Elder-Child Interaction Analysis

Sally Newman , Gregory A. Morris & Heidi Streetman

Elder-Child Interaction Analysis:
An Observation Instrument
for Classrooms Involving Older Adults
as Mentors, Tutors, or Resource Persons

Sally Newman
Gregory A. Morris
Heidi Streetman

SUMMARY. This study reports on the interactions of 60 children and 12 older adults in a school-based mentoring program, as well as four teachers' perceptions of the relationship between such interactions and the children's subsequent classroom behavior. Dyadic interactions were assessed using the Elder-Child Interaction Analysis instrument (Newman & Onawola, 1989). The authors concluded from recorded observations that, overall, the elders and the children had interacted with each other in a positive and constructive manner. The teachers interviewed perceived that the mentoring interactions were followed by an increase in students' self-management skills, interest in school work, and by improved peer relationships. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-342-9678. E-mail address: getinfo@haworthpressinc.com <Website: http://www.haworthpressinc.com>]*

Sally Newman is affiliated with Generations Together, University of Pittsburgh Center for Social and Urban Research, 121 University Place, Suite 300, Pittsburgh, PA 15260. Gregory A. Morris is affiliated with the School of Education, University of Pittsburgh 4016 Forbes Quadrangle, Pittsburgh, PA 15260. Heidi Streetman was affiliated with Generations Together, University of Pittsburgh, at the time this paper was written.

Throughout history, older adults have often assumed the roles of nurturer and teacher of their grandchildren. They brought to these roles many qualities that had been developed during their lifespan. Today, unfortunately, many older persons are deprived of the opportunity to pass on their wisdom, knowledge and skills because America is now what Kalish (1969) called an age-segregated society.

To help restore this interdependence among generations, intergenerational programs have been established in schools throughout the United States. During the last 20 years, many older adults have participated in school-based mentoring programs designed to support the growth and learning of children and youth. Informal assessments of the programs have shown a generally positive impact on both the participating youth and elders (e.g., Freedman, 1994). Both teachers and mentors have reported their perceptions of improvement in the attitudes, behaviors, and academic performance in students as well as positive changes in attitudes, productivity, and reported life-satisfaction in the mentors themselves. However, there have been no published studies of the nature of specific elder-child interactions in school settings or the relationships between these interactions and subsequent child behavior and academic performance. This study was an examination of these interactions and their perceived effect on children's behaviors.

WHAT IS MENTORING?

In the context of social programs, mentoring is defined as a social intervention to address the needs of youth (Henkin, Perez-Randal, & Rogers, 1993). ''Mentors teach, challenge, and support a young person while serving as a role model and companion'' (Henkin et al., 1993, p. ii). In the context of this study, mentoring refers to the interaction between children in schools and elder volunteers who assist them, either in after-school tutoring programs or in regular classrooms under the guidance of and in concert with the classroom teachers.

WHAT DOES MENTORING ACCOMPLISH?
WHY ARE PEOPLE DOING IT?

Intergenerational mentoring has become a popular component of educational systems in many communities in the United States. At a time when the nuclear family seems threatened and elderly people are often isolated from mainstream society, an increasing number of older adults are assisting in schools as mentors. They may serve as positive role models for and supports of children's academic and social growth. School systems may benefit from intergenerational mentoring programs by an increase in human resources that is cost-effective and may help improve student performance. Individual school staff members may benefit professionally from supportive interactions with older adults. Lyons (1985) suggested that many ''teachers are young people teaching still younger people'' and thus ''suffer age segregation. Older people may serve as additional resources to whom the teachers can turn, and offer personal perspectives that are based on years of personal experience'' (p. 5).

HOW DOES MENTORING AFFECT ELEMENTARY-AGED
CHILDREN?

Research has shown that mentoring may offer a variety of benefits to the younger participants in an intergenerational program. For example, mentor relationships ''can build a young person's skills and self-reliance,'' and ''mentors can help youth learn when and how to access and utilize adult relationships'' (Henkin et al., 1993, p. ii). Children may recognize that ''both older and younger people have something to offer.'' They may also learn to work with people who are different from themselves and to view others as vital to their lives.

Through their participation in an intergenerational program, children may benefit from the individualized attention and affection provided by mentors, may find joy and comfort in a relationship with a grandparent figure, and may learn more about the aging process. Often, children reap plentiful praise and encouragement from their mentors, who may eventually become reliable confidants and helpmates.

HOW DOES MENTORING AFFECT THE OLDER
VOLUNTEERS?

Surveys by Newman (1982) and Newman and Larimer (1995) of 555 senior citizen school volunteers in western Pennsylvania reported that mentoring had positively affected the mentors' reported self-esteem and health. The seniors also reported learning new skills, having fun and feeling that their mentoring work was "productive and rewarding" (p. 4). Mentoring may also alleviate some of the isolation that many seniors experience. Through mentoring, older adults have the opportunity to pass on knowledge and skills that they have found useful in their lives, and may experience feelings of satisfaction from contributing in a positive way to children's development.

Thus, both elders and children who participate in mentoring may benefit through enhanced self-esteem, the acquisition of new skills and an increased sense of connection to society at large. Moreover, they often develop relationships that create joy and otherwise enhance the overall quality of their lives.

RATIONALE FOR THE STUDY

Although some researchers have begun to examine the benefits of mentoring for older and younger participants, there are no published studies about the specific interactions that occur between the elders and children during the mentoring process. In the present study, which was conducted by *Generations Together* at the University of Pittsburgh's Center for Social and Urban Research, we examined some of the specific interactions and perceived outcomes of intergenerational mentoring in selected school settings. The study was designed to examine the relationship between the interactions of children and elders involved in a mentoring program and teachers' perceptions of the children's subsequent academic performance and social behaviors. The data were collected in schools in which intergenerational mentoring programs had been in place for some time. Older volunteers were trained to work with the children in the classroom or in after-school mentoring programs.

There were two components to the present study. The first consisted of observing mentor-mentee interactions in three school sites during

two 45-minute visits to each site and using the Elder/Child Interaction Analysis instrument (ECIA) to analyze the recordings taken. To meet the requirements of a state-funded program, the data were collected in the autumn term. The second component involved interviewing the teachers whose students were participants in intergenerational mentoring. The interviews took place in the spring term after the observational sessions.

METHOD

Participants

The study was conducted during the 1995-1996 school year at three elementary schools in Allegheny County, western Pennsylvania. All of the participating schools had been identified through a demonstration project funded by the Pennsylvania Department of Education. The project looked for three ethnically diverse elementary schools that were located in low socioeconomic communities. Older adults were recruited as volunteer mentors from the same communities as the students and were of similar socioeconomic and racial backgrounds.

One school is located in the Hill District, an inner-city community near downtown Pittsburgh. The other two are in McKees Rocks and Glassport, both formerly thriving communities within 15 miles of Pittsburgh. Each school has an enrollment of approximately 350 students who range in age from 5-10 years and whose families may be considered to be of low socioeconomic status. All of the students at the Pittsburgh school at the time were African-American. Fifteen percent of the Glassport students were African-American and the remaining 85% were Caucasian. The McKees Rocks student body was 35% African-American and 65% Caucasian.

Sixty children participated in the study and all were in the third and fourth grades of school (8-9 years of age). Students were selected for participation if their teachers thought they might benefit from mentoring, if there was an available mentor, and if the teacher was interested in participating in the study. Twelve adults over 60 years of age were recruited as volunteer mentors from the communities in which the participating schools were located. All of the volunteers were trained

for mentoring by *Generations Together* and received a small stipend for their work with students. The teacher's role was to identify students as potential participants, to provide mentors with tutoring materials, and to meet with the mentors and other teachers to discuss student progress.

The mentoring activities took place either in classrooms in which mentors assisted teachers with regular classroom activities or in supervised, after-school mentor/tutoring programs. A total of four teachers volunteered to participate in the study. For two of the participating teachers, data consisted of observations recorded during classroom activities, whereas for the remaining two teachers, observations were taken during after-school mentoring activities in which they were involved.

Materials

Observation. In the 1960s, Flanders developed an *Interaction Analysis* instrument (Flanders, 1970) to record the verbal behaviors of teachers and their students in a classroom setting. The Interaction Analysis provided for a "cause-effect analysis of classroom verbal behavior" found in the learning process (Amidon & Hough, 1967, p. 118). Flanders established an important and useful protocol for recording observed behaviors of teachers and students and for using the Interaction Analysis to interpret these behaviors.

Subsequently, the first author modified the Interaction Analysis and created an expanded measure with new components, the Elder-Child Interaction Analysis (ECIA), to observe both verbal and non-verbal interactions between older adults and children in school settings (Newman & Onawola, 1985). The ECIA was designed for recording specific aspects of the observed interactions between elder mentors and their students in elementary kindergarten through sixth grade settings. The 32 behavioral items of the ECIA are considered typical of interactions between older adults and children. The items are organized into verbal/nonverbal and social/academic categories. Non-verbal behaviors were included because previous observations indicated that many of these, such as smiling and touching, seem frequently to be involved in the learning process. Interrater reliability for ECIA categories ranged from 75% to 100%, with an overall rate of agreement of 84%.

The ECIA was modified for use in the present study. The modified

version consists of 40 behavioral items, 14 of which refer to a child's behavior paired with a reciprocal behavior by an elder. Items were selected from simulated student-teacher interactions on videotape and from the results of field testing. The simulations consisted of four 5-minute videotaped interactions between teachers, students, and elders in two of the fourth-grade classes not included in the present study. The simulated interactions were videotaped in classrooms at the Sto-Rox School and the Glassport School one month prior to the present study. ECIA items selected through this process included *student touches elder* paired with *elder touches student*, and *student exhibits frustration* with *elder expresses displeasure*.

The modifications made to the ECIA for the present study were intended to further clarify the behavioral categories and to allow recording of simultaneous behaviors observed in mentor-mentee interactions. Each verbal and non-verbal behavior is listed on a grid line, with the elders' behaviors on the left and those of the children on the right. The grid includes five cells, each representing 1-minute intervals, enabling observations of 1-minute spans to be recorded over the course of 5 minutes. The margins are broad around the grid and space is left at the bottom of the instrument for the recording of notes and other relevant information (see Appendix A).

The behaviors recorded by the modified ECIA represent patterns that typically occur in intergenerational interactions. For example, an elder might be observed asking a child a question. The child might, in turn, be observed answering a question. The situation might also occur in the reverse, with the child asking the elder the question, and so forth. Therefore, the lists of observable behaviors for children and elders often mirror one another or are often reciprocal.

Teacher Interviews. Newman and Larimer (1995) found that many teachers perceived that interactions between children and elder mentors contributed to a more positive classroom climate as well as to improvements in the children's academic performance, communication skills, general observed behavior, and apparent feeling of acceptance. The observational data collected in the present study suggests that specific, positive behaviors categorized by the ECIA may occur in mentor-mentee interactions on a relatively frequent basis. The authors of the present study were interested in whether teachers perceived a relationship between these frequently-occurring positive behaviors and specific positive classroom outcomes for the children who had

participated in the mentoring program. To examine this possibility, a questionnaire was developed, post-hoc, for interviewing the participating teachers. The teacher interview questionnaire has seven questions and was designed to assess teachers' perceptions of the impact of mentoring on a range of student behaviors (see Appendix B).

Procedure

Observation. The observers were two trained education specialists whose experience included previous work as classroom teachers. One was a member of the faculty at the University of Pittsburgh and the other a recent PhD graduate. Both observers were trained to use the ECIA and were directly involved in its modification for the present study.

Volunteer coordinators at each of the participating schools arranged appointments for observational visits. Each site was visited twice during the period between October and January, the first semester of the school year. Scheduling of sessions was determined by the school calendar and the availability of participants. Each of the 12 mentors was observed at least once during the two site visits, each of which lasted approximately 30 minutes. Each observation focused on the mentors' interaction with a different student.

For two of the participating schools, the observational setting was the school cafeteria, where children met with elders for mentoring/tutoring activities at the end of the school day. For the other two schools, observations were recorded in classrooms in which elders assisted teachers as they conducted classroom activities. Observations were recorded directly onto the ECIA instrument.

Observers were seated 10-20 feet away from the participants. Observation periods were carefully timed and recorded during five 1-minute intervals. Recorded observations were indicated by a checkmark on the ECIA grid, in the box designated for the 1-minute interval in which the specific behavior was observed. Although both observers were present in the same classroom or cafeteria simultaneously, one was not necessarily observing the same elder-child pair at the same point in time as the other.

Interviews. Structured teacher interviews were conducted at two of the schools, with four teachers whose students had participated in the present study. For two of the teachers, elders had assisted in their classrooms whereas for each of the other two, one student had re-

ceived after-school mentoring. The teachers were interviewed in one-on-one, 15-minute sessions. Notes were taken on teacher responses to the questions during the interviews.

RESULTS

Observation

The frequency data collected from each observational visit from the three school sites were combined in one data set. Therefore, the recorded observations were not program-specific. Check-marks for specific ECIA items were hand-tallied to calculate the total frequency for each behavioral category. Observed behaviors with a recorded frequency less than 20 were considered *low frequency*. Those with a recorded frequency range of 21-40 were categorized as *medium frequency*, whereas those with a recorded frequency greater than 40 were considered as *high frequency*. Table 1 shows the raw total frequencies for high-frequency items from the ECIA, across all observational sessions and across all three participating schools.

TABLE 1. Most Frequently Occurring Observed Behaviors

OBSERVED BEHAVIOR	FREQUENCY
Elder provides instruction	158
Elder asks questions	143
Child responds to instruction	99
Child answers questions	96
Elder offers help	82
Elder reviews students' work	74
Elder talks calmly to student	73
Elder encourages student	51
Elder corrects/positively redirects student's behavior	47
Student talks spontaneously	53
Elder talks spontaneously	44

Interviews

Seven questions were used to elicit four teachers' perceptions of the impact of the mentoring experience on specific student behaviors. The first question asked whether students seemed more responsive to student-teacher help and student-student help as the result of intergenerational mentoring. All four teachers reported the perception that their students were more responsive to receiving help. Three of them reported that their students also seemed more likely to offer help to other students. One teacher remarked that this change seemed especially marked in one student, because the child had seemed quite withdrawn prior to participating in the mentoring program.

In response to the second question, all of the teachers shared the perception that the students' homework seemed to have improved as a result of the intergenerational interactions. It appeared to them that homework was more likely to be completed and handed in. As one teacher remarked, the quantity of work completed seemed to have improved along with the quality. All of the teachers perceived that students were more eager to show work to them, which led them to conclude that students were taking more pride in their work. One teacher remarked that the students appeared more apt to correct mistakes in their own work, resulting in apparent improvements in legibility, punctuation, and spelling. Most of the teachers perceived also that students' enthusiasm about school work had improved overall. One teacher observed that his student was ''naturally bubbly,'' making it difficult to conclude whether the apparent enthusiasm had anything to do with the student's mentoring experience.

The third question was whether students seemed more likely to speak quietly after the elder had been in the classroom. Several teachers perceived a greater overall sense of calmness in the classroom when the older adults were present. This would seem to be an important effect for children with extra academic or emotional needs, and where the classroom environment may be typically tense and loud.

The fourth set of questions pertained to the children's apparent responses to mentor encouragement. All of the teachers perceived their students as being more confident and more willing to participate as the result of mentor encouragement. Specific responses included the perceptions that: (a) ''students were more consistent in completing tasks and were more cooperative in the classrooms''; (b) ''students

were more positively assertive and more sociable''; and (c) ''the presence and encouragement of the older mentors seemed to create a reduction in student anxiety and increased their belief that they were capable of completing assigned tasks.'' With regard to sociability, many students were reportedly less abrupt with others and seemed to have learned that there are rewards to having good social skills.

The fifth question asked whether students were exhibiting better self-control and behavior as the result of the mentoring experience. Three teachers reported the perception that students' self-control had improved. One thought that students were more likely to curtail ''foolish behavior'' after mentoring. One teacher expressed the belief that the children were more likely to be patient and to wait their turns for individualized attention from the mentor or the teacher. The fourth teacher did not respond.

In response to the sixth question, all four teachers reported that with intergenerational tutoring, students seemed more likely to stay on task when given an assignment. One teacher perceived that students would work around the questions they could not answer on their own and wait until either she or the mentor could assist the student. It seemed to her that the presence of the mentor in her classroom may have reassured the children that their needs would be met.

With respect to the seventh question, most of the teachers expressed the impression that students who had received tutoring were exhibiting greater comprehension of homework and in-class assignments. As one teacher said, ''[The student] is better able to understand what he is to do and thus, he goes ahead and does whatever the work calls for. He is much more responsible, he has matured in terms of his patterns of approaching the task. He has become very positive.''

CONCLUSIONS AND DISCUSSION

In the present study, we examined teachers' subjective perception of the relationship between frequently-observed behaviors recorded during a session of intergenerational mentoring and children's subsequent academic and social behaviors. The first component of the study consisted of recording the frequency of behavioral categories that previous work has identified as being characteristic of interactions between older adults and children in a classroom setting.

An informal examination of the observational data suggested that

the elders and children who participated in intergenerational mentoring activities were highly engaged with one another as well as in their shared tasks.

The elders were often observed guiding the children through their work using questions that seemed aimed at encouraging the child to reason his or her way through homework questions. It appeared also that the elders helped keep the children on task, for example, by reviewing with the children what they had or had not yet accomplished. Students were praised often for their efforts and encouraged to participate in the learning process. The mentors seemed to pay individualized attention to the students, looking at them frequently and responding to their questions and behavior. In general, the nature of recorded observations seemed consistent with the notion that elders support and reinforce the kinds of behaviors that may facilitate improved performance in children's school performance (Weaver, 1994).

Although most of the interaction revolved around school work, there were also many informal conversations, which seemed to suggest that the children and elders were developing friendly, social relationships with one another. It was concluded overall that both elders and children seemed highly involved in the mentoring process and that most of the interactions appeared positive in nature.

For the second component of the study, the teacher interview questionnaire revealed teachers' agreement that elders and children appeared highly engaged with their given tasks during mentoring and engaged with each other in a positive and constructive manner. They expressed the shared belief that mentoring had a positive impact on the children's school-related behaviors and performance. It seemed to most of them that the children were more likely to correct their own mistakes and more likely to assist other children in getting through a given task. Some teachers perceived in their students improved levels of comprehension of classroom and homework assignments. It appeared to the teachers that most of the children's work had improved in terms of quality and quantity. Overall, the teachers' remarks seemed to suggest that students felt reassured that their needs would be met by either the teacher or the mentor, which may have contributed to more positive behavior and greater persistence in completing academic tasks.

It was also perceived that mentoring was related to subsequent improvements in the students' social behaviors. Several teachers

thought that the students exhibited more confidence, better social skills, and greater levels of self-control as a result of their mentoring experiences.

The findings of the present study suggest that specific verbal and non-verbal behaviors and interactions observed during intergenerational mentoring may be linked to subsequent improved social behavior and academic performance in students. This seems an exciting possibility with important implications for educators, especially as intergenerational mentoring is currently expanding in K-6 schools across the United States, in response to the ''America Reads'' national initiative.

At the same time, we acknowledge the limitations of the present study and offer suggestions for future research in this area. For example, more empirical support for these findings might have been obtained with larger numbers and if correlations were computed between teacher interview questions and specific ECIA category frequencies. Also the participating schools in the present study reflected some ethnic and socioeconomic diversity. However, future studies will need more socioeconomic, racial, and ethnic variation than was possible in this study to demonstrate the measure's effectiveness nationally. Thus, future studies, involving intergenerational programs across a wide range of communities and using statistical analyses, are necessary to increase the rigor and generalizability of the present findings.

Future studies might also examine intergenerational mentoring activities over a longer range of time than was done here. This would allow teachers to assess student performance and social behavior using additional measures, such as test scores, written classwork, and the nature of peer relationships. As was done with teachers, both mentors and students could be interviewed to elicit their subjective perceptions of the impact of intergenerational interactions on children's academic performance and social behaviors.

REFERENCES

Amidon, E., & Hough, J. (Eds.). (1967). *Interaction analysis: Theory, research and application*. Reading, MA: Addison-Wesley Publishing Company.

Flanders, N. (1970). *Analyzing teacher behavior*. Reading, MA: Addison-Wesley.

Freedman, M. (1994). *Seniors in national community services: A report prepared for the Commonwealth Fund's Americans Over 55 at Work Program*. Philadelphia, PA: Public/Private.

Henkin, N., Perez-Randal, C., & Rogers, A. (1993). *Linking Lifetimes: A national intergenerational mentoring initiative*–Program development manual. Philadelphia, PA: Center for Intergenerational Learning, Temple University.

Kalish, R.A. (1969). The old and new as generation gap allies. *The Gerontologist*, *9*, 83-89.

Lyons, C. (1985). Older adults in intergenerational programs: The other side of the story. *Beginning*, *2*(2), 3-5.

Newman, S. (March, 1982). *The impact of intergenerational programs on children's growth and on older persons' life satisfaction*. Unpublished paper presented at symposium entitled: ''Innovations Within Educational Gerontology.''

Newman, S., & Larimer, B. (1995). *Senior Citizen School Volunteer Program: Report on cumulative data. 1988-1995*. Pittsburgh, PA: Generations Together.

Newman, S., & Onawola, R. (1989). The ECIA: *Elder/Child Interaction Analysis*. Generations Together, University of Pittsburgh Center for Social and Urban Research, Pittsburgh, PA: Unpublished Manuscript.

Weaver, C. (1994). *Reading process and practice*. Portsmouth, NH: Heinemann.

APPENDIX A

Generations Together Interaction Analysis Instrument

ELDER BEHAVIOR	1st min.	2nd min.	3rd min.	4th min.	5th min.	CHILD BEHAVIOR
Looks at student						
						Looks at elder
Smiles at student						
						Smiles at elder
Touches student						
						Touches elder
Engages in personal inquiry						
						Responds to personal inquiry
Talks spontaneously						
						Talks spontaneously
Offers help*						
						Asks for help
Provides instruction						
						Responds to instruction
Asks questions						
						Answers questions
Answers questions						
						Asks questions
Clarifies instruction						
						Clarifies statement
Reviews student's work						

APPENDIX A (continued)

ELDER BEHAVIOR	1st min.	2nd min.	3rd min.	4th min.	5th min.	CHILD BEHAVIOR
Corrects student's work						
Encourages student						
						Responds to encouragement
Praises student						
						Responds to praise
Talks calmly to student						
						Talks calmly to elder
						Expresses interest
						Shows disinterest
						Exhibits frustration
						Expresses satisfaction
Corrects student's behavior						
Helps refocus student						
Expresses displeasure						
						Gestures
Demonstrates example						
						Engaged in task
Helps student						

*Offers help may mean listening to student reading, taking dictation, etc.
Note. The instrument as it is used has space at the bottom for "Notes on Non-Observed and Negative Behaviors" and "Other Comments."

APPENDIX B

Questions for the Teacher Interviews
Regarding the Interaction Analysis Instrument
and Classroom Observations

1. At Sto Rox, we noticed a high number of interactions where the elder offered help to the students. Are students more responsive to student-teacher help and student-student help as the result of the intergenerational mentoring received?

2. We noticed a high number of instances of the elder reviewing and correcting the student's work. As the result of the elder reviewing work, have you noticed:

_____ a difference in the quality of homework? in-classroom assignments? If so, what has changed?

_____ students taking more pride in their work?

_____ that homework is more likely to be completed?

_____ that students are more enthusiastic about their work?

3. There were many instances of the elder speaking calmly with students. As a result, do the children speak more quietly, for example, the day after tutoring?

4. We noted a high number of instances where the elder encouraged the children. As a result, are the children:

_____ more confident?

_____ more willing to participate?

_____ more persistent in completing a task, even in the face of failure during the first try?

_____ more assertive?

_____ more sociable?

_____ more cooperative?

5. As a result of the mentoring, have you noticed a change in the children's levels of self-control or individual's ability to manage his/her behavior when the elder is not present?

6. We noticed during tutoring that the children were engaged or on-task almost all of the time. As the result of the intergenerational tutoring, are the children more likely to stay on task when given an assignment in class?

7. We noticed a high number of instances of elders providing and clarifying instruction and asking the children content-related questions. Correspondingly, there were many instances of students responding to instruction and to questions. In the classroom, are the students who received tutoring exhibiting higher levels of comprehension of the homework and of other in-class assignments/work?