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ABSTRACT

This study investigated how teachers who are trained to use learning styles and a Learning Styles Laboratory tutoring program can assist at-risk incoming high school freshmen. The study was a collaborative effort among faculty from a state university, students from an historically black private college, and a local high school. Eight teachers at the high school volunteered to participate in the study, completed two days of learning styles instruction training, and identified their four students who were having the most difficulty after the first six weeks of school. These students were then randomly assigned to either a learning styles tutoring program or the comparison group. Overall, 21 students participated in the tutoring program. In addition, all incoming high school freshmen took the "Learning Styles Inventory" and the results for the 21 participants were shared with college-student tutors trained in learning styles instruction. Tutors worked with the students once or twice a week for 50 minutes each. Students' grades for the first and the second nine weeks of school were collected for comparison. Results were mixed. Six of the treatment group realized an improvement in grades, but the number of students in the treatment group with failing grades suggested that the program was not effective. Some of the problems with the program had to do with the attitudes of the high school teachers, their enthusiasm toward the program, and their willingness to give direction to the tutors. (Contains 43 references.) (JB)

EVALUATING THE USE OF LEARNING STYLES INSTRUCTION TO PROMOTE ACADEMIC SUCCESS AMONG AT-RISK 9TH GRADERS

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Problem

The numbers of children at risk of academic failure have increased, not decreased, as the diversity among our school children has expanded (Brandt, 1993). By the year 2000 the American Council on Education (1988) predicts that an unprecedented 42% of public school students will live in poverty and that nearly one third will represent minority groups. Adding to the growing diversity and influencing educational outcomes are exposure to AIDS (Seidel, 1992; Tonks, 93), child abuse (Bear, Schenk, & Buckner, 1993), homelessness (Linehan, 1992), and drug-related problems (Burgess & Streissguth, 1992; Griffith, 1992; Waller, 1993).

Conservatively estimated, one in five students in the United States does not complete high school (Verstengen, 1992). Dropout patterns reveal that many students falter as they enter high school and drop out as soon as they reach legal school-leaving age. Researchers in the field (e.g., Isenhart & Bechard, 1987; Slavin, & Madden, 1989; Vandegrift, Greene, & Hefernon, 1993) agree that effective dropout

prevention strategies exist; the key is finding cost-effective ways to adapt them successfully for individual schools.

Review of Literature

Learning Styles and At-Risk Students

O'Sullivan and Tennant (1993) identified learning styles instruction as one indicator of program quality for assisting at-risk students. Learning styles instruction assumes that individual student characteristics contribute to academic success. Once students' learning styles strengths are assessed, students and teachers use this knowledge to enhance learning.

Learning styles differences have been found between students at risk of school failure and more successful students (Nunn & Parish, 1992). Dunn, Bruno, Sklar, Zenhausern, and Beaudry (1990) found that matching minority developmental college students' style preferences assisted them in learning mathematics. Learning styles differences have been linked with the behavior and achievement of delinquent adolescents (Sinatra, Hirshoren, & Primavera, 1987).

Learning styles instruction has been used to improve academic success with at-risk students (Carbo & Hodges, 1988; Dunn, 1990). Perrin (1990) reported that high school teachers who introduced learning styles to their students and began to adapt their instruction to meet students' learning style strengths observed positive gains in achievement and self-esteem among at-risk students. Levine (1992) assisted learning disabled and at-risk students in English, science, and social studies classes by having teachers and students assess their individual learning styles and adapt instruction accordingly.

Vandegrift, Greene, and Hefernon (1993) reported that matching students' learning styles with teachers' teaching styles has been helpful with at-risk elementary school students in Arizona. Carns and Carns (1991) used self-diagnosed learning styles to teach students study skills, cognitive strategies, and metacognitive skills.

Tutoring to Improve Academic Success

In a recent review of educational reforms and students at risk of academic failure, Legters, McDill, and McPartland (1993) identified tutoring as a "powerful strategy for providing extra help to disadvantaged youth at all levels" (p. 66). In a meta-analysis of 65 studies that focused on tutoring programs, Cohen, Kulik, and Kulik (1982) found that both tutors and students receiving tutoring did better in the subjects tutored, and a few researcher have criticized the approach (Diem, Lawrence, & Zapata, 1989). Peer tutoring has been shown to be more cost effective than some other instructional strategies (Levin, Glass, & Meister, 1987) and a practical strategy for assisting high school students (Martino, 1993).

Peer tutors have been used successfully to assist students experiencing difficulty in high school (Henn-Reinke, 1991; Jernigan, 1987). Some successful programs have used juniors and seniors in high school to tutor students in the lower grades (Martino, 1993; Monahan, 1992). Other programs have used both teachers and peers as tutors (Hyde, 1992). In some cases high school students have received credit for tutoring or being tutored (Martino, 1993).

Tutoring can be one of many strategies in a program used to improve academic success (Eldred, 1991; Fortune & Sims, 1990;

Raby, 1990). The Lifelong Options Programs included tutoring as one component of a comprehensive vocational education intervention with at-risk students (Shirley, & Pritz, 1992). The Youth Opportunities Unlimited program placed 14 and 15 year old students who were at risk of dropping out of school for other than academic reasons in a summer work study program held on a college campus; tutoring was one of the services provided. (Bass & Bass, 1991).

Tutoring also can be the focal point of an intervention for improving achievement. New York City (NYC Board of Education, 1990) used peer tutoring in 71 high schools with 7,492 students experiencing difficulty in mathematics, reading/writing, or English as a Second Language. Tutoring sessions usually occurred before or after school but could take place during in-classroom tutorials. Evaluation results revealed that the program had met its goals in that 97 percent of the schools had at least 25 students participating, 50 percent of the participants completed at least 9 hours of instruction, and at least 70 percent of the participants passed the class in which they were tutored.

Focusing on Students in Transition

The transition between middle school/junior high school and high school is considered very important, and so a number of intervention programs, that included tutoring programs, have concentrated on first-year high school students. Monahan (1992) reported the results of a transition program for 82 ninth graders aimed at reducing the number of disciplinary infractions, improving attendance, promoting participation in school-sponsored activities,

and increasing students' awareness of available school support services. Tutoring assistance was provided along with group guidance, study skills and test taking sessions, and career exploration activities. O'Sullivan (1992) reported the results of a federally-funded, peer tutoring/work-study program for rising, at-risk ninth graders that used upper class students as tutors; the program began with a five-week summer school program and followed the students through their first year of high school. Gomer (1992) reported that peer tutoring was successful in improving the motivation and writing skills of 50 underachieving ninth graders.

Instead of using other high school students as tutors, some programs have recruited university undergraduate students to assist ninth grade students experiencing difficulty in high school. Fasko and Flint (1990) reported training 22 tutors to work with 87 high school freshmen who were reported as at-risk by school counselors in four schools. Tutors worked with four students twice each week for seven weeks. At the end of that time, students in the program rated their interpersonal relationship skills higher than those in the comparison group.

RESEARCH OBJECTIVES

While researchers have linked learning styles instruction with promoting school success among students at-risk of academic failure, the transition from theory to practice is problematic. Teachers often need to see an intervention first-hand to become convinced of its effectiveness. The problems addressed by research studies must be

relevant to perceived school needs, if teachers are expected to use the results. Both the research literature and the high school faculty participating in this study acknowledge the difficulty that incoming freshmen have in successfully completing the transition to high school. Many students are lost in the larger environment, experience failure, and/or leave school at the first opportunity. Failure rates among freshmen at the participating high school approach 30%.

The proposed research project is a collaborative effort among faculty from a state university, an Historically-Black private college, and a local public high school. The study investigates how teachers trained to use learning styles and a Learning Styles Laboratory tutoring program can assist incoming high school freshmen who experience academic difficulty during the first nine weeks of the school year. Specifically, it is hypothesized that a) Students participating in the Learning Styles Lab tutoring program will experience significantly more academic success than the comparison group who do not participate in the tutoring program; and b) Participating students in classrooms with teachers trained in using learning styles instruction will do better than participating at-risk students in classrooms with untrained teachers.

METHODOLOGY

Sampling

During the first six weeks of the semester, a presentation about learning styles instruction and the proposed research study was made to teachers at the high school, and they were invited to participate; 21 teachers responded with interest and of those 8 agreed to receive two

days of learning styles instruction training. The decision to use volunteers was deliberate, because volunteers are more predisposed to fairly try the intervention than reluctant recruits; using a random sample of teachers would, in effect, introduce other, more serious biases to the study.

At the end of the first six weeks of school, all participating teachers were asked to select their most difficult class and to identify the four students in that class experiencing the most difficulty. Teachers have been shown to identify the at risk students in their classrooms accurately (O'Sullivan, 1990). The four students in each of the selected classes then were randomly assigned to either the tutoring program or the comparison group. These freshmen then were invited into the program, one per class, until the tutors' schedules were full. Only match-pair counterparts of participating students were used for the comparison group. All told, 21 students participated in the tutoring program.

Instrumentation

All 436 freshmen at the high school were given the Learning Styles Inventory (Dunn, Dunn, & Price, 1985) to assess their learning styles strengths. Learning styles of students in the program were shared with the tutors who in turn were asked to work with the students in identifying their learning styles strengths. Participating and comparison group students' grades were collected for the first nine weeks of school and the third nine weeks of school. Tutors were asked to keep a log of their training experience and also provided information about the effectiveness of the program through focus

groups held at the end of the second and third nine-week grading periods.

Procedures

Students who accepted their invitation into the program, attended an orientation session, and were asked to return a permission slip signed by them and their parents. College students, enrolled in introductory teacher education courses volunteered for the program and were trained in learning styles instruction. Students were to work with participating students once or twice each week in 50-minute periods. Tutors received five hours of instruction in learning styles prior to beginning their tutoring sessions. During the tutoring sessions tutors were to work with teachers finding out the types of help the students needed and then work with the students to develop study materials that used their learning styles strengths. A part-time coordinator was assigned to the program to facilitate contact between tutors and the high school.

RESULTS

Identification of Students

Twelve teachers identified four students from the same class, 9 teachers identified three students, and 19 teachers identified fewer than three students from the same period. Because the number of trained tutors was limited only teachers who had nominated three or more students from the same class had students who were tutored. Teachers who nominated four students had two randomly selected for the program; teacher who nominated three had one student randomly

selected for tutoring and one for the comparison group. A total of 33 students attended orientation and received letters to be signed. Two weeks after the students were randomly selected for participation, assigned to tutors, and attended the orientation session, only 9 of the 33 had returned their permission letters. The coordinator met with the remaining 24 students individually to determine if they were interested in the program; only four students said that they were not interested, but between absences, losing the letter, or forgetting to bring the letter back, only five more students had returned their signed letters by the end of the first semester.

Signed letters were necessary only to collect information that was not part of the regular school program. A decision was made to rework the project design so that tutoring activities would become part of normal classroom activities and that all students selected who were interested could participate in tutoring.

At the beginning of the second semester, a new coordinator was hired, the researcher met with the participating teachers, and the program was reviewed. In response to formative data collected during the previous semester, more structured systems were put in place to receive the tutors and inform the teachers about the program. Some teacher and tutors requested modifications to the tutoring assignments and these were accommodated. Tutors had committed for the first semester as part of their teacher education class and had to be contacted about the possibilities of tutoring during the second semester. Of the original 15 tutors, 10 were able to return as part of a second teacher education class; 8 additional tutors were recruited

and trained from an introductory teacher education class at another university.

Comparison of Grades

Table 1 shows grades for students in the treatment and comparison group at the first nine-week grading period and the third for whom grades were available. All but three of the students in the treatment group have a grade of D or F; all but two in the comparison group. For the treatment group, 7 of the 16 grades improved, 2 stayed the same, and 7 went down. For the comparison group 2 improved, 10 stayed the same, and 4 went down.

Table 1. Comparison of Grades between the Treatment and Comparison Group

STUDENT	FIRST 9 WKS	THIRD 9 WKS		COMPARISON GROUP	FIRST 9 WKS	THIRD 9 WKS
A1	D	F		A2	F	F
B1	B	C		B2	A	C
C1	D	F		C2	D	D
D1	D	D		D2	F	D
E1	F	F		E2	F	F
F1	F	B		F2	F	F
G1	D	F		G2	D	D
H1	D	F		H2	F	F
I1	D	F		I2	D	D
J1	B	A		J2	D	D
K1	D	C		K2	D	F
L1	C	B		L2	F	F
M1	D	B		M2	D	F
N1	D	F		N2	C	F
O1	D	F		O2	D	D
P1	F	D		P2	F	C

Focus Group Information

Tutors

The researchers met with tutors periodically during the course of the project. Students' reaction to the program seemed to vary

drastically. Some students reported really enjoying the tutoring experience and other were horrified by what they saw.

The group expressed general dissatisfaction with they way they were greeted at the high school. Even though the teachers had agreed to participate in the program and had nominated students to be tutored, tutors reported that when they showed up for their assignment some of the teachers acted as if they had no idea of why they were there. More importantly, tutors expressed a frustration with the teachers for not caring enough about the students they were supposed to tutor. One student said that she thought the teachers expectations for her students were much to low. Another students observed that the teacher she was working with didn't really seem to care if the students understood the material that had been covered.

On the other hand, a number of the tutors said that they were very happy with the experience in the tutoring program. When asked, they agreed that much of it had to do with the teacher and having a sense that they were included in the program. Tutor activites varied greatly across tutors. Some were working only with their students other were working with a group of students. Some reported using learning styles, but most said they were doing whatever the teacher told them to do with the student. One even reported that she didn't think the teachers assignments were helping her student learn.

DISCUSSION

The results of the study are at best mixed. While the grade information was somewhat encouraging (i.e., six more of the treatment group realized an improvement in grade than did the comparison group) the number of students in the treatment group with grades of

D or F does not argue for the effectiveness of the program. More will be known at the end of the second semester. Information about students' attitudes about school and the tutoring program will be collected at the end of the semester and a positive change on those dimension will be encouraging to the program.

This program highlights a quandry faced by many researchers and evaluators who work with schools. Collaboration is essential for a study to be launched in the first place. As was the case in this study, the collaboration was well conceived but the implementation was far from flawless. Even though teachers were included in the process, informed about events, and contributed to the selection process, they still needed reminders about the program to ensure that the tutors were welcomed. Tutors needed more direction from the teachers and to the extent that they received that guidance the tutoring experience was positive for them.

The difficulty of having the agreement letters returned, even when the students said they wanted to begin the program, is indicative of the problem surrounding students considered academically at risk of failure. Researchers were faced with the decision of denying services to students in need of assistance or allowing that student to participate which meant limiting the type of data that could be collected. Compounding the problem was the fact that the tutors were waiting in the wings ready to tutor and anxious to begin. Waiting to identify another set of students would have brought them to the end of the semester with no tutoring experience.

At this juncture, the effectiveness of the program is unclear. With three-quarters of the school year completed, the study appears to

be more of a pilot project than one in full operation and ready to be evaluated. A number of important lessons have been learned: a) beginning teacher education students are a wonderful and willing resource for tutoring programs; there is much to be said for exposing would-be teachers to students who have experienced difficulty in the schools; b) more time and energy needs to be spent in introducing the tutors to the teachers and to the students they will tutor; and c) teachers need to agree to a more uniform role for the tutors.

The results of this program are still preliminary at best. Pieces of the program are in place. Another year of implementation should be sufficient to fairly test the tutoring strategy. Because it can be of benefit to students, because teacher education students view as a postive experience, and because it is a cost effective intervention, further investigation is warranted.

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