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ABSTRACT

How students are affected by a mentoring relationship and to what degree were studied over 3 years in the evaluation of a mentoring program that aims to improve student motivation, achievement, and behavior. In addition to a survey of 85 mentors and 89 teachers, the study examined some objective measures of student achievement for 40 elementary school students before they began the mentoring relationship and after 6 months of mentoring, and these same measures were obtained for a comparison group of 40 students. Measures used were the Wide Range Achievement Test reading and mathematics tests, the Piers-Harris Self Esteem Inventory, and the Behavior Scale. Interviews with 15 mentors and 20 students in the program provided additional data. Survey results show that teachers and mentors generally agree that students showed positive growth, with more growth seen in motivation and confidence, and less in student achievement. No significant differences in achievement test scores were found for students who worked with mentors. Nor were there any significant differences in student behavior measures. Students preferred working in small groups with mentors, and most perceived the program as beneficial. Recommendations are made for program improvement, including increased emphasis on academics if that is decided to be a focus of the program. It is suggested that mentors work with students individually if that is possible, because the personal relationship seemed to be something students valued according to their survey responses. (Contains 9 tables and 36 references.) (SLD)

The Effects of Mentoring on Student Growth

By:
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I. Introduction

In recent years a proliferation of partnerships has developed between public school systems and community businesses. These partnerships evolved in response to the dwindling financial resources available for education, as well as the increased concerns for the quality and relevance of the educational experiences provided in public schools (Moffett, 1994). This joining of forces between the business sector and the education system represents an attempt to enhance student motivation while in school, and to promote successful transitioning of students to the workplace (Spencer, 1991). One of the difficulties associated with these partnerships, however, has been the lack of any comprehensive evaluation of the effects of these efforts.

The most common form of these partnerships is the student mentoring model wherein students are provided guidance and support by an older, more experienced adult. These programs generally have been accepted as an effective vehicle for enhancing student motivation and performance in school, as well as for involving the community in the public education process. Many school districts and communities have initiated and continue to support these programs with their time and financial resources without a clear understanding of the dynamics necessary for a successful mentoring relationship.

Mentoring programs traditionally have been used in other arenas, including medicine and business, on both a formal and informal basis, as a way of fostering positive professional growth and advancement within these occupational structures (Geiger, 1992; Kram, 1985: Sheehy, 1976; Vaillant, 1977; Annals of Internal Medicine, 1994).

The establishment of mentoring programs in public schools is, in part, also a reflection of the changing complexion of the American family, and the societal trend for schools to assume responsibility for more of the functions historically satisfied within the family unit. While it can be debated whether this trend is a healthy or appropriate one, nevertheless, it seems to be a direction in which schools irrevocably are headed. The family unit as we know it today is drastically different than it was even twenty years ago, and must deal with environmental factors that clearly affect its functioning. Some of the most recent research (McClellan, 1994) shows increasing numbers of families suffering the effects of poverty; such economic and social disadvantages can permeate the entire fabric of the family and erode even the best of intentions to provide a stable, nurturing environment for children.

One of the most important functions previously carried out by the family was the development and nurturance of future aspirations and expectations of children for their adulthood. That is, children

historically had an interested adult who took the time not only to monitor the child's progress in school, but also to anticipate ways of furthering achievement of that child's goals. With many families in such disarray, this critical function is easily overlooked or not properly encouraged. While one might then logically look to the schools to meet this need, the schools are equally hard pressed to come up with the requisite resources. Hence, the idea of providing community sponsored mentors for students in schools generally has been welcomed as an initiative that might benefit the children involved.

Although mentoring programs can take on many different forms, each possessing slightly different goals (Welch, 1993; Flaxman, Ascher & Harrington, 1988), most school-based programs seek to increase school attendance, student confidence, student achievement, high school completion rates, and eventual success in further education or employment (Flaxman & Ascher, 1992). While these intentions are both noble and appropriate, it has been difficult to state definitively at this point if these mentoring programs are in fact achieving their stated goals and, if so, to what degree (Rand Report, 1992; Flaxman, 1992).

The assumption that mentoring programs are beneficial often is based on a mystique that even if they are not achieving all of their identified goals, mentoring must be doing some good even if

only simply in the form of providing a positive role model to a child (Flaxman, 1992). In fact, most self reporting survey evaluations done of mentoring programs indicate that the mentors and teachers of the students feel that the mentoring relationship is having positive effects on the student (Carmola, 1993). It is important, however, to establish more objective measures of any growth or change so that future program design might be guided by this information.

The reasons for the difficulty in ascertaining the effects of mentoring include the relative "youth" of these programs, as well as the inherent complexity in attempting to discern and measure what effects one human being might be having on another (Ianni, 1992; Flaxman, 1992). As to the former, many of these programs simply have not been in existence long enough to study validly whether goals are being achieved, particularly in light of the fact that the goals of these programs imply a process that takes a significant amount of time (Ianni; Weinberger, 1992; Levinson, 1978). In regard to the latter, human relationships are exceedingly complex, and not always compliant with attempts to impose scientific generalities or principles upon them. To attempt to measure how one person may be affecting another requires one to identify variables that can be measured and quantified, and which might be reflective of growth and change. It is recognized, however, that the variables chosen for

study may not in fact capture the full effects or changes that have occurred, as these changes are often subtle and covert, or may not surface until years later (Flaxman, 1994). Any changes noted in these variables may also be caused by other unmeasured factors; one of the principles that is certain is the unpredictability and disparity of human development (Munsinger, 1975; Liebert et al, 1974; Stassen Berger, 1994).

In spite of this complexity, however, the question that remains to be answered is what effect these mentor programs are having, and especially whether they are cost effective in terms of the dollars, time and energy involved. This article draws on three years of evaluating a student mentoring program that has as its stated goals improved student motivation, student achievement, and student behavior. This research has attempted to determine more precisely how students are affected by a mentoring relationship and to what degree. The general descriptor of "student growth" that has been used here is delineated into more specific components or indicators. This increased specificity is important, particularly as this study has attempted to discern as accurately as possible how mentoring programs might be affecting students. Student growth has been operationally defined here as including three sub-categories: student academic achievement, student confidence, and student behavior. Based on the operations of the mentoring program

studied here, these variables are appropriate indicators of student development that might result from the mentoring relationship (Spencer, 1991; Flaxman and Ascher, 1992; Ganser, 1993); they also can be operationalized quantifiably. In addition to being the stated goals of the mentoring program selected for this research, they are also reflective of the goals identified by several of the major mentoring programs in the Northeast (as reviewed and summarized by Flaxman and Ascher, in 1992).

The mentoring movement has gained increased popularity as a potentially effective intervention for youth, as seen in the data describing the prevalence of these programs. In 1989, the New York State Mentoring Committee noted the existence of over 211 mentoring programs in New York State alone (cited in McPartland and Nettles, 1991). A survey done by the U.S. Department of Education in 1990 indicated that 63 percent of college and university programs for at-risk youth incorporated a mentoring component, while 17 percent had mentoring as the critical focus of the program (McPartland and Nettles). The Carnegie Council on Adolescent Development (1989) strongly urged that in light of the increasing pressures facing adolescents, that "schools should be connected to their communities" in an effort to ensure the success of these students. The National Center for Education is cited in Black Enterprise (1991) as noting the dramatic increase in

business/education initiatives from 1984 to 1988. During this period of time, these rose 234%, from 42,200 to 140,800. It would be safe to assume that this mentoring movement will continue to gain in popularity.

The whole mentoring movement is predicated on the assumption that one can artificially create for children what might be lacking in a more naturalistic way. What is created is the one-on-one supportive relationship that is introduced and fostered, with the hope that this adult mentor will actually provide guidance and support both academically and personally, to the child involved in the relationship. This relationship is artificial perhaps only at its inception, in that two people who were previously strangers to each other, are introduced and expected or hoped to form a bond that will survive many years. These individuals come to this relationship with different agendas; the adult mentor with the desire to help and "make a difference", and the child with the need for this guidance and support. Proponents of mentoring programs assume, albeit sometimes quietly and hopefully, that this relationship will somehow grow and flourish into something that is beneficial to both parties.

When dissected as objectively as this, questions arise regarding the success of this arranged relationship. To date, there is no research available to indicate what types of children are more

amenable to these relationships, or what types of mentors are more "successful", or even where the two factors can successfully combine to create and sustain a meaningful relationship. It is interesting to note however, that the potential for success in this relationship is almost unquestionably accepted. For example, little attention has been paid to the need for the careful matching of child to mentor. Smink (1990) does mention the element of a "mutual attraction" being necessary or helpful in the development of this relationship. It is felt that it is naive to ignore this critical component of the relationship when planning and evaluating mentoring programs. It is important to question why a mentor relationship might be any more likely to sustain itself than perhaps a personal relationship, which by design and choice, is based on a mutual attraction (whether it be intellectual, personal, physical etc.) between the two parties.

II. Methodology

In an effort to examine the effects of mentoring on student growth in a more objective way, this research design has employed methods that have addressed some of the weaknesses of earlier research in this area. In light of the previously discussed importance of discerning more specifically what the exact effects of mentoring are on student growth, this variable has been operationally defined to include student achievement, student

confidence/self esteem, and student behavior. Several instruments have been selected to quantify changes that may have occurred in these areas. These instruments include the Wide Range Achievement Test (WRAT) (Jastak & Wilkinson, 1984), the Piers-Harris Self Esteem Inventory (Piers & Harris, 1983), and a Likert-scaled behavior observation completed by the classroom teacher.

In addition to the results of the survey of participating mentors and teachers, this study has examined more objective measures taken of the students before they began their involvement with a mentor, and after they had been in this relationship for a period of six months. These objective measures (WRAT, Piers-Harris, Behavior Scale) were also examined on a randomly selected control group. These comparison measures were also gathered using the same time line as the measurements on the experimental group. The third major source of data for this study has come from detailed interviews with mentors and students involved in the program.

The first component of the research design consisted of a 25 item survey questionnaire that was administered to both mentors and teachers. It posed questions regarding the structure of the program, the content of the mentor-student activity, and the perceived benefits of the program. Two public schools that have been involved in this mentoring program were selected for use for the second component of the study. They were selected because they

have been involved in the program for at least three years, and had resolved the difficulties associated with starting up a new program. These two schools combined represented grades kindergarten through eight. Forty students who were involved in the mentoring program were selected for the experimental group and were matched with the control group of 40 students by gender, ability level and socioeconomic status.

Each of these groups were administered the WRAT (reading and math subtests only), the Piers-Harris Self Esteem Inventory, and the Behavior Scale at the commencement of their mentoring relationship and again after six months in the program. A Multifactor Analysis of Variance was utilized to assess any significant growth that might have occurred in these areas.

The third and final portion of data was from in-depth interviews with twenty middle school aged (12-14 years old) students and fifteen of their mentors. Although there was an established protocol for these interviews, more detailed discussion and opinions were often gathered dependent on the individual's perspective.

III. Results

Program Description

The survey questionnaire provided the most detailed information regarding the content and structure of mentor-student interactions. Of the four hundred mentors involved in the program at the time of the administration of this questionnaire, eighty-five returned completed surveys, for a response rate of 21 percent. Of the approximately two hundred teachers involved, eighty-nine returned completed surveys, for a response rate of 45 percent.

Frequency distributions were computed on this data, which created a detailed profile of the program for the academic year of 1992-93. Mentors were involved with students at every grade level in this district, from kindergarten through twelve, with the highest concentration being at the second grade and the lowest at the tenth grade. Mentors were given the option of the grade level at which they wanted to work, and no attempt was made by the program coordinators to focus the mentors' efforts at any particular grade level. There also was some overlap between grade levels, as mentors sometimes chose to work with students from more than one grade.

Mentors worked with students in one of three contexts: individually, small groups, or whole classes. They did so most frequently on an individual basis, followed by the small group ratio

(2-5 students), and least often in a whole class situation. Several mentors chose to work with students in more than one context. That is, some mentors worked individually with students, but also had small group sessions. It was reported that 55 percent worked individually with students, 48 percent with small groups and 18 percent with whole classes.

It follows then that since there was some overlap in grade levels and student ratios with individual mentors, there would also be an overlap in student ability levels reported by individual mentors. According to teacher responses, the largest proportion (57 percent) of mentors worked with students who were below average in ability, followed by the 41 percent of mentors who worked with students of average ability. Students of above average ability were matched with mentors the least often, representing only 32 percent of students involved in this program.

An effort was made to identify and describe the content of the activities that mentors and students participated in together. Once again, there was an overlap in activities, in that many mentors tutored students in more than one subject area. There also was considerable variation in this distribution of subject areas, with most selected at the suggestion of the cooperating teacher or the

student's indicated area of need or interest. The most frequently identified subject areas that mentors and students focused on were math (49 percent), reading (38 percent) and science (27 percent).

The majority of mentors (80 percent) were able to spend one hour per week (the program's minimum requirement) with their students, while 10 percent spent two hours per week, and 10 percent spent even more than two hours per week with their students. Generally, there was a high degree of satisfaction on the part of the teachers with the consistency and dependability of the mentors' visits to students (86 percent). While these logistical factors may seem insignificant in comparison to the content of the mentor-student relationship, they are in fact often contributing factors that either can enhance or detract from this quality.

Program Perceptions

The second part of this survey questionnaire was devoted to eliciting the perceptions of the teachers and mentors that were involved in the mentoring program in terms of how effective they felt it to be in certain areas. A full 96 percent of the teachers, and 78 percent of the mentors, felt that the mentors were adequately prepared to function in that role in the schools in that they either agreed or strongly agreed with this statement. The program coordinators offer a training orientation at the beginning of each

school year which attempts to address some of the issues and concerns that mentors might have as they begin working with students. Seventy-nine percent of the mentors attended this orientation, and of that group, only six percent felt that this was not adequate training for them. Twenty-one percent of the mentors never even participated in this orientation which might have implications for examining how this program is offered in terms of timing and accessibility to the mentors. It seems crucial that new mentors participate in some form of orientation if they are to understand the goals of the program and their role in attempting to achieve these. In general, however, the teachers appeared more confident in, and satisfied with, the mentors' abilities than the mentors felt about themselves. Perhaps this is reflective of the lack of mentoring experience which is often accompanied by lower confidence levels. It may also mean, however, that mentors might benefit from more feedback about their work during the school year, so that they might be more aware of how well they are actually doing.

Mentors reported a high degree of satisfaction with the students that had been assigned to them (96 percent felt positively). This is a critical factor that often affects attrition rates for mentors.

The third, and perhaps most significant area examined within this survey was the area of program outputs. This portion of the survey attempted to assess mentor and teacher judgments of student growth in terms of student motivation, student confidence, and student achievement. Student growth was operationally defined based on the program goals. Both teachers and mentors were asked to respond to statements regarding changes noted in these areas, as well as to make judgments about whether the mentor was responsible for contributing to these changes.

Eighty-one percent of the teachers and 69 percent of the mentors noticed positive changes in student motivation in school (either agreed or strongly agreed). Twenty-eight percent of the mentors were not sure of any changes in the students, compared to only 19 percent of the teachers. This may have been the result of the mentors' limited time with the students in school and a concomitant inability to see any such changes demonstrated or manifested in any way. The mentors' impressions were based on a small window of time in which they were actually with their students. It is not unrealistic to assume that teachers might have a more accurate perspective on this variable, simply because of the increased exposure that they have to the children. Seventy-nine percent of the teachers felt that the mentors contributed to these positive changes in student motivation (either agreed or strongly

agreed), while the mentors were less sure of this, as indicated by their agreeing with this statement only 57 percent of the time.

In terms of student confidence, the mentors noticed a change 70 percent of the time and teachers noted a positive change 66 percent of the time. When asked whether they felt that the mentor contributed to these changes in student confidence, 67 percent of the teachers and 56 of the mentors either strongly agreed or agreed. Mentors were again less sure of their impact on students in this area, as indicated by 43 percent of them not being "sure".

The final variable that teachers and mentors were asked to comment on was student academic competence. Once again, the teachers and mentors agreed or strongly agreed that there were positive changes in academic competence (57 percent and 58 percent respectively), and that the mentors contributed to these changes. It should be noted however, that the agreement on this variable was not as strong as it was on student motivation or confidence.

This lack of definitive knowledge regarding the actual changes in student achievement help support the rationale for conducting pre- and post- measurements on students involved in the program. This research has been structured to include data collection of this type; these objective measures will be discussed next.

Pre- and Post-Test Measurement Data

As discussed earlier, this study made use of an experimental group and a control group of students to compare growth that occurred within a period of six months. The areas targeted for measurement were based on the program's identified goals, and included student achievement, student confidence/self esteem, and student behavior. Student achievement was assessed through the use of the Math and Reading sub-tests of the Wide Range Achievement Test; student self esteem was assessed through the use of the Piers-Harris Self Esteem Inventory; and student behavior was assessed through the use of a behavior scale that was developed for this study. These measurement instruments were administered to the experimental group of students who were involved with a mentor and to the control group of students who were not involved in the program. This was done at the beginning and end of a six month interval. Students in the experimental and control groups were matched for gender, indicators of ability level and socioeconomic status.

Although eighty students were initially included in the pre-testing that was done in December, only the data from sixty-seven of these students were included in the analysis. The reasons for this included students moving out of district, students being absent for the post-testing period, or incomplete data collected on one or

more of the sub tests or instruments. The experimental and control groups generally were affected to the same degree by this loss in subjects, with the remaining groups consisting of thirty-six students having been involved in the program and thirty-one not.

The largest number of mentors were working with students in grades two and eight. The number of students at each grade level made it necessary to collapse the grade levels into three levels so that the cell sizes could be increased to a level necessary to compute any meaningful analysis on the data. Thus, grades K, 1 and 2 were treated as a single level, as were grades 3, 4 and 5, and grades 6, 7 and 8. This combining of grade levels made sense statistically, but more importantly, it was logical in terms of the developmental levels of the students. Students within each of the three newly created groups are generally similar in psychosocial development and cognitive levels. Students were split almost evenly by gender, with thirty-four males and thirty-three females involved in the study.

The first question that was examined perhaps represents the crux of this study; whether students who worked with a mentor show significantly more growth in the identified areas than those that did not. Results obtained using the MANOVA indicate that there was no significant difference in student achievement on the WRAT Reading subtest ($F(1,61)=0$, $p=.953$) between students involved with

a mentor and those who were not. There was also no interaction effect between grade level and involvement with a mentor $F(2,61)=.22$, $p=.8$ (see Table 1).

Table 1: WRAT Reading Tests of Between Subject Effects

	SS	DF	MS	F	Sign. of F
Within Cells	21433	61	351.36	0	
Mentor	1.22	1	1.22	0	0.953
Grade	14268	2	7134.09	20.3	0
Mentor by Gr.	157.05	2	78.53	0.22	0.8

On the Wide Range Achievement Test, students did perform significantly better over time (as one would hope and expect), but this was not related to grade level nor to the involvement of a mentor as indicated in Table 2.

Table 2: Tests Involving "Time"

Variation	SS	DF	MS	F	Sign. of F
Within Cells	1648.7	61	27.03		
Time	1437.8	1	1437.81	53.2	0
Mentor by Time	28.62	1	28.62	1.06	0.308
Grade by Time	5.87	2	2.94	0.11	0.897
Mentor/Grade/Time	1.86	2	0.93	0.03	0.966

When looking at performance on the Reading subtest of the WRAT, students did show a significant difference in performance between mentor types (individual versus small group), $F(1,18)=9.78$, $p=.006$, with students involved in an individual relationship performing better than those involved in a small group mentor relationship (see Table 3 for significance levels). Grade level also influenced rates of growth at a significant level ($F(1,18)=11.62$, $p=.003$), in that the children in the younger grades showed greater rates of gain than their older counterparts. There was however, no interaction effect between mentor type and grade level ($F(1,18)=1.51$, $p=.235$); that is, student growth in reading was not dependent on any combination of grade level and the type of mentoring relationship ratio.

Table 3

WRAT Reading Tests of Between-Subjects Effects

Variation	SS	DF	MS	F	Sign. of F
Within Cells	4471.38	18	248.41		
MType	2428.63	1	2428.63	9.78	0.006 *
Grade	2886.6	1	2886.6	11.62	0.003 *
MType by Gr.	374.69	1	374.69	1.51	0.235

There also was no significant difference in student performance over time ($F(1,18)=1.79$, $p=.197$) that was dependent upon the type of mentor relationship. When looking at the between-subjects effects, when time is not a factor, students with individual mentors performed better in general than students in small group mentor situations. When looking at the within-subjects effects, however, it becomes evident that their rate of growth was not statistically greater over time than the students involved in small groups. Thus, the import of the first piece of data is somewhat limited by the latter; although one can conclude that it is more beneficial in general to have students work with mentors individually, one cannot conclude that over time they progress at greater rates.

The next set of data that was analyzed were scores on the WRAT Math subtest. Again, no significant difference emerged in student scores between those students who worked with a mentor and those who did not ($F(1,61)=.03$, $p=.871$), as indicated in Table 4. There was also no interaction effect between the presence of a mentor and grade level ($F(2,61)=.09$, $p=.918$). That is, student performance was not affected by grade level nor whether or not a student had a mentor in any grade level. This was examined to determine if perhaps a particular aged student might benefit from working with a mentor more than another, but this was not supported by these results.

Table 4

WRAT Math: Tests of Between-Subjects Effects

Variation	SS	DF	MS	F	Sign .of F
Within Cells	2740.86	61	44.93		
Mentor	1.19	1	1.19	0.03	0.871
Grade	5252.65	2	2626.33	58.45	.000 *
Mentor by Gr.	7.72	2	3.86	0.09	0.918

This analysis also attempted to answer the question of whether students performed better within a particular mentor context (individual versus small group) in math. The results indicate that, as with reading, students who worked on an individual basis with a mentor performed significantly better in math than those who worked in small groups ($F(1,18)=11.92$, $p=.003$, see Table 5) overall. There was again, no interaction effect between mentor type and grade level ($F(1,18)=.94$, $p=.345$) in determining overall student performance in math. This information is important to those structuring the program as well as to the mentors involved. It has been determined that for this sample, students did perform better overall in math and reading when they were involved with a mentor on an individual basis as opposed to a small group. These results also indicate that the younger grades showed greater gains than the older grades.

Table 5

WRAT Math: Tests of Between-Subjects Effects

Variation	SS	DF	MS	F	Sign. of F
Within Cells	319.84	18	17.77		
MType	211.75	1	211.75	11.92	0.003 *
Grade	856	1	856	48.17	0 *
MType by Gr.	16.7	1	16.7	0.94	0.345

Within-subjects effects were measured to determine if this difference in student performance in math continued over time for students. As indicated in Table 6, this difference was statistically significant for this sample ($F(1,18)=12.58$, $p=.002$), but it was not dependent upon the mentor context nor on the grade level of the student ($F(1,18)=.76$, $p=.395$ and $F(1,18)=1.23$, $p=.282$ respectively). There was also no significant interaction effect between the context of mentor relationships and grade level in student performance in math.

Table 6

WRAT Math: Tests Involving "Time"

Variation	SS	DF	MS	F	Sign. of F
Within Cells	73.44	18	4.08		
Time	51.33	1	51.33	12.58	.002 *
MType by Time	3.1	1	3.1	0.76	0.395
Grade by Time	5.02	1	5.02	1.23	0.282
MType/Gr./Time	3.73	1	3.73	0.92	0.351

The second variable that was measured was student self esteem (through the administration of the Piers-Harris Self Esteem Inventory). Again, using the MANOVA, a statistical analysis was done to assess whether there was any difference in student self esteem after six months of working with a mentor. Although there was a slight increase in the total mean in self esteem (Pre Total Mean=60.56, Post Total Mean=63.50), this increase was not dependent upon involvement with a mentor nor upon grade level (see Table 7). There was also no interaction effect between grade level and involvement with a mentor.

Table 7

Self Esteem Inventory Tests of Between-Subjects Effects

Variation	SS	DF	MS	F	Sign. of F
Within Cells	5416.52	30	180.55		
Mentor	1.85	1	1.85	0.01	0.92
Grade	404.4	1	404.4	2.24	0.145
Mentor by Gr.	539.5	1	539.5	2.99	0.094

In assessing student self esteem over time, the results indicate that the self esteem of all students did increase significantly over time ($F(1,30)=8.00$, $p=.008$), but that this was not dependent upon involvement with a mentor nor on grade level (see Table 8).

Table 8: Tests Involving "Time"

Variation	SS	DF	MS	F	Sign. of F
Within Cells	714.91	30	23.83		
Time	190.57	1	190.57	8	0.008 *
Mentor by Time	22.74	1	22.74	0.95	0.336
Grade by Time	69.3	1	69.3	2.91	0.098
Mentor/Gr./Time	39.64	1	39.64	1.66	0.207

Finally, the third area of data that were subjected to a MANOVA were the scores received by students on the Behavior Scale that was specifically designed for this study. Students were assigned scores by their primary teachers so this information was

only collected on those students in grades kindergarten through five. Students in the higher grades were taught by approximately eight teachers during each quarter and it was felt that a valid behavior rating would not be obtained because of the subjectivity of the scale and the concomitant variability inherent with collecting eight different perceptions on one child.

An analysis was done to determine whether student behavior changed over time dependent upon the context of the mentor relationship (individual versus small group). Results indicate that there was no significant difference in reported behaviors over time between mentor types ($F(1,18)=.63$, $p=.439$) nor were there any significant differences by grade level ($F(1,18)=.60$, $p=.449$). This means that student behavior was not influenced by either the ratio of the mentor relationship, nor by the grade level of the student as indicated in Table 9.

Table 9: Behavior Scale Tests Involving "Time"

Variation	SS	DF	MS	F	Sign. of F
Within Cells	307.11	18	17.06		
Time	5.17	1	5.17	0.3	0.589
MType by Time	10.67	1	10.67	0.63	0.439
Grade by Time	10.22	1	10.22	0.6	0.449
MType/Gr./Time	12.77	1	12.77	0.75	0.398

In summary then, there does not appear to be any significant difference in student performance (as measured by the WRAT) in reading and math for students who worked with a mentor in this program when compared to a similar group of students who did not. There was, however, a significant difference in overall student performance in reading and math between students who worked individually with a mentor when compared to students who worked with a mentor in a small group setting. This difference was not significant over time, however, but instead refers only to overall performance without respect to time elapsed.

Student self esteem appears to have increased for all students over the six month period, but does not appear to be dependent upon having a mentor, nor upon grade level or the ratio of the mentor relationship. Finally, student behavior, as assessed through this Behavior Scale, did not show any significant improvement over time. The type of mentoring relationship and the grade level did not influence this variable to any significant degree.

Student/Mentor Interviews

As described earlier, follow-up interviews were held with twenty students who had been involved in the Mentoring program for at least one year, and fifteen mentors who had also been involved in the program for that same period of time. The responses of the students will be summarized here first. It should be remembered

that some students were involved with more than one mentor, and worked in more than one subject area. Some of the reported responses will reflect this overlap.

One of the most surprising results came at the opening of the interview when students were asked to name their mentor and describe the context of student to mentor in which they had participated. Thirty percent of the students were not even able to provide the name of their mentor; fifteen were able to do so but two students had multiple mentors and could name only one. Generally the students who didn't even know the name of their mentor were working in contexts of five students (or more) to one mentor. Students who were working in ratios of two students to one mentor reported enjoying it more than those students who were in the larger groups and stated that this more individualized setting allowed for more personal conversation during the time they spent together.

When questioned as to the most important benefit that students saw resulting from the program, most of the students interviewed cited the academic assistance that was provided to them in school. Three students couldn't name any perceived benefits, and only two students described feeling that their mentor had made them more confident and in control of themselves. This however, was consistent with the students' perceptions of the

intended goals of the program, as almost all of them stated that it was designed to help with academic growth. When discussing the development of the student-mentor relationship, students reported that this took a substantive length of time, often up to several months before they felt comfortable with their mentor. This information is crucial to this program in that oftentimes mentors "switch" students from year to year. This relationship would most likely be perceived as more meaningful and beneficial (at least to the students here) if it were allowed to continue beyond just one year.

The majority of students (seventeen) reported never having any conversation with their mentor of a personal nature or regarding any career/college options or opportunities, and several stated that they wished that they could have done this. When students were asked about the size of the groups in which they worked, most reported more satisfaction when the groups were smaller. The most negative comments were noted when the group size was twelve or more. One student commented that he wanted to "quit the program" because his group size of fifteen students was "way too big" and he felt "lost in the crowd".

When asked if they felt that the program was worthwhile and whether they would like to participate again next year, the majority of students answered affirmatively to both questions. As each

interview was being concluded, students were given the opportunity to provide suggestions or comments regarding their experience in this mentoring program. Many students (seven) noted that they felt "forced" to participate in the program by their teachers, and either did not want the academic assistance, or did not want it once every week. They resented missing their free time for this and wanted to be able to attend at their own discretion.

Although these comments may be typical of adolescence, they do indicate a few areas that may be problematic and need to be examined. First, perhaps the process of engaging students in a relationship with a mentor should be modified. Certainly, it will be more difficult for a mentor to establish and sustain a relationship with any student who does not want to participate. This supposition was indicated by data presented earlier in this chapter. If a mentor is not feeling successful within this student relationship, they are more likely to leave the program; every effort must be made then to ensure the success of this relationship at its inception.

Mentor Interviews

Mentors reported working with students in ratios as high as twelve or thirteen students per mentor, although six of the fifteen mentors interviewed for this study worked with a 2:1 ratio. Most of the mentors had been involved with this program for several years and only four were in their first year of mentoring. Nine of these

mentors noted that they worked with students who were new to them each year of the program, and most of these expressed the desire to have some continuity with their students over the years. Comments included feeling as though it would be better for the students and more rewarding for the mentors involved. Only one mentor expressed the desire to have new students each year in order to have more children experience the potential benefits of the program. The two mentors who did have the same students over a period of two years felt that the students were benefiting more and appreciated the comfort level that had already been established.

Almost all of the mentors reported satisfaction with the students they were matched with, although many mentors noted that several of their students did not appear to want to be involved in this program. Many mentors commented that they felt it imperative that students want to participate in the program, and not be "forced" or "strongly encouraged" by teachers. This lack of genuine interest on the part of students most likely contributes to feelings of an unsuccessful mentoring relationship for both parties involved.

When asked about their most significant contribution as mentors, most cited their influence on academic achievement, but other perceived contributions included the provision of a role model and improvements in self confidence for the students. Several mentors felt that they were not with the students long enough to

assess any changes and also noted that the effects of such a relationship are often very subtle and oblique. This group of mentors all were aware of the stated goals of the program, and more than half felt that their work with their students had begun to meet these goals. They felt comfortable drawing these conclusions about the efficacy of their work because of the verbal feedback they received from their students and teachers, the increased completion rates for homework, improvements in writing ability and some increases in student grades. Mentors generally agreed that their students understood the reasons for their involvement in the program.

When discussing the most effective student/mentor ratio, all of the mentors agreed that the smaller groups seemed more conducive to learning and to the establishment of personal relationships with the children. Several of these mentors had worked in larger group settings with up to fifteen students at one time, and after having the experience of smaller groups felt that this was a much more productive and beneficial ratio. Again, students and mentors are indicating that small groups are more effective for this program; although this will not yield the impressive "numbers of students involved", the decision must be made whether preference is given to quality or quantity of program.

Chapter IV. Discussion and Conclusions

Several major themes emerge out of each of the three components of this research (the survey questionnaire, the pre- and post-test measurements, and the interviews with students and mentors).

(1) Survey results indicate that on the measures of student motivation, confidence, and achievement, teachers and mentors generally agreed that the students involved in the program all showed positive growth. However, more positive change was noted in the areas of student motivation and confidence, while less was seen in the area of student achievement. Most of the teachers, and usually a majority of the mentors, felt that the mentors' involvement contributed to these changes.

(2) Mentors also expressed some reservations about being able to handle students who demonstrated behavioral problems during their sessions. While this obviously suggests the need to add this to the areas in which mentors receive training, it also has direct relevance for the type of students who are referred to this program. At this point in the development of mentoring programs, however, there is no research available indicating what "type" (e.g. highly at-risk, average ability, gifted) of student might benefit most from mentoring of the type operationalized here.

(3) There was no significant difference in student achievement in either reading or math for students who worked with

a mentor when compared to those who did not. Student grade level also appeared to be irrelevant for this variable.

(4) Students who worked with mentors individually performed better in reading and math than their counterparts who worked in small groups settings, irrespective of any time elapsed factors. That is, students with individual mentors did not necessarily progress at faster rates than students with small groups; these results only indicate overall better performance.

(5) Student self esteem appeared to improve to a statistically significant degree for all students, regardless of their involvement with a mentor or the context of the mentoring relationship.

(6) Student behavior measures for those students involved in the mentoring program did not show any statistically significant gains over the course of this six month period of time.

(7) During the student interviews it was revealed that students clearly felt a preference for smaller groups (as opposed to groups of more than four) when working with their mentors. The relationships with mentors appeared to be more meaningful and personal to the students in smaller groups.

(8) Most students perceived the program as a way to improve their academic grades in school, but many expressed the desire for the relationship to be more personal and broader in scope.

(9) Mentor relationships with students took time to develop and reach a level of mutual comfort; this may have implications for continuing relationships over more than one year for those who were involved in positive experiences.

(10) The process of matching students with mentors was sometimes problematic in that some students were "forced" to participate; this perceived coercion seems to detract from the potential success of the relationship.

(11) The mentors also seemed to feel that many of their student groups were too large in size; they preferred working with groups of less than five. Many mentors stated that they felt that this smaller ratio was more personal and rewarding for both the student and mentor.

(12) Mentors expressed the desire for more continuity with students from year to year, as they recognized that these relationships were taking time to develop and that students might benefit more from longer term relationships.

(13) Mentors wanted to be able to integrate their work with the student's curriculum to a greater degree than they were currently able to. They felt that this would increase the relevance and subsequent productivity of their work.

(14) Mentors also were aware that some of the students selected did not want to be in the program and that this negative

attitude almost always caused the relationship and the time spent together to be less valuable than it might have been. These mentors felt that students who were at high risk for academic or behavioral problems were not good candidates for an intervention of this type.

(15) The mentors felt that the primary benefits of this program were academic in nature, but many expressed the desire to have their role broadened with their students to something more analogous to the classical definition of mentoring.

(16) Finally, many mentors wanted additional training in how to interface more effectively with teachers and school systems, how to work with "today's" children, how to motivate children, and how to handle discipline problems.

Final Recommendations

If the program planners decide to continue their focus on improving academic achievement, mentors should receive additional training on specific teaching and motivational techniques. The structure of the program should include a mechanism at the building level, through which mentors are provided the following:

- feedback on their work with students;
- an opportunity to coordinate their work with the curricular content;

- a forum for asking questions or simply communicating with their student's teacher regarding the student's learning styles etc. or specific strategies that might improve the effectiveness of their intervention; and
- an opportunity to voice concerns or problems

This mechanism should be formalized so that it occurs on at least a bimonthly basis and should be coordinated by the building program coordinator.

If it is decided that the focus of this program is to improve academic achievement, specifically in the areas of reading and math, mentors should concentrate their efforts on these content areas. Even though the majority of mentors did work on reading and math, a large percentage also worked on other subject areas such as art, social studies and even karate. Although some may argue that activities in these related fields might indirectly affect student performance in reading and math, this argument has greater validity when considering a student's entire educational growth. If mentors are only with students for one hour per week, it is felt that their time should be spent directly and specifically on the identified goals of the program and not on some potentially indirect ways of affecting change in these areas.

If, however, the program planners elect to have a broader focus, pursuing these activities and areas of student or mentor interest could be very beneficial. The critical element here is deciding what the specific goals and objectives of the program are and then designing policies and practices that have a realistic opportunity of achieving them.

Mentors should be assigned students on an individual basis whenever possible if student and mentor agree. If this is not preferred by these parties, the ratio of students to mentors should not exceed five to one. Mentors should also continue to focus on improving student confidence and self esteem, and to keep in mind that this may be their greatest area of influence.

Students should be selected very carefully for involvement in this program. The intended goals and logistics of their participation should be clearly explained to them before their commitment to join. Any student who is not willing or interested in joining should not be matched with a mentor. Students who present significant emotional or behavioral concerns should not be considered as good candidates for this particular program, unless there is a particular mentor with expertise in this area who wants to work with a student with these issues.

Mentors and students should be given the option of continuing in the same relationship from year to year. This decision should be made based on an informal evaluation of each "match" by the building coordinator in which discussion is held individually with student and mentor. Such an evaluation may produce additional information that can serve as a ongoing guide to program planners. Mentor training should address at least the following issues:

- effective teaching and motivational strategies
- how to interface more effectively with school systems at the building and classroom level
- how to work with "today's" children who may be classified as psychologically, socially or academically "at-risk".

In closing, this research represents an effort to examine the structure and content of a particular mentoring program and to assess what effects this program might be having on student growth. Mentoring programs are increasing in popularity in public schools today and it is imperative that we evaluate their input, process and output so that they might continue to grow in number and effectiveness. These results and recommendations are presented, however, with the knowledge and respect that mentoring relationships may benefit both mentor and student in ways too subtle and oblique to measure and assess through formalized

research such as this. In the final analysis, if either mentor or student claim to be deriving some as yet unexplained benefits, certainly this type of relationship should be encouraged and supported. It is crucial that we continue to study and evaluate the actual and potential short and long term benefits of this form of human attachment and relationship.

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