was that there was a negligible difference in teachers' instructional strategies under each structure. This finding which was confirmed in the study by Jenkins et al (2002) provides insight for the lack of statistically significant differences in academic achievement of students on the block versus traditional school schedule. The basis of this result is the major concept being studied here.

Time Management

Block schedules allow students more opportunities to complete graduation requirements. Under the 4X4 or A/B block schedule, students can take up to eight different courses in one school year. One benefit of the 4X4 schedule is that if students need to retake a course from the previous semester, they can repeat the course the

following semester and still be on track to graduate with their class.

One concern mentioned in a study by Guskey and Kifer (1994), was the AP course dilemma. Teachers who teach AP courses were concerned about students taking them in the Fall because the AP exam is only offered in the Spring; there was concern that students would forget what they learned in the Fall and subsequently compromise their ability to pass the AP exam in the spring. This was only a concern for those students on the 4 X 4 block schedule. Hansen et al. (2000) presented a plan for scheduling AP classes in the 4 X 4 block schedule in an effort to alleviate the concerns some teachers had. Having taught under the block schedule for six years at the time of the report, the researchers propose that students take required pre-AP courses, take AP courses only in the spring, and plan such that AP courses are taken over the course of 11th and 12th grades. The researchers report a 33% increase in overall pass rate for AP exams using such a schedule.

Another concern regarding the former block type schedule is that classes such as band, chorus, or foreign languages meet only one semester of the year. One study indicates that teachers feel that the block schedule is not

conducive to student success art, music, and foreign language courses (Phillips, 1999). The A/B schedule is a suitable alternative in light of the latter concern. Under this type of schedule, students meet for each course throughout the school year.

Summary

Some positive aspects of the block schedule are improved school climate, fewer transitions between classes, reduced absentee and dropout rates, and opportunities for varied instructional strategies (Jenkins et al., 2002). These aspects are some of the reasons administrators cited in favor of switching to the block schedule. However, professional development is necessary to support positive experiences and growth under the new schedule.

In order to maintain effective instruction under the block schedule, teachers must adapt their teaching strategies to fit the needs of block-length classes (Wyatt, 1996). Guidance to aid teachers with this adaptation in the way of professional development is of utmost importance. Adaptation may be met with some resistance, as some veteran teachers may have to rewrite many lessons they have been teaching for several years (Jenkins et al, 2002).

Some useful professional development activities include in-service training, an in-house block schedule expert, pacing guidance, curricular realignment, consulting with outside sources, brainstorming, and evaluation of success on the block schedule (Hackmann, 1995; Wyatt, 1996). One study states that "…teachers of block classes have found that block scheduling has forced them to become better teachers…" (Wyatt, 1996, para 9). The reason was they had to plan instruction which often included two or more activity transitions, whereas before teaching under the block schedule, little planning was necessary. Professional development designed to influence planning increases the likelihood of better instruction (Wyatt, 1996). Better instruction is likely to result in better student performance.

Improved student achievement is the ultimate goal of education, and switching to the block schedule has been advocated as one way to achieve this goal (Jenkins et al, 2002; Rettig and Canady, 2003). However, simply adjusting allotted time for teaching subject matter does not directly relate to improved student performance (Rettig and Canady, 2003, Arnold, 2000 and Bottge et al., 2003). Realignment of the curriculum is necessary, as well as improving

methods of engaging students in the learning process. Some studies report that students' academic achievement was no different whether they were on the block or traditional schedule, however, lack of improved performance is better than reduction in performance (Pisapia and Westfall, 1997). Block teachers are encouraged to use a variety of instructional strategies such as integration of technology, think-pair-share, cooperative group work, use of games, and other active learning activities (Gilkey and Hunt, 1998). Students report more effective learning experiences as a result of varied instructional strategies (Wilson and Stokes, 2000). A concern regarding the block schedule is that students in AP courses do not benefit from it; however, Del Hansen et al (2000) reported that the overall pass rate for AP exams increased by 33% from implementation of the block schedule to the present, at a particular high school. Improved student achievement can result from adopting the block schedule when adoption is accompanied by modified instructional strategies.

If instructional strategies are not modified, the result is "longer periods of less effective brain-antagonistic instruction" (Fitzgerald, 1996, para 1). Longer lecture is not the key to effective instruction

under the block schedule. Switching from a traditional to block schedule should be accompanied by professional development, which in turn can lead to improved instructional practices and, indirectly, improved student achievement.

Chapter 3

Methodology

Overview

This study examines preferences for, training in, and use of various instructional practices of teachers who teach under block and traditional school schedules. Discussion also includes the presence of dominant instructional strategies, professional development received pertaining to teaching and learning under the block schedule structure, and knowledge or use of various instructional strategies. Participants were asked to provide relevant information by completing a survey previously used in a similar study by Jenkins et al (2002) conducted in North Carolina. This study is a loose replication of the former study and as such can contribute to the validity of the previous study (Patten, 2004). Also, the fact that a similar study has been completed previously reinforces the significance of the study concerning varied instructional strategies used by block or

traditional teachers. Collection and analysis of this information will answer the research questions with regard to difference in instructional strategies among teachers under the block versus traditional school schedule.

Research Design

The nature of this field study was non-experimental. Due to restrictions on resources, a sample of high school mathematics, science, social studies, and language arts teachers were asked to participate in the study. The Director of schools for the participating county in Middle Tennessee was contacted concerning the request to survey block and traditional schedule teachers with regard to this study. Upon approval, surveys were mailed to the five schools and a self-addressed stamped envelope was provided for the respondents to return completed surveys. Respondents included 35 teachers who teach under the block schedule and 18 teachers who teach under the traditional school schedule.

Due to a small number of respondents from each of the math, science, language arts, and social studies subject areas, the language arts and social studies teachers were combined and the math and science teachers were combined

into two respective categories to accommodate the use of the chi-square test. The sample of block teachers includes 16 language arts and social studies, and 19 math and science. The sample of traditional schedule teachers includes 9 language arts and social studies and 9 math and science teachers.

Research Instrument

The research instrument, created by E. Jenkins (2002), was used in a similar study conducted in North Carolina. It contains a list describing thirteen different instructional strategies. The strategies are as follows:

- Cooperative Learning
- Small Groups/Structured Pairs
- Discovery Learning
- Direct Instruction/Lecture
- Simulation/Games/Role Playing
- Student Peer Coaching/Peer Tutoring
- Audiovisual Experiences
- Technology Assistance
- Projects
- Socratic Seminars

- Integrated/Thematic Teaching
- Graphing Calculators
- Student-Led Parent Conferences

There are five sections, four of which pertain to teachers' use of, preference for, and professional development in each of the strategies listed above. They are:

A. Levels of Use of Specific Instructional Practices

B. Preference for Use of Specific Instructional Practices

C. Training in Specific Instructional Practices

D. Specific Practices: Helpfulness and Staff Development

E. Teaching Experience/Workload.

Within each category, participants rated each strategy using a Likert-type scale. Each category used different terminology for indicated responses. The responses for Category A - Levels of Use of Specific Instructional Practices - are:

- Never
- Very Seldom
- Seldom
- Often

- Very Often

Responses for Category B - Preference for Use of Specific Instructional Practices - are:

- Not Appropriate
- Appropriate
- Well-Suited

Responses for Category C - Training in Specific Instructional Practices - are:

- None
- Awareness
- Some
- Extensive

Responses for Category D - Specific practices: Helpfulness and Staff Development - are:

- Not Helpful
- Helpful
- Essential

Category E - Teaching Experience/Workload asked questions pertaining to certification, length of time in profession, current number of class and planning periods, and committee involvement. The entire survey consists of 52 items.

Procedure

With permission from each school principal, surveys were mailed to respective schools to be completed and returned via US mail in a self-addressed stamped envelope. Included on the survey document was a letter of informed consent. Completion and return of the survey constituted informed consent. Upon return of all surveys data was statistically analyzed the researcher.

Chapter 4

Data Analysis

Overview

Data analysis was completed using the Chi-square two-way test of independence to accommodate the two stratified samples (Patten, 2004). The information obtained was of the nominal level, and as such, the chi-square test was most relevant for statistical analysis in this study. The samples were stratified in that some of the respondents teach under the traditional schedule and the remaining respondents teach under the block schedule.

The data tables display the comparison between block and traditional teacher statistics side by side. Items addressed include the level of significance of the differences in instructional strategies among teachers under the block versus traditional school schedule, whether training was received with reference to use of various instructional strategies, significance of differences in the use of lecture-style direct instruction among block versus traditional teachers, and whether any particular

instructional strategy was used most by block versus traditional teachers.

Results

The chi-square two-way test of independence was used to analyze the data obtained from the teacher surveys. Empirical frequencies were compared with theoretical frequencies pertaining to block versus traditional teacher training in, use of, and preference for various instructional strategies. The theoretical frequencies were based on the null hypotheses "there is no significant difference in instructional strategies of block versus traditional teachers of high school mathematics, science, social studies, or language arts," respectively. Two additional null hypotheses were '"there is no dominant strategy for instruction among block versus traditional teachers," and "training has no effect on teacher use of instructional strategies." In using the chi-square statistical analysis, the null hypothesis was rejected if the p was less than .05 for this study.

There were 53 (N = 53) total respondents from two public high schools operating under the traditional school schedule, and three public high schools operating under the

block schedule in a county in middle Tennessee. In spite of combining the language arts and social studies teachers and the math and science teachers, a sufficient amount of data was still lacking in several comparable categories. As a result, all traditional schedule respondents were combined into a category referred to as "traditional" and all block schedule respondents were combined into a category referred to as "block".

In the data analysis, responses from several instructional strategies were combined into more broad categories to reduce repetition in reporting results. Four categories emerged from a total of 12 strategies. The four categories were cooperative learning, discovery learning, technology integration, and direct instruction.

The cooperative learning category was comprised of the strategies cooperative learning, small groups/structured pairs, student/peer coaching, and Socratic seminars from the teacher survey, part A. The discovery learning category was comprised of the strategies discovery learning, simulation/games/role playing, projects, and integrated/thematic teaching. The technology integration category included the strategies audiovisual experiences, technology assistance, and graphing calculators. Direct

instruction was the fourth strategy on the survey and was the only one in its category. The thirteenth strategy, parent conferences, was not used for data analysis in this study, as it is not relevant to classroom instruction. Each strategy is described in detail in the teacher survey in appendix C.

Cooperative learning, discovery learning, and technology integration are strategies that have emerged recently as strategies considered compatible with instruction in block schedule classrooms (Hackmann and Schmitt, 1997). The significance here is these approaches are vastly different from the traditional lecture-style direct instruction.

With reference to the four categories of instructional strategies, data comparisons made are based on teacher preference for, use of, and professional development pertaining to each strategy. Few teachers indicated having minimal or no professional development.

A chi-square test was run to determine whether block teachers' professional development exposure was different from that of teachers in the traditional schedule. Block teachers with some training in each of the various strategies were compared to their counterparts, and block

teachers with extensive training were compared to their counterparts. In all, data comparisons pertaining to block versus traditional teachers were as follows: "use of strategies," "training versus preference for strategies," and "training versus use of strategies."

Additionally, each respondent was given an overall score pertaining to the use of various instructional strategies. The nominal responses given for 12 instructional strategies (section A of the teacher survey) were assigned a number from 1 to 5, with 1 being most like direct instruction and 5 being least like direct instruction. For example, a question about the use of technology given a response of 1 implies that the respondent does not use this strategy.

For the "use" responses on the survey, never was assigned number 1, very seldom was assigned number 2, seldom was assigned a number 3, often was assigned a number 4 and very often was assigned a number five. With the exception of direct instruction, all strategies are considered nontraditional for this study. Since direct instruction is most traditional it is not feasible to score it in the same manner as nontraditional strategies are scored. To accommodate the possibility of skewed

information for this result, the direct instruction strategy responses were tallied in reverse order, such that a 1 implies "least like traditional instruction" and a 5 implies "most like traditional instructional."

The "overall teaching methods" score comparison was used to determine whether either category of teacher uses more or less direct instructional strategies than his/her counterpart.

Since the questions were given numerical value (1 - 5), the sum of the values for each question in the category was used. For example, in the cooperative learning category, one respondent reported 2, 4, 2, and 3 for each question, respectively. This respondent was then given a score of 11 in the category of cooperative learning. In determining if scores were seldom or frequent, the possible range of scores was determined and divided in half for this category. Those respondents who scored 4 - 12 were categorized as seldom and those who scored 13 - 20 were categorized as frequent users of the strategy. The discovery learning category was organized in the same manner. With regard to the technology integration category, the range for responses was 3 - 12 and

respondents were categorized as seldom users if their score was 3 - 7 and frequent users if their score was 8 - 12.

In the comparison of use of cooperative learning strategies, the chi - square test revealed that the difference between the groups was not significant. Table 1 shows the comparison of block versus traditional teachers and the frequency of use of this strategy. Respondents were put into one of the level of use categories based on their score pertaining to how often they employed a particular strategy. Upon completion of analysis of use of discovery learning, technology integration, or direct instruction strategies, no significant difference was found. Tables 2, 3, and 4, respectively, containing information pertaining to this result can be found in appendix D.

Table 1

Use of Cooperative Learning Strategies

	Teacher Type		
	Block	**Traditional**	**Total**
Infrequent	16	10	26
Frequent	19	8	27
Total	35	18	53

Note: Values indicate the number of teachers in each category. For significance, chi-square should be greater than or equal to 3.84. Chi-square = 0.46, $df = 1$, $p \leq 1$.

Table 2 shows the breakdown of the sample with reference to the use of discovery learning strategies. In analyzing data from tables 1 and 2, the Yates Correction for continuity was applied. The recommended minimum for each cell of the table is 5 and in all tables containing one or more cells where $n < 5$, the Yates correction for continuity was applied. Tables in appendix D containing this modification can be identified by an asterisk in the table heading.

Table 2

Use of Discovery Learning Strategies

	Teacher Type		
	Block	**Traditional**	**Total**
Infrequent	24.5	15.5	40
Frequent	10.5	2.5	13
Total	35	18	53

Note: Values indicate the number of teachers in each category. For significance, chi-square should be greater than or equal to 3.84. Chi-square = 1.67, $df = 1$, $p \leq .20$. Yates' correction for continuity applied in this analysis.

In analyzing data pertaining to preference of strategies versus use, no significant differences were found in any of the comparison. Table 8 shows this

comparison. Results from the remaining comparisons pertaining to preference for use of the identified strategies can be found in appendix D. Since there were no significant differences found, the null hypothesis, "there is no significant difference in teachers' preference for instructional strategies" can not be rejected.

Table 8

Preference for Discovery Learning Strategies

	Teacher Type		
	Block	**Traditional**	**Total**
Less preferred	12	7	19
More preferred	23	11	34
Total	35	18	53

Note: Values indicate number of teachers in each category. For significance, chi-square should be greater than or equal to 3.84. Chi-square = 0.11, $df = 1$, $p \leq 1$.

Analysis comparing training received by block versus traditional teachers in the identified categories of instructional strategies revealed no significant differences. As such, the null hypothesis "training has no effect on teacher use of instructional strategies" can not be rejected. During analysis of the data, interesting relationships began to emerge pertaining to training versus

use of strategies, and preference for versus use of strategies. Null hypotheses pertaining to these relationships were not previously mentioned and will be added here. They are "there is no significant difference in preference for versus use of identified instructional strategies with reference to block versus traditional teachers," and "there is no significant difference in training versus use of instructional strategies with reference to block versus traditional teachers."

Respondents' categories for those comparisons were as follows. In preference versus use, 7 block teachers and 3 traditional schedule teachers indicated they "seldom use" technology integration. Respondents indicating "frequent use" include 27 block teachers and 13 traditional schedule teachers. Since one of the cells contained less than 5 respondents, the Yates' correction for continuity was applies. If respondents scored 4-13 for "preference" they were assigned to the low category, and those who scored 14-20 were assigned to the high category with respect to block versus traditional. Low and High comparisons were done separately. Tables 9, 10, and 11 containing the results of these analyses can be found in appendix D. These

comparisons were only made in cases where there was sufficient data provided.

In some comparisons, cell value was 0 or 1 and as such, no comparison was made. One comparison was frequent usage versus level of preference for discovery learning strategies. In the comparison of preference versus use of technology integration, three respondents reported usage if there preference was in the "frequent use" category. In this case, a comparison was made such that level of use was cross referenced with low preference and compared by block versus traditional teachers. Table 13 shows this comparison. No significant difference was found upon analysis and as such, the null hypothesis "there is no significant difference in preference for versus use of technology integration" cannot be rejected.

Table 13

Use of Technology v. Low Preference Teacher Type

	Block	Traditional	Total
Seldom Use	6.5	3.5	10
Frequent Use	26.5	13.5	40
Total	33	17	50

Note: Values indicate the number of teachers in each category; $N = 50$. Yates correction for continuity was applied to this analysis. For significance, chi-square should be greater than or equal to 3.84. Chi-square = 0.01, $df = 1$, $p \leq 1$. Yates' correction for continuity applied in this analysis.

With regard to training versus use of the specified instructional strategies, the same "seldom" and "frequent" use categories were also used. However, the breakdown with reference to training was such that respondents who scored 4-9 were assigned to the "little training" category and those who scored 10-16 were assigned to the "extensive training" category. No comparison was made for "little training versus use of discovery learning strategies," as there were only 3 respondents in the infrequent and frequent use categories, respectively. No comparison was made for "extensive training versus infrequent use of technology integration," as there was only 1 respondent in each block and traditional category, respectively. The

comparisons made were "extensive training versus level of cooperative learning use," "extensive training versus level of discovery learning use," and "extensive training versus level of use of technology integration." None of these analyses revealed a significant difference. As such, the null hypothesis "there is no significant difference in training versus use of identified instructional strategies" cannot be rejected. Tables (14, 15, and 16, respectively) reporting this data and analysis can be found in appendix D.

In a comparison of the use of direct instruction for block versus traditional teachers, no significant difference occurred, however, the chi-square result was very close to the statistically significant level. The theoretical chi-square result was 3.84 ($N = 53$), and the empirical result was 3.20. This result was closest to the required level of significance of any of the obtained results. The result was such that the significance would have been in favor of block teachers' use of direct instruction. However, the fact remains that there was no significant difference obtained for use of this strategy and the null hypothesis "there is no significant difference in block versus traditional teachers' more frequent use of

direct instruction," cannot be rejected. Table 17 in appendix D shows the distribution of data for this comparison.

To address the null hypothesis, "there is no instructional strategy that is most commonly utilized by high school teachers of core academic subjects under the block versus traditional school schedule," teachers' total score for use of instructional strategies was calculated and three categories pertaining to level of variation were created. The highest possible score for overall instructional strategies was 61, indicating a high level of variation in instructional strategies. The lowest possible score was 17, indicating low level of variation in instructional strategies. With reference to overall instructional strategies, the three categories were "least varied (17-31)," "somewhat varied (32-46)," and "most varied (47-61)." Block versus traditional teachers were compared according to the previously mentioned levels of variation. Upon calculation of chi-square pertaining to the latter analysis, no significant difference was found and as such, the null hypothesis cannot be rejected. Table 18 contains the distribution of this data and can be found in appendix D.

Chapter 5

Conclusion

Teaching and learning under the block schedule has many benefits from improved school climate to opportunities for students to earn more credits toward graduation. Among the benefits is the opportunity for teachers to use a wide range of instructional strategies in their classrooms. The objective of this study was to find out whether block versus traditional teachers are employing diverse instructional strategies in their classrooms. Upon completion of 18 chi-square calculations pertaining to instructional strategies among block versus traditional teachers, no significant differences were found, indicating that none of the null hypotheses could be rejected. Contrary to what might be expected, these findings are encouraging with reference to the argument advocating implementation of the block schedule.

Rettig and Canady (2003) stated that simply changing the bell schedule does not ensure positive change with

reference to the teaching and learning process. One of the biggest pitfalls in implementation of the block schedule is maintaining the same strategies used in the traditional schedule for a longer period of time. A block-length lecture is one way to ensure the failure of the block schedule (Wyatt, 1996). Extended blocks of time create opportunities for diversity in strategies for teaching and learning. In a block length class, it does not seem appropriate to use one strategy the entire time, especially when it is lecture. In order to challenge the brain, it is recommended that learning activities be varied at least three times during the class period (Fitzgerald, 1996). Challenging the brain helps keep the students engaged and keeps them actively involved in the learning process. Movement is also recommended as it stimulates the flow of oxygen which is conducive to effective brain activity and in turn, the development of higher order thinking skills. One study reported that students enjoyed learning under the block schedule as long as the learning activities did not consist of extended lecture or "too much busy work" given during the class period (Wilson and Stokes, 2000). Busy work and lecture are not effective ways to use a block-length class period. Some reports have stated that block

scheduling alone does not improve student learning (Rettig and Canady, 2003). As a result of this study and many others, there is evidence to show that adapting instructional strategies is necessary to effect positive change in the teaching and learning process (Bottge et al., 2003; Cooper, 1996; Fitzgerald, 1996; Wyatt, 1996; Hackmann and Schmitt, 1997; Hackman, 1995; Rettig and Canady, 2003; Rettig and Canady, 2005; Santos, 1999; Staunton, 1997). Under the block schedule, teachers have the opportunity to employ a wide range of instructional strategies including but not limited to cooperative/group work, discovery learning, technology integration, or other connections with Gardners' theory of multiple intelligences. Professional development is necessary to give teachers the tools to affect the use of such strategies.

The fact that there were no significant differences in instructional strategies among block versus tradition teachers in this study reveals one of two things. Either block teachers have not adapted their instructional strategies to effectively utilize the time allotted or traditional teachers are utilizing a variety of instructional strategies that are equally effective under the block schedule. My hope is the latter portion of that

statement is true. If not, the next task is to ensure that block teachers receive training or professional development to foster encouragement to use a variety of instructional strategies. This may not be the final solution to resolve this issue, but it is a good starting point. Diversity in instructional strategies may not produce academic improvement in and of itself, however, it will help motivate students, which can indirectly improve their performance (Wyatt, 1996). That is the ultimate goal of education.

References

Arnold, D. E. (2002). Block Schedule and Traditional Schedule Achievement. A Comparison. *NASSP Bulletin,* 86, 42-53.

Boarman, G.L., and Kirkpatrick, B.S. (1995). The Hybrid Schedule: Scheduling to the Curriculum. In R.L. Kennedy & A. E. Witcher (Eds.), *Time and Learning: Scheduling for Success* (pp. 11 - 21). Bloomington, IN: Phi Delta Kappan.

Bottge, B. J., Gugerty, J. J., Serlin, R., and Moon, K. (2003). Block and Traditional Schedules: Effects on Students With and Without Disabilities in High School. *NASSP Bulletin,* 87, 2-14.

Cooper, S. L. (1996). Blocking in Success. *The Science Teacher,* September, pg. 28 - 31.

Craven, S. (2001). Teaching Chemistry in the Block. *Journal of Chemical Education,* 78, 4, pg. 488 - 490.

Day, M. M., Binkley, S., Ivanov, C. P. (1996). Tackling the Block Schedule. *The Science Teacher,* September, 25 - 27.

Fitzgerald, R. "Brain-Compatible Teaching in a Block Schedule."*School Administrator,* 53, 8, pg. 20 - 24. Retrieved October 29, 2005 from *Info Trac OneFile.*

ThomasGale:http://find.galegroup.com.ezproxy.lib.apsu.edu/itx/infomark.do?&type=retrieve&tabID=T002&prodId=ITOF&docId=A77196547&source=gale&srcprod=ITOF&userGroupName=tel a apsu&version=1.0.

Gilkey, S. N., and Hunt, C. H. (1998) *Teaching Mathematics in the Block*. Larchmont, NY: Eye On Education.

Guskey, T. and Kifer, E. (1994). *Program evaluation second year report*. Block Scheduling restructuring at Governor Thomas Johnson High School. College of Education, University of Kentucky.

Hackman, D. G. (1995). Improving School Climate: Alternating-Day Block Schedule. In R.L. Kennedy & A. E. Witcher (Eds.), *Time and Learning: Scheduling for Success* (pp. 23 - 29). Bloomington, IN: Phi Delta Kappan.

Hackman, D. G. (1995). Ten Guidelines for Implementing Block Scheduling. *Educational Leadership*, November, 24 - 27.

Hackman, D. G., and Schmitt, D. M. (1997). Strategies for Teaching in a Block-of Time Schedule. *NASSP Bulletin*, April, pg. 1-9.

Hansen, D., Gutman, M., and Smith J. (2000) Scheduling AP Classes in a 2 X 4 Block Schedule. *Phi Delta Kappan,* November, pg. 209 - 211.

Hess, C., Wronkovich, M., and Robinson, J. (1999). Measured Outcomes of Learning Under Block Scheduling. *NASSP Bulletin,* 83, 87-95.

Irmsher, K. (1996). Block Scheduling. In R.L. Kennedy & A. E. Witcher (Eds.), *Time and Learning: Scheduling for Success* (pp. 9-10). Bloomington, IN: Phi Delta Kappan.

Jenkins, E., Queen, A., and Algozzine, B. (2002). To Block or Not To Block: That's Not the Question. *The Journal of Educational Research,* 95, 196-202.

Phillips, J. T. (1999). *Implications of the 4 X 4 Block Schedule on High School Students.* Clarksville, Tennessee: Austin Peay State University Library.

Pisapia, J. and Westfall, A. L. (1997). *Alternative High School Scheduling. Student Achievement and Behavior. Research Report.* Metropolitan Educational Research Consortium, Richmond, VA.

Porter, C. (2002). What Do I Teach for 90 Minutes? Creating a Successful Block-Scheduled English Classroom. Urbana, IL: National Council of Teachers of English.

Queen, J. A., Algozzine, R. F., and Isenhour, K. (1999).

First Year Teachers and 4 x 4 Block Scheduling. *NASSP Bulletin,* 83, 100-103.

Rettig, M. D., and Canady, R. L. (2003). Block Scheduling's Missteps, Successes and Variables. *School Administrator,* 60, 26-31.

Rettig, M.D., and Canady, R. L. (1999). "The Effects of Block Scheduling." *School Administrator,* 56, 3, pg. 14. Retrieved October 29, 2005 from *Info Trac OneFile.* ThomasGale:http://find.galegroup.com.ezproxy.lib.apsu.edu/itx/infomark.do?&type=retrieve&tabID=T002&prodId=ITOF&docId=A77204683&source=gale&srcprod=ITOF&userGroupName=tel a apsu&version=1.0

Santos, K. E., and Rettig, M. E. (1999). Going on the Block Meeting the Needs of Students with Disabilities in High Schools with Block Scheduling. *Teaching Exceptional Children,* 31, 3, pg. 54 - 59.

Shortt, T. L., and Thayer, Y. V. (1999). Block Scheduling Can Enhance School Climate. *Educational Leadership,* 56, 76-81.

Staunton, J. (1997). A Study of Teacher Beliefs on the Efficacy of Block Scheduling. *NASSP,* December, 73 - 80.

Stumpf, T. (1995). A Colorado School's Un-Rocky Road to Trimesters. In R.L. Kennedy & A. E. Witcher (Eds.), *Time and Learning: Scheduling for Success* (pp. 45 - 47). Bloomington, IN: Phi Delta Kappan.

Wilson, J., Stokes, L. C. (2000). Students' Perceptions of the Effectiveness of Block Versus Traditional Scheduling. *American Secondary Education,* 28, 3 - 12.

Wyatt, L. D. (1996). "More Time, More Training." *School Administrator.* 53, 8, 16 - Retrieved October 29, 2005 from *Info Trac OneFile.* Thomas Gale: http://find.galegroup.com.ezproxy.lib.apsu.edu/itx/infomark.do?&type=retrieve&tabID=T002&prodId=ITOF&docId=A77196546&source=gale&srcprod=ITOF&userGroupName=tel a apsu&version=1.0

Zemelman, S., Daniels, H., and Hyde, A. (1998). Best Practice: New Standards for Teaching and Learning in America's Schools. Portsmouth, NH: Hinemann.

Appendix A

AUSTIN PEAY STATE UNIVERSITY
APPLICATION FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS

Please read the entire application before completing. Students must fill out a *Graduate Student Research Approval Form* and attach it to this application.

TITLE OF PROJECT: Instructional Strategies Among High School Teachers Under the Block versus Traditional School Schedule.

TITLE ON CONSENT FORM (If different than above):

FUNDING SOURCE: Author

PRINCIPAL INVESTIGATOR

Name: Patrice L. Turner

Status:

Faculty/Staff_____ Graduate Student __X__

Undergraduate Student ____

Department: Education, Mathematics

Mailing Address: 410-F Jack Miller Blvd, Clarksville, TN 37042

Phone: (931) 553-8146

Email Address: pturner14@apsu.edu

FACULTY SUPERVISOR

Name: Mary Lou Witherspoon

Department: Mathematics

Appendix A

Mailing Address: Box 4626, Austin Peay State University, Clarksville, TN 37044

Phone: (931) 221-1005

Email Address: witherspoonm@apsu.edu

All of the questions below should be answered using lay language. The IRB is comprised of individuals from diverse scientific and nonscientific backgrounds. You should avoid all jargon and assume that IRB members have no prior knowledge on the research topic, theoretical or methodological approaches, or measurement techniques or instruments. The best way to avoid unnecessary delays is to provide the IRB with as much information about your study as possible. **You will need to attach a copy of all demographic forms, survey instruments, and other data collection systems.** If you are unable to attach the above please contact the Office of Grants and Sponsored Programs for advice. It is important to remember that informed consent is a process not a document. Informed consent begins with recruitment and ends only after a study is completed.

1. The purpose of this study is to determine whether or not teachers who teach under the block versus traditional school schedule employ the same teaching methods. The research questions are:

   a) Is there a significant difference in instructional strategies among teachers of high school mathematics under the block versus traditional school schedule?

   b) Is there a significant difference in instructional strategies among teachers of high school science under the block versus traditional school schedule?

   c) Is there a significant difference in instructional strategies among teachers of high school

Appendix A

English/Language Arts under the block versus traditional school schedule?

d) Is there a significant difference in instructional strategies among teachers of high school Social Studies under the block versus traditional school schedule?

e) Does development training impact the use of diverse instructional strategies in classrooms of teachers under block scheduling?

f) Does development training impact the use of diverse instructional strategies in classrooms of teachers under traditional scheduling?

2. As a result of education reform, some educators feel that block scheduling can benefit their students' academic achievement, however, when teachers continue to employ the "traditional" teaching methods (i.e. direct instruction/lecture), academic improvement is less likely to occur. Jenkins, Queen, and Algozzine (2002) reported that some administrators move to block scheduling for time management purposes. This eliminates students' time spent in hallways during class changes and cuts down on discipline issues. Some existing research pertaining to block scheduling indicates that block scheduling does not positively impact academic achievement (Hess, Wronkovich, and Robinson, 1999). This study will examine possible reasons academic improvement does not occur under the block schedule.

3. The population I intend to draw my research sample from is certified high school teachers of mathematics, science, social studies, and Language Arts in the Sumner County school system in Middle Tennessee. There will be eight schools involved. Six schools operate under the block schedule and two schools operate under the traditional schedule.

Appendix A

4. Surveys of respondents who are non-certified classroom teachers will not be used in statistical analysis for this study.

5. I hope to get approximately 100 adult male and female respondents for this field study. No children will be approached.

6. I, the researcher, will first contact the Board of Education to request permission to contact each school principal. I will then contact each school principal and request permission to survey all of his or her math, science, social studies, and language arts teachers. I will make an appointment with each school and personally administer surveys to the consenting participants. Upon completion of the surveys I will retrieve them. No further participation is necessary for participants. A consent letter appears at beginning of the survey indicating teachers' rights and responsibilities pertaining to the study. Completion and return of the survey constitutes informed consent.

7. I will personally describe the study to potential participants. I will be the only one getting consent from potential participants.

8. My research procedures include administration of a teacher survey designed to give information pertaining to the teaching methods they use in their classrooms. All questions on the survey are Likert scale responses or short answer. Participants will simply be asked to complete the survey and return it to me.

9. This study does not involve deception.

10. I do not intend to provide compensation for participation in this study.

11. This study does not entail psychological, legal, physical, or social harm or discomfort to subjects.

Appendix A

12. There are no risks involved with this study. The surveys will be completed and returned anonymously. The only "labels" they will contain is the type of schedule they were retrieved from (i.e. block or traditional) and the subject taught by the participant. There are no foreseeable risks in this study. This study will reveal information pertaining to instructional strategies under the block versus traditional schedule. It will hopefully determine the type and amount of necessary training teachers should get before teaching under the block schedule as opposed to no alternative schedule training at all.

13. The confidentiality of participants will be protected because their identity will not be sought. The only identifying information I, the researcher, would like with reference to this study is the content area each survey pertains to (e.g. math, science, etc.), and the type of school schedule each survey was retrieved from.

14. Anonymity will be maintained. Participants will not be asked to write any identifying information, aside from the subject they teach, on the survey or anywhere else. The consent document will be at the beginning of the survey. Participants will have the option to not participate if they so desire.

15. No data collected will relate to illegal activities.

16. Please indicate by marking Y(es) or N(o) whether the attached informed consent document includes each of the following elements as required by the Code of Federal Regulations: Tile 45, Part 46.116.

_Y_ A statement that the study involves research,

_Y_ an explanation of the duration of the subjects' participation,

_Y_ a description of the procedures to be used;

Appendix A

Y A description of any reasonably foreseeable risks or discomforts to the subject;

Y A description of any benefits to the subject or others which can be reasonably expected from the research; *(Note: compensation is not a benefit)*

Y A statement describing the extent, if any, to which confidentiality of records identifying the subject will be maintained;

Y An explanation of whom to contact for answers to pertinent questions about the research and research subjects' rights, and whom to contact in the event of a research related injury to the subject; *(Note: should include APIRB, PI and if applicable, students' faculty sponsor)*

Y A statement that participation is voluntary, refusal to participate will involve no penalty or loss of benefits to which the subject is otherwise entitled, and the subject may discontinue participation at any time without penalty or loss of benefits to which the subject is otherwise entitled. *(Note: this statement should be written in language at an appropriate level for the subjects in your study).*

The following may or may not apply your study. Please carefully read and mark each one Y(es) or N(o).

N An explanation of whom to contact in the event of a research related injury to the subject;

N A disclosure of appropriate alternative procedures or courses of treatment, if any, that might be advantageous to the subject;

N For research involving more than minimal risk, an explanation as to whether any compensation and an explanation as to whether any medical treatments are available if injury occurs and, if so, what they

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consist of, or where further information may be obtained;

N A statement that the particular treatment or procedure may involve risks to the subject which are currently unforeseeable;

N Anticipated circumstances under which the subject's participation may be terminated by the investigator without regard to the subject's consent;

N Any additional costs to the subject that may result from participation in the research; *(Note: This is not limited to monetary costs)*

Y The consequences of a subject's decision to withdraw from the research and procedures for orderly termination of participation by the subject;

N A statement that significant new findings developed during the course of the research which may relate to the subject's willingness to continue participation will be provided to the subject; and

Y The approximate number of subjects in the study.

17. This study does not involve children.

18. I am not requesting a waiver of the documentation of informed consent.

Appendix A

I have read the Austin Peay State University Policies and Procedures on Human Research (00:002) and Research Misconduct (99:013) and agree to abide by them. I also agree to report to the Austin Peay Institutional Review Board any unexpected events related to this study. I also agree to receive approval before implementing any changes in this study.

Mary Jo Witherspoon — 2/23/04

Signature — Date

Patti L. Tum — 2/23/04

Faculty Supervisor's Signature — Date

Appendix B

College of Graduate Studies

February 24, 2005

Ms. Patrice Turner
410-F Jack Miller Blvd.
Clarksville, TN 37042

RE: Your application regarding study number 05-024: Instructional Strategies Among High School Teachers, Under the Block vs. Traditional School Schedule (Dr. Witherspoon)

Dear Ms. Turner:

Thank you for your recent submission. We appreciate your cooperation with the human research review process. I have reviewed your request for expedited approval of the new study listed above. This type of study qualifies for expedited review under FDA and NIH (Office for Protection from Research Risks) regulations.

Congratulations! This is to confirm that I have approved your application through one calendar year. You must obtain consent from all subjects, but signed written consent is not required. This approval is subject to APSU Policies and Procedures governing human subject research. The full IRB will still review this protocol and reserves the right to withdraw expedited approval if unresolved issues are raised during their review.

You are granted permission to conduct your study as described in your application effective immediately. The study is subject to continuing review on or before February 24, 2006, unless closed before that date. Enclosed please find the forms to report when your study has been completed and the form to request an annual review of a continuing study. Please submit the appropriate form prior to February 24, 2006.

Please note that any changes to the study as approved must be promptly reported and approved. Some changes may be approved by expedited review; others require full board review. Please contact me at (221-7415; fax 221-7641; email pinderc@apsu.edu) if you have any questions or require further information.

Again, thank you for your cooperation with the APSU IRB and the human research review process. Best wishes for a successful study!

Sincerely,

Charles A. Pinder

Charles A. Pinder, Ph.D.
Chair, Austin Peay Institutional Review Board
Cc Dr. Witherspoon

www.apsu.edu

P.O. Box 4458 • Clarksville, TN 37044 • P: (931) 221-7414 • F (931) 221-7641

Appendix C

Sumner County Board of Education

Loren J. Helbig, Interim Director of Schools
695 East Main Street
Gallatin, TN 37066-2472

BOARD MEMBERS
Ronnie Stubblefield, Chair
Ken Recker, Vice-Chair
Mary Ralph Bradley

(615) 451-5200

Will Duncan
Nancy Hall
Randall H. Stamps

Fax (615) 451-5216

February 14, 2005

Patrice L. Turner
410-F Jack Miller Blvd.
Clarksville, TN 37042

Dear Mrs. Turner:

Thank you for considering Sumner County Schools in your research. We are always interested in research that helps promote and improve education. We will grant you permission to include Sumner County School System results in your investigation of instructional strategies among high school teachers under the block vs. traditional school schedule if the following guidelines are adhered to during the course of your study:

1. At no time will Sumner County students or teachers be identified individually.
2. The study will not delineate Sumner County from any other county or identify Sumner County individually as a participant in the study.
3. This study will not interfere with the operation of our schools and the school system in any way.
4. During the course of the study while you are on school property you will be under the supervision of an administrator. You must meet all school rules and any stipulations that they require of you.
5. The confidentiality and anonymity of all participants will be maintained.
6. We require that you submit a copy of your study prior to publication for review to check compliance to these stipulations.
7. We hold the right to refuse the publication of this study based upon you following these guidelines and in our complying with legal Privacy Acts.

You will be under the direct supervision of the principal's of the schools you want included in the study while you are on the campus. Please contact them concerning any questions you have during your study.

If you have any questions feel free to give me a call at 451-5221. Good luck in your study, and I look forward to seeing your results.

Sincerely,

Loren Jeffrey Helbig
Interim Director of Schools
Sumner County Board of Education

Appendix D

TEACHER SURVEY: HIGH SCHOOL INSTRUCTION

You are being asked to participate in a research project entitled "Instructional Strategies Among High School Teachers Under the Block versus Traditional School Schedule." This study is being conducted by Mrs. Patrice L. Turner, candidate for the Ed. S degree in Secondary Education at Austin Peay State University. The purpose of this study is to examine differences in teaching methods of block versus traditional schedule teachers. It will supplement current research on this topic.

You are being asked to complete the following survey concerning the use of identified instructional strategies in your classroom. Your participation by completing this survey should require no more than fifteen minutes. This survey will be distributed to all high school teachers of mathematics, science, social studies, and language arts in your school system.

There is no penalty should you decide not to participate. Your responses will be kept completely confidential. Only group results will be reported and your name, school, or school system will never appear on any research document.

This research will help us learn about instructional strategies of teachers under the block schedule and the traditional school schedule. It will provide insight into ways to enhance teaching skills for teachers transitioning from traditional to block schedules. If you have any questions, please contact Mrs. Patrice Turner at (931) 553-8146 or Dr. Mary Lou Witherspoon at (931) 221-1005. You retain the right to receive a summary of the study results upon completion of the project.

Completion of this survey constitutes informed consent to participate in this study. Upon completion of the survey, please return it to Mrs. Patrice L. Turner, who will be present at administration. Thank you for your time, cooperation, and assistance.

Appendix D

Classroom Instructional Practices- This survey asks about (a) your level of use of specific instructional practices, (b) your preference for using each practice in your particular course/subject area, (c) the training that you have had on these practices, (d) the extent to which your training has been helpful in implementing the instructional practice, and (e) your teaching experience and workload. For each item, please circle the letter that best represents your response.

This survey seeks your input on the following instructional strategies:

Cooperative Learning: *Cooperative learning is a structured practice of grouping students in small mixed-ability learning teams. The teacher presents the group with a problem to solve or task to perform. Students then work together to achieve a group performance goal score by helping one another and praising and criticizing one another's contributions. Assigning group goals but maintaining individual accountability/grading characterizes cooperative learning.*

Small Groups/Structured Pairs: *Small groups are a less formally structured activity, which does not require assignment of a group goal. Students are simply assigned to small groups for the purpose of discussion or for review activities.*

Discovery Learning: *Discovery learning involves hands-on or experiential learning through teacher-directed problem solving activities.*

Direct Instruction/Lecture: *The teacher structures lessons in a sequential manner, usually with a direct oral presentation with the students frequently being responsible for note-taking, discussion, worksheets and/or drill activities.*

Simulation/games/role playing: *A representation of a real event in which the student is actively engaged in learning a new behavior or in applying previously acquired skills or knowledge. Role playing calls for students to physically act out the actions of a person or object to learn or clarify a concept. This strategy excludes computer simulations/games.*

Student peer coaching/peer tutoring: *Peer coaching 1 peer tutoring involve students teaching other students either in cross age grouping or within their own class.*

Appendix D

Audio-Visual Experiences: *Teaching content by exposing students to all types of audio-visual experiences including films, videos, CD's and tape recordings [excludes the use of direct or indirect computer activities.*

Technology Assistance: *Technology-assisted instruction involves the use of computers to assist in the delivery of instruction.*

Projects: *Teachers assign students a specific task for an extended time period. Students work individually or in small groups to produce a tangible product.*

Socratic Seminars: *Teaching by questioning and by conducting discussions of answers elicited. The teacher acts as a moderator for the discussion, which is based on classical information pertaining to the subject.*

Integrated/Thematic Teaching: *This strategy merges distinctive components of two or more disciplines in a single program of study.*

Graphing Calculators: *A graphing calculator is one with which a student can input equations and graph them on a screen.*

Student-led Parent Conferences: *Teachers instruct students on how to take a portfolio of assigned work for a specified time period and use a rehearsed script for the purpose of conferencing with their parents.*

Appendix D

Subject you teach_____

A. Levels of Use of Specific Instructional Practices

Please provide answers directly on the survey by circling the letter of your preferred response.

Levels of Use

Never: I do not use this strategy in my classroom.
Very Seldom: I use this strategy very seldom (e.g. once or twice during the course).
Seldom: I use this strategy seldom (e.g. once or twice during each grading period).
Often: I use this strategy often (e.g. once a week).
Very Often: I use this strategy very often (e.g. at least 2 - 3 times per week).

Cooperative Learning	Never	Very Seldom	Seldom	Often	Very Often
Small Groups/Structured Pairs	Never	Very Seldom	Seldom	Often	Very Often
Discovery learning	Never	Very Seldom	Seldom	Often	Very Often
Direct Instruction/Lecture	Never	Very Seldom	Seldom	Often	Very Often
Simulation/Games/Role Playing	Never	Very Seldom	Seldom	Often	Very Often
Student Peer Coaching/Peer Tutoring	Never	Very Seldom	Seldom	Often	Very Often
Audiovisual Experiences	Never	Very Seldom	Seldom	Often	Very Often
Technology Assistance	Never	Very Seldom	Seldom	Often	Very Often
Projects	Never	Very Seldom	Seldom	Often	Very Often

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Socratic Seminars	Never	Very Seldom	Seldom	Often	Very Often
Integrated/Thematic Teaching	Never	Very Seldom	Seldom	Often	Very Often
Graphing Calculators	Never	Very Seldom	Seldom	Often	Very Often
Student-led Parent Conferences	Never	Very Seldom	Seldom	Often	Very Often

Appendix D

B. Preference for Using Specific Instructional Practices

Levels of Preference

Not Appropriate: I do not prefer this strategy for my subject.

Appropriate: This strategy is an appropriate practice that can be used occasionally in my subject area.

Well Suited: This strategy is well suited to my course content.

Cooperative Learning	Not Appropriate	Appropriate	Well-Suited
Small Groups/Structured Pairs	Not Appropriate	Appropriate	Well-Suited
Discovery Learning	Not Appropriate	Appropriate	Well-Suited
Direct Instruction/ Lecture	Not Appropriate	Appropriate	Well-Suited
Simulation/Games/ Role Playing	Not Appropriate	Appropriate	Well-Suited
Peer Coaching/Tutoring	Not Appropriate	Appropriate	Well-Suited
Audiovisual Experiences	Not Appropriate	Appropriate	Well-Suited
Technology Assistance	Not Appropriate	Appropriate	Well-Suited
Projects	Not Appropriate	Appropriate	Well-Suited
Socratic Seminars	Not Appropriate	Appropriate	Well-Suited
Integrated/Thematic Teaching	Not Appropriate	Appropriate	Well-Suited
Graphing Calculators	Not Appropriate	Appropriate	Well-Suited
Student-led Parent Conferences	Not Appropriate	Appropriate	Well-Suited

Appendix D

C. Training in Specific Instructional Practices

Levels of Training

None: I have had no training in this strategy.
Awareness: I have had awareness training but not enough to implement.
Some: I have had some training to start implementation but need more to become fluent.
Extensive: I have had extensive training in this strategy and understand it well.

Cooperative Learning	None	Awareness	Some	Extensive
Small Groups	None	Awareness	Some	Extensive
Discovery learning	None	Awareness	Some	Extensive
Direct Instruction/Lecture	None	Awareness	Some	Extensive
Simulation/games/ role playing	None	Awareness	Some	Extensive
Peer coaching/tutoring	None	Awareness	Some	Extensive
Audiovisual Experiences	None	Awareness	Some	Extensive
Technology Assistance	None	Awareness	Some	Extensive
Projects	None	Awareness	Some	Extensive
Socratic Seminars	None	Awareness	Some	Extensive
Integrated/ Thematic teaching	None	Awareness	Some	Extensive
Graphing Calculators	None	Awareness	Some	Extensive
Student-led Parent Conferences	None	Awareness	Some	Extensive

Appendix D

D. Specific Practices: Helpfulness and Staff Development

For each of the following practices, please indicate
(1) how important you think it is in teaching your classes and
(2) the approximate number of related staff development hours you have had (if none, write in a zero)

Helpfulness Scale

			# of Hours
Pacing Guides	Not Helpful	Helpful	Essential
Curriculum alignment/audit	Not Helpful	Helpful	Essential
Discipline-specific planning Within Departments	Not Helpful	Helpful	Essential
Alternative evaluation/assessment Methods	Not Helpful	Helpful	Essential
Training on how to make effective use of class time	Not Helpful	Helpful	Essential
Dimensions of Learning	Not Helpful	Helpful	Essential
Content/Discipline Specific staff development	Not Helpful	Helpful	Essential
Student learning styles/ Differentiating Instruction	Not Helpful	Helpful	Essential

Do you have adequate access to technology (e.g. computers, CD-ROMs, etc) to use in support of instruction?

Yes No

Appendix D

E. Teaching Experience/Workload

Are you a certified teacher?

How many years have you been teaching?

How many classes do you currently teach this semester?

How many course preparations do you have this year?

How are you involved in instructional decision-making in your school?

Serve on school improvement team	YES	NO
Serve as a department chairman	YES	NO
Serve on an instructional planning committee	YES	NO
Serve on a SACS Committee	YES	NO
Serve on a system-wide committee	YES	NO

Appendix E

Table 3

Use of Technology Comparison

	Teacher Type		
	Block	**Traditional**	**Total**
Seldom Use	6	5	11
Frequent Use	29	13	42
Total	35	18	53

Note: Values indicate number of teachers in each category; $N = 53$, Chi-square = 0.82, $df = 1$, $p \leq 1$. For significance at the .05 level, chi-square should be greater than or equal to 3.84.

Table 4

Training in Cooperative Learning Strategies

	Teacher Type		
	Block	**Traditional**	**Total**
Little Training	1.5	2.5	4
Extensive Training	33.5	15.5	49
Total	35	18	53

Note: Values indicate number of teachers in each category; $N = 53$, Chi-square = 1.57, $df = 1$, $p \leq 1$. For significance at the .05 level, chi-square should be greater than or equal to 3.84. Yate's correction for continuity applied in this analysis.

Appendix E

Table 5

Training in Discovery Learning Strategies

	Teacher Type		
	Block	**Traditional**	**Total**
Little Training	3.5	4.5	8
Extensive Training	31.5	13.5	45
Total	35	18	53

Note: Values indicate number of teachers in each category; $N = 53$, Chi-square = 2.09, $df = 1$, $p \leq .20$. For significance at the .05 level, chi-square should be greater than or equal to 3.84. Yate's correction for continuity applied in this analysis.

Table 6

Training in Technology

	Teacher Type		
	Block	**Traditional**	**Total**
Little Training	5.5	3.5	9
Extensive Training	29.5	14.5	44
Total	35	18	53

Note: Values indicate number of teachers in each category; $N = 53$, Chi-square = 0.12, $df = 1$, $p \leq 1$. For significance at the .05 level, chi-square should be greater than or equal to 3.84. Yate's correction for continuity applied in this analysis.

Appendix E

Table 7

Preference for Cooperative Learning Strategies

	Teacher Type		
	Block	**Traditional**	**Total**
Less preferred	8	8	16
More preferred	27	10	37
Total	35	18	53

Note: Values indicate number of teachers in each category; $N = 53$, Chi-square = 2.63, $df = 1$, $p \leq .20$. For significance at the .05 level, chi-square should be greater than or equal to 3.84.

Table 9

Preference for Technology Integration

	Teacher Type		
	Block	**Traditional**	**Total**
Less preferred	18	9	27
More preferred	17	9	26
Total	35	18	53

Note: Values indicate number of teachers in each category; $N = 53$, Chi-square = 0.01, $df = 1$, $p \leq 1$. For significance at the .05 level, chi-square should be greater than or equal to 3.84.

Appendix E

Table 10

Infrequent Use versus Preference for Cooperative Learning Strategies

	Teacher type		
	Block	**Traditional**	**Total**
Less preferred	7.5	6.5	14
More preferred	8.5	3.5	12
Total	16	10	26

Note: Values indicate number of teachers in each category; $N = 26$, Chi-square = 0.81, $df = 1$, $p \leq 1$. For significance at the .05 level, chi-square should be greater than or equal to 3.84. Yate's correction for continuity applied in this analysis.

Table 11

Frequent Use versus Preference for Cooperative Learning Strategies

	Teacher Type		
	Block	**Traditional**	**Total**
Less preferred	2.5	1.5	4
More preferred	18.5	6.5	25
Total	21	8	29

Note: Values indicate number of teachers in each category; $N = 29$, Chi-square = 0.23, $df = 1$, $p \leq 1$. For significance at the .05 level, chi-square should be greater than or equal to 3.84. Yate's correction for continuity applied in this analysis.

Appendix E

Table 12

Infrequent Use versus Preference for Discovery Learning Strategies

	Teacher type		
	Block	**Traditional**	**Total**
Less preferred	10	7	17
More preferred	14	19	33
Total	24	26	50

Note: Values indicate number of teachers in each category; $N = 50$, Chi-square = 1.21, $df = 1$, $p \leq 1$. For significance at the .05 level, chi-square should be greater than or equal to 3.84.

Table 14

Extensive Training versus Level of Use - Cooperative

	Teacher Type		
	Block	**Traditional**	**Total**
Seldom Use	8	6	14
Frequent Use	26	9	35
Total	34	15	49

Note: Values indicate number of teachers in each category; $N = 50$, Chi-square = 1.38, $df = 1$, $p \leq 1$. For significance at the .05 level, chi-square should be greater than or equal to 3.84.

Appendix E

Table 15

Extensive Training versus Use - Discovery

	Teacher type		
	Block	**Traditional**	**Total**
Seldom Use	13	2	15
Frequent Use	19	11	30
Total	32	13	45

Note: Values indicate number of teachers in each category; $N = 45$, Chi-square = 2.65, $df = 1$, $p \leq .20$. For significance at the .05 level, chi-square should be greater than or equal to 3.84.

Table 16

Extensive Use versus Level of Training - Technology

	Teacher Type		
	Block	**Traditional**	**Total**
Little Training	13	8	21
Extensive Training	16	5	21
Total	29	13	42

Note: Values indicate number of teachers in each category; $N = 51$, Chi-square = 1.00, $df = 1$, $p \leq 1$. For significance at the .05 level, chi-square should be greater than or equal to 3.84.

Appendix E

Table 17

Frequency of Direct/Lecture Instruction

	Teacher Type		
	Block	**Traditional**	**Total**
Less often	1.5	3.5	5
Very often	33.5	14.5	48
Total	35	18	53

Note: Values indicate number of teachers in each category; $N = 53$, Chi-square = 3.20, $df = 1$, $p \leq .10$. For significance at the .05 level, chi-square should be greater than or equal to 3.84.

Table 18

Overall Instructional Strategies

	Teacher Type		
	Block	**Traditional**	**Total**
Least Varied (17 - 31)	7	6	13
Somewhat Varied (32 - 46)	27	10	37
Most Varied (47 - 61)	1	2	3
Total	35	18	53

Note: Values indicate number of teachers in each category. Numbers in parentheses are overall instructional strategy scores. $N = 53$, Chi-square = 3.09, $df = 2$, $p \leq .20$. For significance at the .05 level, chi-square should be greater than or equal to 5.99.