ABSTRACT
        The Tesseract Schools in Baltimore City are nine
public schools operated by The Alliance for Schools That Work, an
association of for-profit businesses. This document contains findings
of a program evaluation of grades 1-5 conducted by the University of
Maryland at Baltimore City. The study compared seven Tesseract
elementary schools with a matched group of seven Baltimore City
public schools. Outcomes information was derived from school records
for the 1991-92 through the 1994-95 school years. Process information
was obtained during the 1994-95 school year from classroom
observations; questionnaires completed by teachers, parents, and
fifth-grade students; and interviews with principals, teachers,
interns, and other staff members. Findings indicate that the
percentage of students eligible for Level IV special-education
services in Tesseract schools declined by two-thirds over the 3-year
period. The program was effective in raising Comprehensive Test of
Basic Skills (CTBS) test scores in some schools but not in others.
Maryland School Performance Assessment Program (MSPAP) scores for
1993-94 were similar for both groups of schools; however, they were
below the results for Baltimore City and well below the results for
Maryland. In 1994-95, class size was similar for both groups. Also,
ratings of overall effectiveness was similar for both groups. The
per-pupil cost for 1995-96 in Tesseract schools will be 11.2 percent
higher than for comparison schools. Over 3 years, scores for
Tesseract students decreased and then increased to about the
pre-program level. Appendices contain school-by-school data tables
and copies of the classroom observation form, teacher and student
questionnaires, and the parent telephone survey. (LMI)

The UMBC Evaluation of the Tesseract Program in Baltimore City

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Part I: Introduction to the Evaluation

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Executive Summary

The UMBC Evaluation of the Tesseract Program in Baltimore City compared many aspects of the Tesseract program in grades 1 through 5 of the seven Tesseract elementary schools with a matched group of seven Baltimore City schools, as named by the Baltimore City Public Schools Department of Research and Evaluation. The objectives of the evaluation were to identify the differences between Tesseract schools and similar Baltimore City elementary schools in both outcomes and process areas, and to determine the extent of those differences.

Outcomes information was derived from Baltimore City Public Schools records from the 1991-92 through the 1994-95 school years. Process information was obtained during the 1994-95 school year from classroom observations; questionnaires for teachers, parents and grade 5 students; and interviews with principals, teachers, interns and other staff members.

Enrollment and Attendance - At the end of the third year of the Tesseract program (1994-95), enrollment in Tesseract schools had declined from the pre-implementation year (1991-92) less than comparison schools. Attendance measures had improved in both schools and Tesseract attendance measures were similar to, but not better than, comparison attendance measures.

Special Education - The percentage of students eligible for Level IV special education services in Tesseract schools declined by two-thirds over the three-year period of the Tesseract program, and in 1994-95, the percentage of students eligible for Level IV special education services in Tesseract schools was just over one-third that in comparison schools and two-thirds that in Baltimore City. The percentage eligible for Level II, III, and IV services in Tesseract schools declined by nearly one-half over the three-year period, and in 1994-95 was just over one-half that in comparison schools and about three-quarters of that in Baltimore City.

CTBS Scores - <u>One-Year Change in Overall Scores</u> During the past year, scores for Tesseract students increased in contrast to scores for comparison schools and for Baltimore City. 1994-95 total reading NCE scores on the Comprehensive Test of Basic Skills (CTBS) increased two points over the 1993-94 scores for Tesseract schools but decreased one point for comparison schools. Total mathematics scores increased four points for Tesseract schools and one point for comparison schools. Total reading scores decreased one point for Baltimore City schools and mathematics scores were unchanged.

<u>Three-Year Change in Overall Scores</u> Over three years, scores for Tesseract students decreased and then increased to about the pre-program level. 1994-95 total reading NCE scores on the Comprehensive Test of Basic Skills (CTBS) decreased one point from the pre-implementation year (1991-92) scores for Tesseract schools but were unchanged for comparison schools. Total mathematics scores increased one point for both Tesseract schools and comparison schools. Total reading scores increased one point for Baltimore City schools, and total mathematics scores increased two points.

<u>Relative Ranking of Schools</u> In the city-wide ranking of elementary schools by 1994-95 reading scores, three Tesseract schools ranked above the mid-point while two Tesseract schools and one comparison school ranked in the lowest ten percent. The other two Tesseract schools and six comparison schools ranked in between. In the ranking by mathematics scores, four Tesseract schools ranked above the mid-point and one Tesseract school ranked in the lowest ten percent. The other two Tesseract schools and all comparison schools ranked in between.

Three-Year Change in School Scores   For Tesseract schools, changes in reading scores from 1991-92 to 1994-95 ranged from a six-point gain to a seven-point loss, and changes in mathematics scores ranged from a seven-point grain to a five-point loss. Reading scores increased in three schools, decreased in three schools and were unchanged in one school. Mathematics scores increased in four schools and decreased in three schools. Comparison schools had a similar level of loss and gain, and a similar number of loosing and gaining schools. The Tesseract program has been effective in raising test scores in some schools but not in others.

Grade 5 Students   Scores for grade 5 students were considerably higher in Tesseract schools than in comparison schools in 1994-95, even though scores had been about the same in 1991-92, reflecting a substantial decline in scores for grade 5 students in comparison schools over the three-year period.

MSPAP Scores - Results for both groups of schools were similar for the 1993-94 Maryland School Performance Assessment Program, but below the results for Baltimore City and well below the results for Maryland. Results for the 1994-95 school year will not be available until January 1996.

Staffing - In 1994-95, class size, as estimated from the number of enrolled students and the number of teachers, and as counted by the UMBC observers, was similar in Tesseract and comparison schools. The number of special education classes in Tesseract schools had decreased by two-thirds from the pre-implementation year. The number of art, music and physical education teacher positions had decreased similarly in both Tesseract and comparison schools.

Funding - In 1995-96, the school-based per-pupil cost for Tesseract schools will be 11.2 percent greater than for comparison schools. The non-school based funding for Tesseract schools will be 7.5 percent; no estimates were available on the non-school based funding for comparison schools nor on central office-type functions carried out by EAI with school-based funds.

Researcher Ratings - The UMBC observers rated Tesseract and comparison schools as similarly clean. Researchers saw a similar range of poor to excellent classes in Tesseract and comparison schools, and rated similarly the overall effectiveness of the Tesseract and comparison classes that they observed.

Additional Findings in Tesseract Schools - Observers saw less instances of teachers teaching the class as a whole and more instances of teachers teaching a group in Tesseract classrooms. Tesseract teachers were teaching the whole class during 44 percent of the observation time and working with groups 35 percent of the time; comparison teachers were teaching a whole class during 66 percent of the observation time and working with groups 13 percent of the time.

An assisting adult was available 84 percent of the time in Tesseract classrooms, but only 23 percent of the time in comparison classrooms. An intern was likely to be teaching a group of students in Tesseract classes while an assisting adult, when present in a comparison classroom, was likely to be monitoring students. Intern turnover was less of a problem during the third year of the Tesseract program than during the first.

Seventy percent of parents of Tesseract students responding to a telephone questionnaire reported meeting with their child's teacher for a Personal Education Plan conference; no similar information was collected from comparison schools. All other measures of parent involvement activities were similar for Tesseract and comparison schools.

Background on the Tesseract Program in Baltimore City

The Tesseract schools in Baltimore City are nine public schools operated by The Alliance for Schools That Work. The Alliance, an association of for-profit businesses including Educational Alternatives, Inc., (EAI), Johnson Controls, KPMG Peat Marwick, and Computer Corporation Company, has a contract with the Baltimore City Board of Estimates to run a primary school, seven elementary schools and a middle school for five years, with 1992-93 as the first year.

Operation of the nine Tesseract schools includes management of physical plant maintenance; custodial, secretarial and food services; and the special Tesseract instructional program. Administrative and teaching personnel continue to be employees of Baltimore City Public Schools (BCPS), with teachers subject of all terms of the negotiated agreement with the Baltimore Teachers Union. At the beginning of the 1992-93 school year, most para-professional personnel were transferred to other schools, and custodial, office and food service personnel either transferred to another school or were directly hired by Johnson Controls.

A year later, The Alliance for Schools That Work entered into a contract for consultant services for the mangement of auxiliary services but not the instructional program of two additional elementary schools, a middle school and a high school. The seven original Tesseract elementary schools considered in this evaluation and their comparison schools are listed below.

Tesseract Elementary Schools	Comparison Elementary Schools
Dr. Rayner Brown Elementary School 1000 North Montford Avenue Doris Graham, Principal	Furman L. Templeton Elementary School 1200 North Pennsylvania Ave. Carolyn Blackwell, Principal
Mildred D. Monroe Elementary School 1634 Guilford Avenue Janice Noranbrock, Principal	Park Heights Elementary School 49100 Park Heights Avenue Brenda Chunn, Principal
Harlem Park Elementary School 1401 West Lafayette Avenue Linda Carter, Assistant Principal	Pimlico Elementary School 4849 Pimlico Road James Patterson, Principal
Edgewood Elementary School 1900 Edgewood Street Shirley Johnson, Principal	Rosemont Elementary School 2777 Presstman Street Lana Powell, Principal
Sarah Roach Elementary School 3434 Old Frederick Road Ann Moore, Principal	Alexander Hamilton Elementary School 800 Poplar Grove Street Earlene Cole, Principal
Mary E. Rodman Elementary School 3510 West Mulberry Street Flora Johnson, Principal	Liberty Elementary School 3901 Maine Avenue Linda Chinnia, Principal
Graceland Park-O'Donnell Heights Elem. School O'Donnell Street Julia Winder, Principal	George Washington Elementary School 800 Scott Street Florence Johnson, Principal

Background on the UMBC Evaluation of the Tesseract Program

The evaluation for 1992-93, the first or implementation year of the Tesseract program in Baltimore City, was carried out by the Department of Research and Evaluation of the Baltimore City Public Schools (S. J. Ruffini, L. F. Howe, and D. G. Borders, The Early Implementation of Tesseract: 1992-93 Evaluation Report, Baltimore City Public Schools, 1994). Simultaneously, the department was preparing a Request for Proposal (RFP) for the Evaluation of the Tesseract Program in Baltimore City by an independent evaluator; the RFP was issued in January 1994 with a due date of March 15, 1994. The only proposal submitted was from the Center for Educational Research at the University of Maryland Baltimore County (UMBC), so a second RFP was issued with a due date of June 3, 1994. Again, the UMBC proposal was the only one submitted, and on August 22, 1994, the Baltimore City Board of Estimated awarded the contract to UMBC for evaluation of the Tesseract program over the remaining three years of the contract.

Dr. Lois Williams, associate director of the Center for Educational Research at UMBC, is the project director of the Evaluation of the Tesseract Program, and Dr. Lawrence E. Leak, now associate professor and chairperson of the department of secondary education at Towson State University, is the project co-principal investigator. Dr. Gwendolyn Bullock, Dr. Elizabeth Edmonds, Ann Turner Feldman, and Lawrence Kimmel are project researchers for this evaluation, and Andrea Watkins is the project research assistant. Dr. Douglas Lamdin, assistant professor of economics at UMBC has recently joined the research staff. In addition, Dr. Bullock is the community involvement coordinator to recruit volunteers from the Baltimore City League of Women Voters and community members who participated in some observations and telephone interviews. Dr. Gilbert Austin is the director of the Center for Educational Research at UMBC. The evaluators report to Dr. L'Tanya Sloan, Chief of the BCPS Department of Accountability since September 1, 1994.

During 1994-95, the first year of the evaluation and the third year of the implementation of the Tesseract program, the evaluation team focused on the program in grades 1 through 5, and thus the seven elementary schools. While data analysis was done for grades 1 through 5, only classes in grades 2 through 5 were observed. During 1995-96, the second year of the evaluation, the researchers will focus on the program in the Tesseract middle school and in pre-kindergarten, kindergarten and grade 1 in the Tesseract primary school as well as the pre-kindergarten, kindergarten and grade 1 in the seven elementary schools.

Additional information about the researchers for the UMBC Evaluation of the Tesseract Program in Baltimore City is presented below:

Dr. Lois Williams has been co-principal investigator with Dr. Austin for major research studies in Anne Arundel County high schools and Calvert County elementary schools, the Writing To Read program in Baltimore City kindergartens and first grades, and the current evaluation of the Maryland Collaborative for Teacher Preparation funded by the National Science Foundation. She also coordinates the Odyssey of the Mind program in Maryland and organizes conferences and workshops for science and mathematics teachers in Maryland. She wrote a newsletter, Computers in Education in Maryland, during the early years of classroom computer use. As project director of this evaluation, Dr. Williams had responsibility for the evaluation design, recruitment of personnel, administration of the project, design of the data analysis and tables, and the final report. She met with each principal, was a classroom observer, and interviewed the computer lab managers.

Dr. Lawrence E. Leak serves as an Associate Professor and Chair, Department of Secondary Education, Towson State University. He has held faculty appointments at the University of Maryland at College Park and Morgan State University; in addition, Dr. Leak has worked in the

public school sector as a high school teacher, assistant principal, and principal. Dr. Leak, a senior education consultant to the McKenzie Group and to School Improvement Services, Inc., works as an independent education consultant to a variety of organizations including the Annie E. Casey Foundation, Enterprise Foundation, National League of Cities, U.S. Department of Education, University of Maryland at College Park, Maryland State Department of Education, and numerous local school districts. As co-principal investigator, Dr. Leak had responsibility for the principal interviews, analysis of climate surveys, report conclusions, and the overall development of the final report.

Dr. Gwendolyn Bullock is a retired administrator from the District of Columbia and the federal government, with extensive experience in management and public policy. Her dissertation examined factors relating to the success of staff development programs. Dr. Bullock was chairperson of the education committee of the League of Women Voters and provided input into the RFP for the Tesseract Evaluation relating to community involvement. Dr. Bullock recruited League and community participants for observations and telephone interviews, was a classroom observer, and interviewed teachers in Tesseract schools on The Tesseract Way.

Dr. Elizabeth A. Edmonds is a retired Baltimore City Public Schools middle school and high school principal. Her dissertation investigated School Improvement Teams and the empowerment of teachers. She is currently an adjunct professor at Coppin State College in the Language, Literature, Journalism and Philosophy department, teaching composition; the Management Science department, teaching business communication writing; and the McNair Honors Program, teaching research writing. She is also an independent consultant. Dr. Edmonds was a classroom observer and interviewed staff development coordinators in Tesseract and comparison schools on staff development programs.

Ann Turner Feldman worked for 15 years as a community organizer and director of non-profit organizations, including seven years with organizations addressing state and local education policies. She will receive a masters degree in human development from the University of Maryland College Park in August 1995. Her thesis research investigated parent involvement in Head Start and Follow Through programs. Ms. Feldman was a classroom observer, and she observed staff development sessions and morning meetings, did telephone interviews, administered teacher questionnaires, analyzed the open-ended questions on the student questionnaire, and developed the rating matrix for the parent involvement study. She interviewed teachers in Tesseract schools on the Personal Education Plan process and parent liaison coordinators in Tesseract and comparison schools on parent involvement.

Lawrence Kimmel is a retired Baltimore County middle school principal, and he had been a curriculum specialist in social studies in Baltimore County. He is a lecturer in curriculum and instruction and in social studies methods at Towson State University and an adjunct professor in the Master of Arts in Teaching Program at Johns Hopkins University. He is also a legislative assistant to a Maryland state senator. Mr. Kimmel was a classroom observer, and he interviewed teachers and interns in Tesseract schools on the intern program.

Andrea Watkins is a recent graduate of the University of Maryland Baltimore County, majoring in interdisciplinary studies and journalism. She interned in the public relations office of Anne Arundel County. Ms. Watkins scheduled the classroom observations with the schools and the researchers. She was a classroom observer, administered teacher questionnaires, and typed data tables.

Review of the Designation of the Comparison Schools

As part of the preparation by the Baltimore City Public Schools Department of Research and Evaluation of the Request for Proposals for the evaluation of the Tesseract program in Baltimore City, the schools against which the Tesseract schools were to be compared were selected in the fall of 1993. The selection was made by matching each Tesseract school with a school with similar demographic and student achievement characteristics, using data for the 1991-92 school year. By the time that the contract for the evaluation was awarded in August 1994, the Department of Research and Evaluation had modified the list of comparison schools, substituting different schools for three of the original seven elementary schools. The substitution has been criticized as creating a group of less-highly achieving schools to "make the Tesseract schools look good."

At the time that the existence of the two groups of comparison schools became apparent to the evaluators, the project director of the evaluation was well-along in the negotiations with the principals of the newer group of comparison schools to allow observer visits, questionnaires and interviews. The evaluators decided to continue working with the newer group of schools, identified as "comparison schools" in the body of this document and "Group II comparison schools" or "Group II schools" in the data tables in the appendices, with the original group of schools identified as "Group I comparison schools" in the data tables in the appendices. However, a decision was made to present all enrollment, attendance and achievement score data for both Group I and Group II schools in the School-by-School Data Appendices.

This section reviews of the appropriateness of the match of each Tesseract school with its original comparison school and, for those schools for which there was a change, with the substituted comparison school. While the comparison schools were selected on the basis of the school-by-school matches, the section also reviews of the appropriateness of the comparison of all Tesseract schools with both Group I schools and Group II schools.

School Size - Information on enrollment for the 1991-92 school year is presented below:

Enrollment in Tesseract and Group I and Group II Comparison Schools, 1991-92

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	Total
Grade 1 - 5 enrollment	221	210	502	379	358	597	314	2581

Group I Comparison Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	Total
Grade 1 - 5 enrollment	421	309	512	427	560	565	327	3121

Group II Comparison Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	Total
Grade 1 - 5 enrollment	359	309	512	389	423	565	327	2884

Source: BCPS Pupil Information File for 1991-92

Tesseract schools were well-matched on school size with both a Group I school and, where there was a change, a Group II school, except for Dr. Rayner Browne, which was much smaller than either of its matched schools, and Sarah Roach, which was smaller than its Group I match, but similar to its Group II match. Thus, except for Dr. Rayner Browne, all schools were well-matched with Group II comparison schools on school size.

Free or Reduced Price Meal Eligibility - The percentage of students in a school eligible for free or reduced price meals has long-been a conventional estimate of the relative level of poverty of the student body. Information on free or reduced price meal eligibility for the 1991-92 school year is presented below:

Free or Reduced Price Meals in Tesseract and Group I and Group II Comparison Schools, 1991-92

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	Total
Free or reduced-price meals	94 %	94 %	95 %	80 %	77 %	75 %	90 %	85 %

Group I Comparison	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	Total
Free or reduced-price meals	93 %	89 %	86 %	79 %	88 %	76 %	91 %	85 %

Group II Comparison	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	Total
Free or reduced-price meals	96 %	89 %	86 %	84 %	88 %	76 %	91 %	86 %

Source: BCPS Pupil Information File for 1991-92

Three of the Tesseract schools were closely matched with Group II comparison schools on the free or reduced-price meal percentage -- Dr. Rayner Browne with Furman Templeton at 94 and 96 percent, Mary Rodman with Liberty at 75 and 76 percent, and Graceland Park with George Washington at 90 and 91 percent. Two Tesseract schools had a four or five percentage point difference with the Group II matched schools. Mildred Monroe at 94 percent was matched with Park Heights at 89 percent, and Edgewood at 80 percent was matched with Rosewood at 84 percent. Two Tesseract schools had a nine to 11 point difference with the Group II matched schools. Harlem Park at 95 percent was matched with Pimlico at 86 percent, and Sarah Roach at 77 percent was matched with Alexander Hamilton at 88 percent.

Overall, the Tesseract schools were close to both Group I and Group II schools in the free or reduced price meal percentage, with a weighted average of 85 percent for Tesseract schools and Group I schools, and 86 percent for Group II schools.

School-wide Achievement - Information on achievement in Tesseract schools and the two groups of comparison schools for the 1991-92 school year as measured by the Comprehensive Test of Basic Skills and the Maryland School Performance Assessment is presented below:

Achievement in Tesseract and Group I and Group II Comparison Schools, 1991-92

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	Total
CTBS reading NCE score	34	39	37	52	49	37	37	41
CTBS mathematics NCE score	37	44	43	53	48	42	40	44
Mean CTBS NCE score	35.5	41.5	40	52.5	48.5	39.5	38.5	42.5
MSPAP percent satisfactory	7.8%	9.2%	3.4%	16.2%	20.4%	5.1%	13.2%	10.2%

Group I Comparison Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	Total
CTBS reading NCE score	37	41	41	50	52	38	40	43
CTBS mathematics NCE score	43	40	43	51	56	37	41	45
Mean CTBS NCE score	40	40.5	42	50.5	54	37.5	40.5	44
MSPAP percent satisfactory	4.3%	1.5%	12.7%	30.2%	17.2%	10.8%	15.1%	15.2%

Group II Comparison Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	Total
CTBS reading NCE score	33	41	41	41	40	38	40	39
CTBS mathematics NCE score	38	40	43	41	44	37	41	41
Mean CTBS NCE score	33	40.5	42	41	42	37.5	40.5	40
MSPAP percent satisfactory	4.5%	1.5%	12.7%	11.5%	23.9%	10.8%	15.1%	12.0%

Source: BCPS Pupil Information File for 1991-92, CTBS Data File for 1991092, and Maryland School Performance Report for Baltimore City Public Schools, 1993

There were four pairs of schools who remained matched in the redesignation of some comparison schools. On the Comprehensive Test of Basic Skills, Mildred Monroe was relatively well-matched with Park Heights. The Harlem Park match with Pimlico and the Mary Rodman match with Liberty had small differences that almost exactly canceled each other. Graceland Park-O'Donnell Heights was matched with the slightly higher-achieving George Washington. The schools common to both comparison groups can be considered well-matched, with a net difference of one-half point favoring the comparison schools.

Three schools had changes in matched schools, and while one of these changes improved the match, one change substituted an poor match for a good one, and one change substituted one poor match for another. Dr. Rayner Browne had been matched with the higher-achieving Madison Square, and was more correctly matched with Furman Templeton. Edgewood had been fairly well-matched with Margaret Brent, but the new match with the much lower-achieving Rosemont was an inappropriate choice. The original match of Sarah Roach with the higher-achieving Cecil had not been appropriate, but the new match with the lower-achieving Alexander Hamilton was also inappropriate. While the difference in CTBS scores was small, the higher-achieving Group I schools were a slightly better match with the Tesseract schools than the lower-achieving Group II schools.

Maryland School Performance Assessment results, which were not used in the matching process, did not always show the same extent of differences, or even the same direction of differences between matched schools. Using MSPAP results, the rematches of Edgewood with Rosemont and Sarah Roach with Alexander Hamilton can be considered appropriate. Using MSPAP results, the Group II schools were better matched with the Tesseract schools than the Group I schools. Both comparison groups were slightly higher-achieving on the Maryland School Performance Assessment than the Tesseract schools.

Open Space Schools - One Tesseract school, Dr. Rayner Browne, and four comparison schools, Furman Templeton, Park Heights, Liberty, and Alexander Hamilton, were open space schools. The inclusion of four open space schools in the comparison group when there was just one open space school among the Tesseract schools was inappropriate.

Conclusions - Changing comparison schools once they were named was irregular, and while the original list was skewed toward higher achieving schools, the modification changed the comparison group from representing a group of schools that was higher achieving than Tesseract schools to a group that was lower achieving in the year before the implementation of the Tesseract program.

It is important to point out that, in contrast to the statement, "EAI was handed the worst schools in Baltimore City," the schools designated as Tesseract schools, while including many schools that were among the most challenging schools in Baltimore City, represented a mix of student achievement levels.

Part II: The Data-Based Findings

Introduction to the Data-Based Findings

Most of the data-based findings were developed from the Maryland School Report for Baltimore City Public Schools and from personnel reports and computer data tapes provided by Baltimore City Public Schools. The BCPS Department of Personnel provided Personnel Reports in hard copy form. The Pupil Information File data tapes were compiled by the BCPS Office of Management Information Services from information submitted by each Baltimore City school. The Comprehensive Test of Basic Skills data tapes were compiled by McGraw Hill, the scoring contractor for the CTBS. The Maryland School Performance Assessment data tapes were also compiled by McGraw Hill, the scoring contractor for the MSPAP. Tapes were loaded onto the UMBC mainframe computer, and downloaded to a personal computer for analysis by Gilbert R. Austin, Jr.

All data tapes contained complete information for all Baltimore City Public Schools students. The Personnel Reports were obtained only for the nine Tesseract schools and the comparison schools. The findings in this section were based on students in grades 1 through 5 in the seven Tesseract elementary schools and the modified set of seven comparison schools called "new comparison schools" in the media and either "comparison schools" in the body of this document or "Group II comparison schools" in the data tables in the appendices.

Only information related to grades 1 through 5 in the seven Tesseract and seven comparison elementary schools is used throughout this report. This excludes kindergarten and pre-kindergarten students with their differential rates of enrollment and attendance, and gives a better picture of the relative size and other factors of schools and groups of schools. No data related to either the Tesseract primary school or the Tesseract middle school is presented in this report.

More information on the topics of enrollment, attendance, and students eligible for Level IV special education services for the Tesseract schools, the Group II comparison schools and Baltimore City schools is presented in the Summary Data Tables at the end of Part II. Achievement data for the Tesseract schools, the comparison schools and Baltimore City schools, including important information on the percentage of students represented by score data, are also presented in the Summary Data Tables. School-by-school information for the Tesseract schools, Group I comparison schools and Group II comparison schools is presented in the Data Appendices.

Data tapes were obtained for the 1991-92, 1992-93 and 1993-94 school years in November 1994. Data tapes for the 1994-95 school year were obtained on July 18, 1995. Personnel Reports for all school years were obtained in February 1995, along with enrollment data for 1994-95.

Data tapes for the 1991-92, 1992-93 and 1993-94 school years were analyzed, and information presented in the draft version of the report. With the acquisition of the data tapes for the 1994-95 school year, all data was reanalyzed using a different sorting algorithm. Thus some data in the final report differs from the data in draft report for the first three years. All data presented in the final report is internally consistent.

Findings from the Baltimore City Pupil Information File

Findings on enrollment, attendance, and the percent of students receiving special education services were developed from the Pupil Information File.

Enrollment - In 1994-95, at the end of the third year of the Tesseract program, the enrollment in grades 1 through 5 in Tesseract schools, comparison schools and Baltimore City school had declined in relation to 1991-92, the pre-implementation year, as follows:

End-of-Year Enrollment in Grades 1 through 5
1991-92 and 1994-95

Tesseract Schools			Comparison Schools			Baltimore City		
1991-92	1994-95	'94-5 of'91-2	1991-92	1994-95	'94-5 of'91-2	1991-92	1994-95	'94-5 of'91-2
2,581	2,427	94%	2,872	2,515	88%	48.772	46,453	95%

Source: Baltimore City Pupil Information File

Enrollment has been declining in Baltimore City schools. Enrollment in grades 1 through 5 in Baltimore City schools was 95 percent of the 1991-92 level, the pre-implementation year of th∵ Tesseract program, while the Tesseract school enrollment was 94 percent of the 1991-92 level and comparison school enrollment was 88 percent of the 1991-92 level. Tesseract schools maintained school enrollment better than comparison schools; school enrollment can be considered a measure of parent satisfaction with the program.

Please note that the enrollment figures used in this report are end-of-school-year enrollment, and may differ from the September 30 or December 1 enrollment figures used as the "official" enrollment figures.

Attendance - In 1994-95, at the end of the third year of the Tesseract program, attendance in grades 1 through 5 had improved in relation to 1991-92, the pre-implementation year, as follows:

Attendance in Grades 1 through 5
1991-92 and 1994-95

	Tesseract Schools		Comparison Schools		Baltimore City	
	1991-92	1994-95	1991-92	1994-95	1991-92	1994-95
Attendance rate	93%	93%	92%	93%	93%	94%
Mean number of days absent	13	12	13	11	12	10
Percent absent less than 5 days	27%	32%	25%	30%	27%	33%
Percent absent more than 20 days	19%	16%	20%	15%	17%	13%

Source: Baltimore City Pupil Information File

Attendance measures showed improvement for all groups over the four-year period; there has been a concerted effort to improve attendance throughout the school system. For all groups, the attendance rate increased (although not apparent in the rounding to whole numbers for the Tesseract schools), the number of days students were absent decreased, the percent of students absent less than five days increased, and the percent of students absent more than 20 days decreased. The attendance rate was similar in Tesseract and comparison schools, although the mean number of days absent was greater in Tesseract schools than in comparison schools and Baltimore City schools.

Two attendance measures have been spotlighted by the Maryland School Performance Program. In one measure, the percentage of students absent less than five days, Tesseract schools, at 32 percent, was slightly better than comparison schools at 30 percent. In the second measure, the

percentage absent more than 20 days, comparison schools, at 15 percent, was slightly better than Tesseract schools at 16 percent. In 1994-95, for both of these attendance measures as well as the mean number of days absent, comparison schools and Baltimore City schools "regressed" from the previous year. In contrast, Tesseract schools held ground or improved in two measures and had only a slight decline in the third, the percent absent more than 20 days.

The school-by-school listing of change in the percentage of students absent less than five days is presented below:

Percent of Students Absent Less than Five Days for Tesseract and Comparison Schools and Change Over Three Years

Percent	School	Type	Change
41%	George Washington	Comparison	+14
34%	Sarah Roach	Tesseract	-1
33%	Harlem Park	Tesseract	+10
33%	Park Heights	Comparison	+11
33%	Edgewood	Tesseract	+8
32%	Dr. Rayner Browne	Tesseract	+2
31%	Alexander Hamilton	Comparison	+3
31%	Mary Rodman	Tesseract	+8
29%	Graceland Park O'Donnell Heights	Tesseract	+1
28%	Rosemont	Comparison	+7
28%	Liberty	Comparison	+3
26%	Pimlico	Comparison	+7
25%	Mildred Monroe	Tesseract	+1
21%	Furman Templeton	Comparison	-6

The school-by-school listing of change in the percentage of students absent more than 20 days is presented below:

Percent of Students Absent More than Twenty Days for Tesseract and Comparison Schools and Change Over Three Years

Percent	School	Type	Change
8%	George Washington	Comparison	-7
10%	Sarah Roach	Tesseract	-8
12%	Alexander Hamilton	Comparison	-3
12%	Park Heights	Comparison	-10
13%	Liberty	Comparison	-6
15%	Harlem Park	Tesseract	-7
15%	Rosemont	Comparison	-7
16%	Edgewood	Tesseract	+3
16%	Mary Rodman	Tesseract	0
18%	Mildred Monroe	Tesseract	-8
19%	Pimlico	Comparison	-3
20%	Graceland Park O'Donnell Heights	Tesseract	+1
20%	Dr. Rayner Browne	Tesseract	+2
22%	Furman Templeton	Comparison	+1

Students Eligible for Level IV Special Education Services - In 1994-95, at the end of the third year of the Tesseract Program, the percentage of students eligible for Level IV special education services in the Tesseract schools was one-third the percentage in 1991-92, the pre-implementation year. The percentage remained about the same in comparison schools and was two-thirds the percentage in 1991-92 in Baltimore City schools.

Percentage of Students Eligible for Level IV Special Education Services in Grades 1 through 5
1991-92 and 1994-95

Tesseract Schools		Comparison Schools		Baltimore City	
1991-92	1994-95	1991-92	1994-95	1991-92	1994-95
8.6%	2.7%	8.0%	7.5%	8.1%	5.6%

Source: Baltimore City Pupil Information File

The percentage of students eligible for Level IV special education services in the Tesseract schools decreased from 8.6 percent to 2.7 percent. The percentage of students eligible for Level IV special education services was relatively stable in the comparison schools, declining slightly from 8.0 percent to 7.5 percent. The percentage of students eligible for Level IV special education services in Baltimore City schools decreased from 8.1 percent to 5.6 percent.

The dramatic decrease in Tesseract schools in students eligible Level IV special education services and the full-time incorporation of those students into regular classrooms can be considered the most substantive change of the EAI program. However, consideration of the impact of these changes on students was beyond the scope of this evaluation.

Since the results for students eligible for Level IV special education services were excluded from all test score reporting in this document, this can be expected to negatively impact Tesseract schools in any comparisons of CTBS scores and MSPAP results for Tesseract and comparison schools. Scores for students who might have been eligible for Level IV special education services had they not been in Tesseract schools were included in mean scores for Tesseract schools; the inclusion of these scores probably depressed the mean scores for Tesseract schools.

Students Eligible for Level II, III and IV Special Education Services - In 1994-95, the percentage of students eligible for Level II, Level III and Level IV special education services in the Tesseract schools was just over one-half the percentage in 1991-92, the pre-implementation year. The percentage declined slightly in comparison schools and declined by one-fifth in Baltimore City schools.

Percentage of Students Eligible for Level II, Level III and Level IV
Special Education Services in Grades 1 through 5
1991-92 and 1994-95

	Tesseract Schools		Comparison Schools		Baltimore City	
	1991-92	1994-95	1991-92	1994-95	1991-92	1994-95
Level II Services	3.1%	3.3%	3.5%	3.7%	3.5%	3.8%
Level III Services	3.3%	1.8%	3.8%	3.1%	3.4%	2.6%
Level IV Services	8.6%	2.7%	8.0%	7.5%	8.1%	5.6%
Total Levels II, III, IV	15.1%	7.9%	15.4%	14.2%	15.0%	12.0%

Source: Baltimore City Pupil Information File

The percentage of students eligible for Level II, Level III and Level IV special education services in the Tesseract schools decreased from 15.1 percent to 7.9 percent. The percentage of students eligible for Level II, Level III and Level IV special education services was relatively stable in the comparison schools, declining slightly from 15.4 percent to 14.2 percent. The percentage of students eligible for Level IV special education services in Baltimore City schools decreased from 15.0 percent to 12.0 percent.

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Findings from the Baltimore City Personnel Reports

Findings on the number of classes, estimated class size, staff stability, school leadership positions, and art, vocal music and physical education positions were developed from the Personnel Reports and from enrollment information obtained from the Pupil Information File. Observed class size information was obtained from the classroom observations for this evaluation.

Number of Classes - In the three years of implementation of the Tesseract program, the number of classrooms has dropped in both Tesseract and comparison schools, and while enrollment has declined in both groups of schools, it has declined more in comparison schools than in Tesseract schools, as follows:

Number of Classes in Tesseract and Comparison Schools
1991-92 and 1994-95

	Tesseract Schools		Comparison Schools	
	1991-92	1994-95	1991-92	1994-95
Elementary teachers	99	91	100	89
Self-contained DEC teachers	18	6	19	17
Classroom master teachers	0	1	0	2
Total classrooms	117	98	119	106
Enrollment in grades 1 - 5	2581	2467*	2884	2565*

Sources: Baltimore City Personnel Report, BCPS Pupil Information File, and 1994-95 Sept. 30, 1994 enrollment
Note: September 30, 1994 enrollment will differ from 1994-95 end-of-year enrollment used elsewhere in this report

The number of elementary teachers declined in the period from 1991-92 to 1994-95 from 99 to 91 in Tesseract schools and from 100 to 89 in comparison schools. The decline in the number of self-contained DEC teachers in Tesseract schools is particularly apparent; there were six self-contained DEC teachers in Tesseract school in 1994-95 in contrast to 18 in 1991-92, while there were 17 in comparison schools in contrast to 19. The decline in self-contained DEC teachers paralleled the decline in identified Level IV special education students noted previously.

Class size - In the third year of the Tesseract program, class size in Tesseract schools and comparison schools, as estimated from the number of classrooms and students and as observed by the researchers for the UMBC evaluation, was similar, as follows:

Estimated Class Size for Tesseract and Comparison Schools, 1991-92 and 1994-95 and Observed Class Size, 1994-95

	Tesseract Schools		Comparison Schools	
	1991-92	1994-95	1991-92	1994-95
Estimated class size	23.9	26.0	26.6	25.9
Observed class size	--	24.1	--	23.7

Sources: Baltimore City Personnel Report, BCPS Pupil Information File, and UMBC Observations

The estimated class size in grades 1 through 5 for Tesseract schools and comparison schools was almost exactly the same, with 26.0 students in Tesseract schools and 25.9 students in comparison schools. The estimated class size in Tesseract schools rose by about two students from 23.9 to 26.0 students, while the estimated class size in comparison schools fell about two-thirds of a student from 26.6 to 25.9 students.

Estimated class size was derived from the total number of classrooms, the estimated number of students taught by the self-contained special education teachers, and the enrollment in grades 1 through 5. The total number of classrooms for grades 1 through 5 was determined by counting the number for elementary teachers and self-contained special education teachers on the personnel report for each school. In addition, information was obtained from each school about whether the master teacher or lead teacher was also a classroom teacher this year; similar information was not obtained for 1991-92, so that number is an estimate for comparison schools.

The number of special education students taught by the self-contained special education teachers was computed, using 12 students per classroom; the number of student in a special education classroom can be as high as 14, depending on the availability of an aide. The computed number of students in special education self-contained classrooms was subtracted from the enrollment in grades 1 through 5, and the resulting number of students divided by the number of elementary teachers and classroom master teachers to obtain the estimated class size.

While the number of classroom teachers in Tesseract schools declined, most of the decline can be attributed to what might be called overstaffing at two schools which had an unusually low average class size of below 20 students in 1991-92. In 1994-95, class size at five of the Tesseract schools was lower rather than higher than in 1991-92. Excluding the two schools, the 1991-92 estimated class size was 26.1 compared with the 1994-95 class size of 26.0 for all seven schools and 25.2 for those five schools.

The size of classes in grades 2 through 5 in Tesseract and comparison schools was noted during the classroom observations for the UMBC Evaluation of the Tesseract Program. Observers were instructed to count the students in the classroom at the beginning and the end of the class visit, and the larger number was taken as the observed class size. For teachers observed more than once, the higher number was used. "Combination" classes (3/4 or 4/5) were recorded with the lower grade. The number of classes in the table is less than the total number of classes observed because class size information was not recorded for a few observations. Observed class size was as follows:

Observed Class Size 1994-95

1994-95	Tesseract Schools		Comparison Schools	
	Observations	Mean	Observations	Mean
Grade 2	17	23.0	20	21.2
Grade 3	11	24.1	8	25.0
Grade 4	15	24.9	12	25.1
Grade 5	6	24.7	8	26.5
All Grades	49	24.1	48	23.7

Source: Classroom observations for UMBC Evaluation of the Tesseract Program

The observed class size for Tesseract and comparison schools was also similar, with an average of 24.1 students in Tesseract school classes and 23.7 students in comparison school classes. The observed number of students in a class was less than the estimated number because of student absences and because a relatively high proportion of the observations were in grade 2 classes, which were generally smaller than upper grade classes.

Staff Stability - In the three years of implementation of the Tesseract program, there has been more teacher turnover at the Tesseract schools than at the comparison schools, as follows:

Teacher Length-of-Service and Staff Stability
1991-92 and 1994-95

	Tesseract Schools		Comparison Schools	
	1991-92	1994-95	1991-92	1994-95
Elementary teachers	99	91	100	89
Average length of service in BCPS	11.5 years	10.9 years	14.0 years	13.1 years
Percent, 10 or more years	54%	36%	57%	44%
Percent, 3 or less years	36%	37%	31%	34%
Teachers from 1991-92 still at school	--	49%	--	63%
Principals from 1991-92 still at school	--	4 of 6	--	5 of 7

Sources: Baltimore City Personnel Reports

The average length of service in Baltimore City Public Schools decreased a similar fraction of a year in both Tesseract and comparison schools over the past four years; however, the average length of service of teachers at Tesseract schools remained a little less than teachers at comparison schools. The average length of service differed widely from school to school, varying in 1994-95 from 6.1 to 20.3 in Tesseract schools and seven to 21.5 years in comparison schools.

While there were relatively fewer veteran teachers with 10 or more years of service at the Tesseract schools than at comparison schools, there were about the same number of newer teachers with three of less years of service. Forty-nine percent of the 1994-95 Tesseract school elementary teachers and 63 percent of the comparison school elementary teachers were on the staff in 1991-92. This difference is significant, but it is a the dramatic exodus of teachers from Tesseract schools. The stability of principals at Tesseract and comparison schools was the same; five of the seven current principals at both groups of schools headed the school in 1991-92.

School Leadership Positions - In 1994-95, by the middle of the third year of the Tesseract program, there was about the same number of principals, assistant principals, master or lead teachers and guidance counselors in Tesseract schools and comparison schools as there had been four years earlier, except that there had been no master or lead teachers in the Tesseract schools in 1991-92 and there was a master or lead teacher in each school in 1994-95, as follows:

School Leadership Positions
1991-92 and 1994-95

	Tesseract Schools		Comparison Schools	
	1991-92	1994-95	1991-92	1994-95
Principal	6	6	7	7
Assistant principal	4.5	6	4.5	5.5
Master/Lead teacher	0	7	7	5
Guidance counselor	4.5	2.5	3	3.6
Ratio leadership to students	1 to 172	1 to 115	1 to 134	1 to 142

Sources: Baltimore City Personnel Report, BCPS Pupil Information File, and 1994-95 Sept. 30, 1994 enrollment

The 1994-95 leadership-to-student ratio of 1 to 115 in the Tesseract schools was somewhat more favorable than the ratio of 1 to 142 in comparison schools and substantially more favorable than the Tesseract schools preimplementation ratio of 1 to 172. However, in 1991-92, the ratio in Tesseract schools was considerably less favorable than the ratio of 1 to 134 in comparison schools.

Art, Music and Physical Education Positions - In 1994-95, by the middle of the third year of the Tesseract program, the number of art, vocal music and physical education positions in Tesseract schools was slightly less than the number in comparison schools. More importantly,

the number of art, vocal music and physical education or "class enrichment" positions in both groups of schools was down considerably from 1991-92, as follows:

Art, Vocal Music and Physical Education Positions, "Planning-Time" Positions and Instrumental Music Positions
1991-92 and 1994-95

	Tesseract Schools		Comparison Schools	
	1991-92	1994-95	1991-92	1994-95
Art positions	3.1	3.0	3.5	2.7
Vocal music positions	3.3	1.5	3.2	1.5
Physical education positions	2.6	1.4	2.6	2.3
Total "planning-time" positions	9.0	5.5	9.7	6.4
Ratio of positions to students	1 to 286	1 to 448	1 to 297	1 to 400
Instrumental music positions	0.4	0.4	0.4	0.8

Sources: Baltimore City Personnel Report, BCPS Pupil Information File, and 1994-95 Sept. 30, 1994 enrollment

The level of staffing for art, vocal music, and physical education was similar in Tesseract and comparison schools in 1991-92, and it has decreased in both schools so that the ratio of positions to students is 1 to 448 in Tesseract schools, or 64 percent of the 1991-92 level, while the ratio is 1 to 400 in comparison schools, or 75 percent of the 1991-92 level. Art, vocal music, and physical education teachers are sometimes called resource teachers; the term "class enrichment positions" is used here to distinguished these teachers from special education resource teachers. Not included in the "class enrichment positions" in this table were instrumental music teachers; the instrumental music program serves interested grade 4 and grade 5 students as a pull-out program rather than a whole-class program. Also not included were GATE positions in 1991-92, although these teachers usually worked with students on a pull-out basis, and the foreign language teacher in one of the Tesseract schools. Note that the "class enrichment positions" are usually used as teacher planning time.

Findings from the Maryland School Performance Assessment Program

Findings from the Maryland School Performance Assessment Program were developed from publicly-available information in the Maryland School Report for Baltimore City Public Schools. Additional findings were developed from the MSPAP data tapes. Results for the 1994-95 school year, including the Assessment administered in May 1995, will not be available until January 1996.

School-by-school results for the MSPAP have been released to the public over the last three years of the five years of the assessment program. However, because of internal changes in the allocation of tasks over academic areas, the 1991-93 results can not be directly compared with the results for later years. Thus only results for the 1992-93 and 1993-94 schools years can be compared for indicators of gains or losses.

The Maryland School Progress Index - In 1993-94, at the end of the second year of the Tesseract program, the Maryland School Progress Index, 11/12 of which is composed of the percentage of students scoring satisfactory on the academic areas of the Maryland School Performance Assessment Program, showed Tesseract schools minimally higher than comparison schools, as follows:

The Maryland School Progress Index
for the Maryland School Performance Assessment Program
Including Assessments for Students in Grades 3 and 5*
1992-93 and 1993-94
*Students are those enrolled by February 1 and not Level IV special education or non-English proficient

Tesseract Schools			Comparison Schools			Baltimore City			Maryland		
1992-3	1993-4	Change	1992-3	1993-4	Change	1992-3	1993-4	Change	1992-3	1993-4	Change
18.7	18.0	-0.7	18.1	16.5	-1.6	22.5	24.8	+2.3	49.8	53.9	+4.1

Source: Maryland School Report for Baltimore City Public Schools

Tesseract schools were unchanged from the previous year in contrast to a slight decline for the comparison schools. Results for both Tesseract and comparison schools were somewhat below Baltimore City schools and well below Maryland schools.

Computation of School Progress Index - The School Progress Index is a single-number indicator which encompasses a school's results on the Maryland School Performance Assessment Program across the academic areas for both grades 3 and 5 as well as a school's attendance rate. Because it is based on the MSPAP, the School Performance Index has no meaning nationally.

The School Progress Index is the mean of 12 fractions. Each of 11 MSPAP measures of the percentage of students achieving satisfactory as the numerator and a denominator of 70, the "standard" or percentage of testable students in a school that need to achieve satisfactory for a school to be classified as satisfactory, and a 12th fraction, with the attendance rate as the numerator and a denominator of 94, the "standard" or attendance rate for a school to be classified as satisfactory, are added, and the total divided by 12.

For this report, the School Progress Index was multiplied by 100 to give a number in the same format as the Change Index number. Multiplication by 100 also gives a number with a more recognizable percentage equivalent. The School Progress Index is computed, as follows:

Grade 3 (Math + Social Studies + Science + Language + Writing +
       70   70   70   70   70

Grade 5   Reading + Math + Social Studies + Science + Language + Writing +
          70   70   70   70 70   70

Attendance Rate) / 12 = School Progress Index x 100 = Reported School Progress Index
          94

The School Progress Index is essentially a percentage indicator of "how far along" a school is toward a classification of satisfactory. Thus Maryland, with an Index of 53.9, is "half-way", while Baltimore City, with an Index of 24.8, is "a quarter of the way there." The School Progress Index is useful for ranking a group of Maryland schools.

MSPAP Results for All Students - While the Maryland School Progress Index incorporates the results for Grade 3 and Grade 5 students, more detailed results are available, as follows:

Maryland School Performance Assessment Results
as Percent of Students Scoring Satisfactory

Grade 3 Mean	Tesseract	Comparison	Baltimore	Maryland
1993-94	8.1%	7.8%	12.7%	33.5%
1992-93	8.3%	7.3%	11.3%	31.2%

Grade 5 Mean	Tesseract	Comparison	Baltimore	Maryland
1993-94	6.5%	4.8%	12.0%	35.3%
1992-93	7.9%	7.8%	10.7%	32.1%

Source: Maryland School Report for Baltimore City Public Schools

In 1993-94, Tesseract and comparison schools at grade 3 were unchanged from the previous year, and at grade 5, there was a slight decline for Tesseract schools and a greater decline for comparison schools. Results for both Tesseract and comparison schools were somewhat below Baltimore City school and well below Maryland schools.

MSPAP Scale Scores and Proficiency Levels - Information about school performance on the assessment beyond the percentage of students scoring at or above satisfactory, a proficiency level of 3, is not publicly released. However, scale scores and proficiency levels are released by the Maryland State Department of Education to school systems, and sometimes by school systems to schools. 1992-93 and 1993-94 results in all academic areas for the group of Tesseract schools and the group of comparison schools as a whole were at the lowest proficiency level, and, with some exceptions in science, the results for each Tesseract school and comparison school were at the lowest proficiency level as well.

Findings from the Maryland School Performance Assessment Program - For 1993-94, the end of the second year of the Tesseract program, the Maryland School Progress Index showed Tesseract schools minimally higher than comparison schools and unchanged from the previous year in contrast to a slight decline for the comparison schools. Results for both Tesseract and comparison schools were somewhat below Baltimore City schools and well below Maryland schools. MSPAP results for 1994-95, the third year of the Tesseract program, will not be available until January 1996.

Maryland School Performance Assessment Results Summary

Students enrolled before February 1 of the assessment year and not Level IV special education or non-English proficient

Grade 3 Results as Percent of Students Scoring Satisfactory

1993-94	Tesseract	Comparison	Baltimore City	Maryland
Reading	5.4%	6.5%	9.2%	30.6%
Mathematics	5.6%	6.5%	12.4%	33.9%
Social Studies	6.3%	7.4%	11.6%	32.4%
Science	8.2%	7.8%	12.5%	34.8%
Writing	6.8%	11.0%	16.0%	35.2%
Language	12.2%	7.6%	14.5%	34.2%
Mean	8.1%	7.8%	12.7%	33.5%

1992-93	Tesseract *	Comparison *	Baltimore City *	Maryland *
Reading	n/a	n/a	n/a	n/a
Mathematics	4.4%	7.2%	7.1%	28.6%
Social Studies	5.1%	5.4%	9.4%	31.9%
Science	6.2%	5.3%	8.0%	31.1%
Writing	14.7%	12.7%	18.1%	35.1%
Language	11.1%	6.0%	13.7%	29.4%
Mean	8.3%	7.3%	11.3%	31.2%

Source: Maryland School Performance Report for Baltimore City, 1994

* Number Testable from 1993-94 was used in computation of weighted mean percent scoring satisfactory for 1992-93

Grade 5 Results as Percent of Students Scoring Satisfactory

1993-94	Tesseract	Comparison	Baltimore City	Maryland
Reading	6.3%	5.4%	10.0%	30.2%
Mathematics	5.6%	3.2%	13.2%	42.0%
Social Studies	5.0%	3.2%	9.7%	32.7%
Science	3.4%	3.0%	10.6%	38.7%
Writing	8.8%	6.5%	13.6%	33.1%
Language	9.9%	7.3%	14.7%	35.0%
Mean	6.5%	4.8%	12.0%	35.3%

1992-93	Tesseract *	Comparison *	Baltimore City *	Maryland *
Reading	6.3%	3.3%	7.8%	24.7%
Mathematics	7.5%	9.5%	11.8%	39.5%
Social Studies	8.5%	6.1%	9.6%	31.3%
Science	4.4%	6.2%	7.7%	33.3%
Writing	14.4%	14.2%	17.6%	36.8%
Language	6.4%	7.5%	10.4%	26.8%
Mean	7.9%	7.8%	10.7%	32.1%

Source: Maryland School Performance Report for Baltimore City, 1994

* Number Testable from 1993-94 was used in computation of weighted mean percent scoring satisfactory for 1992-93

Maryland School Performance Assessment Scale Scores and Levels Summary

Scale Scores and Proficiency Levels

Grade 3 - 1993-94

1993-94	Tesseract Schools		Comparison Schools	
	Score	Level	Score	Level
Reading	453	5	462	5
Mathematics	458	5	461	5
Social Studies	462	5	467	5
Science	463	4*	461	4*
Writing	478	4*	478	4*
Language Usage	475	4*	478	4*

Source: Maryland School Performance Assessment Program Data File for Baltimore City, 1994
*Note: 4 is the lowest Proficiency Level

Grade 3 - 1992-93

1992-93	Tesseract Schools		Comparison Schools	
	Score	Level	Score	Level
Reading	468	5	454	5
Mathematics	454	5	448	5
Social Studies	456	5	458	5
Science	457	4*	453	4*
Writing	483	4*	478	4*
Language Usage	472	4*	474	4*

Source: Maryland School Performance Assessment Program Data File for Baltimore City, 1993
*Note: 4 is the lowest Proficiency Level

Grade 5 - 1993-94

1993-94	Tesseract Schools		Comparison Schools	
	Score	Level	Score	Level
Reading	462	5	463	5
Mathematics	458	5	451	5
Social Studies	460	5	453	5
Science	451	5	443	5
Writing	465	5	460	5
Language Usage	473	4*	473	4*

Source: Maryland School Performance Assessment Program Data File for Baltimore City, 1994
*Note: 4 is the lowest Proficiency Level

Grade 5 - 1992-93

1992-93	Tesseract Schools		Comparison Schools	
	Score	Level	Score	Level
Reading	470	5	460	5
Mathematics	461	5	455	5
Social Studies	461	5	455	5
Science	452	5	449	5
Writing	471	5	469	5
Language	472	4*	472	4*

Source: Maryland School Performance Assessment Program Data File for Baltimore City, 1993
*Note: 4 is the lowest Proficiency Level

Findings from the Comprehensive Test of Basic Skills

Findings from the Comprehensive Test of Basic Skills on achievement levels for all students and for students continuously enrolled in a school for two years were developed from the CTBS files and from the Pupil Information Files. In all score reporting, NCE (national curve equivalent) scores are reported for students enrolled by February 1 of the testing year who were not receiving Level IV special education services, who were not absent on the day of testing, and who did not receive a score of "1". For two-year students, scores of students are reported who were continuously enrolled since September 1 of the school year prior to the testing year. Thus, students who were enrolled in grades 1 through 4 on September 1 of the preceding school year were in grades 2 through 5 of the reporting year, and are properly compared with all students in grades 2 through 5.

End-of-school-year enrollment data for grades 1 through 5 was used to compute the percentage of enrolled students for whom scores were reported. Similarly, enrollment data for grades 2 through 5 was used to compute the percentage of two-year student scores.

Change in Scores Over One Year for All Students - The 1994-95 NCE scores for total reading and total mathematics on Comprehensive Test of Basic Skills for grades 1 through 5, and the change in those scores from 1993-94, were as follows:

One-Year Change in Mean NCE Scores on the Comprehensive Test of Basic Skills
for All Students in Grades 1 through 5*
1993-94 and 1994-95
*All Students were those enrolled by February 1 of the testing year and not Level IV special education and not "1" score

	Tesseract Schools			Comparison Schools			Baltimore City		
	1993-94	1994-95	Change	1993-94	1994-95	Change	1993-94	1994-95	Change
Reading	38	40	+2	40	39	-1	45	44	-1
Mathematics	41	45	+4	41	42	+1	48	48	0

Source: Baltimore City Pupil Information File and CTBS File for Baltimore City

Total reading NCE scores had been two points lower at the Tesseract schools than at comparison schools in 1993-94. In 1994-95, reading scores increased by two points in the Tesseract schools and decreased in the comparison schools. The total reading scores in Baltimore City schools decreased by one point from the previous school year. 1994-95 reading scores for Tesseract school students were one point higher than for comparison school students.

Total mathematics NCE scores had been the same at the Tesseract schools and comparison schools in 1993-94. During the 1994-95 school year, mathematics scores increased by four points in the Tesseract schools and one point in the comparison schools. The total mathematics scores in Baltimore City schools were unchanged. 1994-95 mathematics scores for Tesseract school students were three points higher than for comparison school students.

Change in Scores Over Three Years for All Students - The 1994-95 NCE total reading and total mathematics scores on Comprehensive Test of Basic Skills for grades 1 through 5, and the change in those scores from 1991-92, were as follows:

Three-Year Change in Mean NCE Scores on the Comprehensive Test of Basic Skills
for All Students in Grades 1 through 5*
1991-92 and 1994-95
*All Students were those enrolled by February 1 of the testing year and not Level IV special education and not "1" score

	Tesseract Schools			Comparison Schools			Baltimore City		
	1991-92	1994-95	Change	1991-92	1994-95	Change	1991-92	1994-95	Change
Reading	41	40	-1	39	39	0	43	44	+1
Mathematics	44	45	+1	41	42	+1	46	48	+2

Source: Baltimore City Pupil Information File and CTBS File for Baltimore City

Total reading NCE scores had been two points higher in the pre-implementation year (1991-92) at Tesseract schools than the comparison schools. The 1994-95 reading scores in Tesseract schools were one-point higher than in 1991-92, while the reading scores in comparison schools were unchanged over the three-year period. In 1994-95, at the end of the third year of the Tesseract program, the reading scores in Tesseract schools were one point higher than the comparison schools. The total reading scores in Baltimore City schools increased by one point during the three-year period.

Total mathematics NCE scores had been three points higher in the pre-implementation year (1991-92) at Tesseract schools than the comparison schools. The 1994-95 mathematics scores in both Tesseract schools and comparison schools increased by one point over 1991-92. In 1994-95, the mathematics scores in Tesseract schools were still three points higher than the comparison schools. The total mathematics scores in Baltimore City schools increased by two points during the three-year period.

Change in Scores Over Three Years for Grade 5 Students - The 1994-95 NCE total reading and total mathematics scores on Comprehensive Test of Basic Skills for grades 1 through 5, and the change in those scores from 1991-92, were as follows:

Three-Year Change in Mean NCE Scores on the Comprehensive Test of Basic Skills
for Grade 5 Students*
1991-92 and 1994-95
*Grade 5 Students were those enrolled by February 1 of the testing year and not Level IV special education and not "1" score

	Tesseract Schools			Comparison Schools			Baltimore City		
	1991-92	1994-95	Change	1991-92	1994-95	Change	1991-92	1994-95	Change
Reading	36	38	+2	37	32	-5	39	40	+1
Mathematics	43	42	-1	43	38	-5	46	48	+2

Source: Baltimore City Pupil Information File and CTBS File for Baltimore City

In 1991-92, reading and mathematics scores were similar in Tesseract schools and comparison schools for grade 5 students. 1994-95 reading scores for grade 5 students in Tesseract schools had increased two points from 1991-92 scores, while reading scores for grade 5 students in comparison schools had decreased five points. 1994-95 mathematics scores for grade 5 students in Tesseract schools had decreased one point from 1991-92 scores, while mathematics scores for grade 5 students in comparison schools had decreased five points. Over the three-year period, reading scores for Baltimore City students increased one point and mathematics scores increased two points.

1994-95 scores for grade 5 students were considerably higher in Tesseract schools than in comparison schools, even though scores had been about the same in 1991-92. While grade 5 students had held ground in Tesseract schools, there was a considerable decline in scores for grade 5 students in comparison schools over the three-year period.

School Changes in Scores Over Three Years - The changes for the Tesseract schools and comparison schools in NCE total reading scores on Comprehensive Test of Basic Skills for grades 1 through 5 over the three-year period from 1991-92 to 1994-95 were, as follows:

Changes Over Three Years in Mean CTBS Total Reading Scores
in Tesseract and Comparison Schools
1991-92 to 1994-95

Change	School	Type
+6	Mary E. Rodman	Tesseract
+6	Mildred Monroe	Tesseract
+5	Furman Templeton	Comparison
+3	Liberty	Comparison
+3	George Washington	Comparison
0	Park Heights	Comparison
0	Harlem Park	Tesseract
-1	Pimlico	Comparison
-2	Graceland Park O'Donnell Heights	Tesseract
-3	Rosemont	Comparison
-4	Dr. Rayner Browne	Tesseract
-5	Edgewood	Tesseract
-5	Alexander Hamilton	Comparison
-7	Sarah Roach	Tesseract

For Tesseract schools, changes in reading scores from 1991-92 to 1994-95 ranged from a six-point gain to a seven-point loss, and reading scores increased in two schools, decreased in four schools and were unchanged in one school. For comparison schools, changes ranged from a gain of five points to a loss of five points, and reading scores increased in three schools, decreased in three schools and were unchanged in one school.

The changes for the Tesseract schools and comparison schools in NCE mathematics scores over the three-year period were, as follows:

Changes Over Three Years in Mean CTBS Mathematics Scores
in Tesseract and Comparison Schools
1991-92 to 1994-95

Change	School	Type
+7	Furman Templeton	Comparison
+7	Mary L. Rodman	Tesseract
+6	George Washington	Comparison
+4	Mildred Monroe	Tesseract
+3	Park Heights	Comparison
+2	Graceland Park O'Donnell Heights	Tesseract
+2	Liberty	Comparison
+2	Sarah Roach	Tesseract
-2	Pimlico	Comparison
-2	Edgewood	Tesseract
-2	Rosemont	Comparison
-3	Dr. Rayner Browne	Tesseract
-5	Harlem Park	Tesseract
-8	Alexander Hamilton	Comparison

For Tesseract schools, changes in mathematics scores from 1991-92 to 1994-95 ranged from a seven-point gain to a five-point loss, and mathematics scores increased in four schools and decreased in three schools. Changes in mathematics scores in comparison schools ranged from a

seven-point gain to an eight point loss, and mathematics scores also increased in four schools and decreased in three schools. The Tesseract program has been effective in raising test scores in some schools but not in others.

Relative Ranking of Schools - In the city-wide listing of elementary schools by 1994-95 reading scores which was prepared by the Baltimore City Public Schools Department of Research and Evaluation, Tesseract and comparison schools were ranked as follows:

Ranking of Tesseract and Comparison Schools Among 123 Baltimore City Schools
by 1994-95 Reading Comprehension CTBS Scores for Kindergarten through Grade 5

Rank	School	Type	Score
49	Mary E. Rodman	Tesseract	43.0
52	Mildred Monroe	Tesseract	42.8
54	Edgewood	Tesseract	42.7
67	Park Heights	Comparison	40.8
70	George Washington	Comparison	40.3
76	Sarah M. Roach	Tesseract	39.9
88	Pimlico	Comparison	37.8
95	Liberty	Comparison	36.9
105	Rosemont	Comparison	34.8
106	Furman Templeton	Comparison	34.7
108	Graceland Park O'Donnell Heights	Tesseract	34.6
113	Alexander Hamilton	Comparison	34.1
115	Harlem Park	Tesseract	33.8
122	Dr. Rayner Browne	Tesseract	29.7

Three Tesseract schools ranked above the mid-point while two Tesseract schools and one comparison school ranked in the lowest ten percent. The other two Tesseract schools and six comparison schools ranked in between.

In the listing of mathematics scores, Tesseract and comparison schools were ranked, as follows:

Ranking of Tesseract and Comparison Schools Among 123 Baltimore City Schools
by 1994-95 Mathematics CTBS Scores for Kindergarten through Grade 5

Rank	School	Type	Score
32	Edgewood	Tesseract	51.2
47	Sarah M. Roach	Tesseract	48.4
50	Mildred Monroe	Tesseract	47.5
55	Mary E. Rodman	Tesseract	47.2
64	George Washington	Comparison	45.9
79	Park Heights	Comparison	42.5
87	Furman Templeton	Comparison	41.0
90	Graceland Park O'Donnell Heights	Tesseract	40.3
93	Liberty	Comparison	40.0
97	Pimlico	Comparison	39.3
105	Harlem Park	Tesseract	37.4
112	Alexander Hamilton	Comparison	34.5
120	Dr. Rayner Browne	Tesseract	30.9

In mathematics, four Tesseract schools ranked above the mid-point and one Tesseract school ranked in the lowest ten percent. The other two Tesseract schools and all comparison schools ranked in between.

Note that the displayed scores are for students in kindergarten through grade 5 and include all tests, while other scores presented in this document are for students in grades 1 through 5 and exclude some tests.

Scores for Two-Year Students - The 1994-95 NCE total reading and total mathematics scores on Comprehensive Test of Basic Skills for students continuously enrolled in a school for two full years were as follows:

Mean NCE Scores on the Comprehensive Test of Basic Skills
for All Students in Grades 2 through 5*
and for Students in Grades 2 through 5 Continuously Enrolled for Two Years**
1994-95

*All Students were those enrolled by February 1 of the testing year and not Level IV special education and not "1" score
**Two Year Students were those enrolled by September 1 of the preceding school year and meet other conditions

	Tesseract Schools			Comparison Schools			Baltimore City		
	All	Two-year	Difference	All	Two-year	Difference	All	Two-year	Difference
Reading	40	41	+1	38	39	+1	43	44	+1
Mathematics	43	44	+1	40	41	+1	47	48	+1

Source: Baltimore City Pupil Information File and CTBS File for Baltimore City

For the 1994-95 school year, at the end of the third year of the Tesseract program, the CTBS total reading scores and the mathematics scores of the continuously enrolled two-year students were one point higher than the scores for all reported students in grades 2 through 5 at Tesseract schools, comparison schools, and Baltimore City schools. There was not an apparent differential program impact in either reading or mathematics for continuously-enrolled students at Tesseract schools, the comparison schools and Baltimore City schools.

While reading and mathematics NCE scores were slightly higher in both Tesseract and comparison schools for students continuously enrolled for two years than for all reported students in grades 2 through 5, the surprise is that the difference is not greater. Apparently, the 15 to 25 percent of transferring students who are reported with "all" students do not seriously depress school-wide achievement scores.

Change in Scores Over Two Years for Two-Year Students - The 1992-93 and 1994-95 NCE total reading and total mathematics scores on Comprehensive Test of Basic Skills for students continuously enrolled in a school for two full years were as follows:

Two-Year Change in Mean NCE Scores on the Comprehensive Test of Basic Skills
for Students in Grades 2 through 5 Continuously Enrolled for Two Years**
1992-93 and 1994-95

**Two Year Students were those enrolled by September 1 of the preceding school year and meet other conditions

	Tesseract Schools			Comparison Schools			Baltimore City		
	1992-93	1994-95	Change	1992-93	1994-95	Change	1992-93	1994-95	Change
Reading	39	41	+2	39	39	0	44	44	0
Mathematics	40	44	+4	40	41	+1	46	48	+2

Source: Baltimore City Pupil Information File and CTBS File for Baltimore City

During the two-year period from 1992-93 through 1994-95, total reading scores for students in grades 2 through 5 continuously enrolled for two years increased by two points in Tesseract schools while remaining unchanged in comparison schools and Baltimore City schools. Mathematics scores increased by four points in Tesseract schools, one point in comparison schools, and two points in Baltimore City schools. Note that the change in scores over two years

for continuously enrolled students is a different data analysis than the matched student gain scores discussed on pages 108 and 109 of this document.

It is important to understand that the base year for this data was 1992-93, the first year of the Tesseract program, when reading and mathematics scores had fallen from the pre-implementation year for Tesseract students while rising for comparison school and Baltimore City students. Any change score data with 1992-93 as the base year will favor Tesseract schools over comparison schools and Baltimore City schools. Comparable data for students continuously enrolled two years for the 1991-92 school year necessitates access to the 1990-91 Pupil Information File, which the evaluation team did not request.

Comprehensive Test of Basic Skills Total Reading NCE Scores

Students enrolled before February 1 of the testing year and not Level IV special education and not "1" score

1994-95

	Tesseract		Comparison		Baltimore	
Grade 1 - Number and NCE	470	42	414	45	8098	47
Grade 2 - Number and NCE	381	38	435	40	7822	44
Grade 3 - Number and NCE	368	41	356	38	7212	44
Grade 4 - Number and NCE	364	38	347	32	6978	44
Grade 5 - Number and NCE	336	37	294	33	6948	40
Total Number Reported Tests	1946		1888		36,959	
Enrollment Grades 1 - 5	2427		2515		46,453	
Percentage Reported Tests	80%		75%		80%	
Grade 1 - 5 Mean NCE Score	40		39		44	
Grade 2 - 5 Mean NCE Score	40		38		43	

1993-94

	Tesseract		Comparison		Baltimore	
Grade 1 - Number and NCE	453	39	510	42	4618	47
Grade 2 - Number and NCE	455	38	430	42	7814	45
Grade 3 - Number and NCE	413	37	412	39	7512	44
Grade 4 - Number and NCE	435	40	394	39	7453	44
Grade 5 - Number and NCE	424	35	434	35	7348	41
Total Number Reported Tests	2180		2180		38,645	
Enrollment Grades 1 - 5	2524		2674		47,607	
Percentage Reported Tests	86%		82%		81%	
Grade 1 - 5 Mean NCE Score	38		40		45	
Grade 2 - 5 Mean NCE Score	37		39		44	

1992-93

	Tesseract		Comparison		Baltimore	
Grade 1 - Number and NCE	474	36	501	42	8559	47
Grade 2 - Number and NCE	439	37	420	41	7901	45
Grade 3 - Number and NCE	436	39	421	38	8016	44
Grade 4 - Number and NCE	427	39	462	39	7660	44
Grade 5 - Number and NCE	381	39	451	37	7216	40
Total Number Reported Tests	2157		2255		39,296	
Enrollment Grades 1 - 5	2645		2785		48,053	
Percentage Reported Tests	82%		81%		82%	
Grade 1 - 5 Mean NCE Score	38		40		44	
Grade 2 - 5 Mean NCE Score	38		39		43	

1991-92

	Tesseract		Comparison		Baltimore	
Grade 1 - Number and NCE	502	43	494	43	8651	46
Grade 2 - Number and NCE	440	41	487	39	8153	43
Grade 3 - Number and NCE	416	44	455	37	8037	43
Grade 4 - Number and NCE	424	44	475	40	7600	43
Grade 5 - Number and NCE	378	36	472	37	7349	39
Total Number Reported Tests	2160		3283		39,790	
Enrollment Grades 1 - 5	2581		2872		48,772	
Percentage Reported Tests	84%		83%		82%	
Grade 1 - 5 Mean NCE Score	41		39		43	

Source: Baltimore City Pupil Information File and Comprehensive Test of Basic Skills/4 Data File for Baltimore City, 1991-92, 1992-93, 1993-94 and 1994-95

Comprehensive Test of Basic Skills Total Mathematics NCE Scores

Students enrolled before February 1 of the testing year and not Level IV special education and not "1" score

1994 - 95

	Tesseract		Comparison		Baltimore	
Grade 1 - Number and NCE	465	51	399	47	7992	50
Grade 2 - Number and NCE	393	45	431	43	770	49
Grade 3 - Number and NCE	368	45	351	41	7269	46
Grade 4 - Number and NCE	360	43	335	38	6818	45
Grade 5 - Number and NCE	377	42	366	38	7059	48
Total Number Reported Tests	1963		1882		36,909	
Enrollment Grades 1 - 5	2427		2515		46,453	
Percentage Reported Tests	81%		75%		79%	
Grade 1 - 5 Mean NCE Score	45		42		48	
Grade 2 - 5 Mean NCE Score	43		40		47	

1993 - 94

	Tesseract		Comparison		Baltimore	
Grade 1 - Number and NCE	445	45	493	46	8399	52
Grade 2 - Number and NCE	439	44	422	46	7762	50
Grade 3 - Number and NCE	410	41	413	37	7531	47
Grade 4 - Number and NCE	436	37	383	37	7379	44
Grade 5 - Number and NCE	433	40	447	37	7327	47
Total Number Reported Tests	2163		2158		38,398	
Enrollment Grades 1 - 5	2524		2674		47,607	
Percentage Reported Tests	86%		81%		81%	
Grade 1 - 5 Mean NCE Score	41		41		48	
Grade 2 - 5 Mean NCE Score	40		39		47	

1992 - 93

	Tesseract		Comparison		Baltimore	
Grade 1 - Number and NCE	454	40	492	43	8345	51
Grade 2 - Number and NCE	426	37	423	44	7743	48
Grade 3 - Number and NCE	433	37	419	37	7991	44
Grade 4 - Number and NCE	426	38	453	36	7597	42
Grade 5 - Number and NCE	393	44	451	41	7319	46
Total Number Reported Tests	2132		2238		38,995	
Enrollment Grades 1 - 5	2645		2785		48,050	
Percentage Reported Tests	81%		80%		81%	
Grade 1 - 5 Mean NCE Score	39		40		46	
Grade 2 - 5 Mean NCE Score	39		39		45	

1991 - 92

	Tesseract		Comparison		Baltimore	
Grade 1 - Number and NCE	478	48	476	41	8380	49
Grade 2 - Number and NCE	454	42	492	45	8193	46
Grade 3 - Number and NCE	410	45	452	37	8003	44
Grade 4 - Number and NCE	422	42	473	39	7522	43
Grade 5 - Number and NCE	380	43	464	43	7387	46
Total Number Reported Tests	2144		2357		39,485	
Enrollment Grades 1 - 5	2581		2872		48,772	
Percentage Reported Tests	83%		82%		81%	
Grade 1 - 5 Mean NCE Score	44		41		46	

Source. Baltimore City Pupil Information File and Comprehensive Test of Basic Skills/4 Data File for Baltimore City. 1991-92, 1992-93, 1993-94 and 1994-95

Comprehensive Test of Basic Skills Scores Summary
for Current Grades 2 - 5 Students and Grades 2 - 5 Students in a School Two Years

Current Grades 2-5 Students were enrolled by February 1 of the testing year and not Level IV special education and not "1" score
Two-Year Students were enrolled in Grades 1 through 4 on September 1 of preceding school year
and consecutively in school and not Level IV special education and not "1" score
Percent = Students with reported scores as a percent of the number of students enrolled at the end of the testing year,
except that Percent* is actually percent of grades 1-5 students rather than current grades 2-5 students

Total Reading NCE Scores

1994-95	Tesseract Schools		Comparison School		Baltimore City	
Current Grades 2-5 Students - Percent* and NCE	80%	40	75%	38	80%	44
Two-Year Students - Percent and NCE	51%	41	51%	39	51%	45

1993-94	Tesseract Schools		Comparison School		Baltimore City	
Current Grades 2-5 Students - Percent* and NCE	86%	37	82%	39	81%	44
Two-Year Students - Percent and NCE	54%	38	55%	39	54%	45

1992-93	Tesseract Schools		Comparison School		Baltimore City	
Current Grades 2-5 Students - Percent* and NCE	82%	38	81%	39	82%	43
Two-Year Students - Percent and NCE	54%	39	56%	39	54%	44

Total Mathematics NCE Scores

1994-95	Tesseract Schools		Comparison School		Baltimore City	
Current Grades 2-5 Students - Percent* and NCE	81%	43	75%	41	79%	47
Two-Year Students - Percent and NCE	51%	44	51%	40	51%	48

1993-94	Tesseract Schools		Comparison School		Baltimore City	
Current Grades 2-5 Students - Percent* and NCE	86%	40	81%	39	81%	47
Two-Year Students - Percent and NCE	54%	41	55%	39	54%	48

1992-93	Tesseract Schools		Comparison School		Baltimore City	
Current Grades 2-5 Students - Percent* and NCE	81%	39	80%	39	81%	45
Two-Year Students - Percent and NCE	54%	40	56%	40	54%	46

Source: Baltimore City Pupil Information File and Comprehensive Test of Basic Skills/4 Data File for Baltimore City, 1991-92, 1992-93, 1993-94 and 1994-95

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Findings from 1995-96 BCPS Budget Document

School-by-school per-pupil cost information for the 1995-96 school year for students in Baltimore City Public Schools was presented as part of the School Budget for FY 1996 document by administration at a school-system budget hearing before the full City Council on June 6, 1995. The information showed enrollment, total school-based costs, and school-level per-pupil costs for Tesseract and comparison schools, as follows:

Enrollment, Total School-Based Costs, and School-Level Per-Pupil Costs
for Tesseract and Comparison Schools, 1995-96

Tesseract Schools	Enrollment (number of pupils)	Total School-based Costs	School-level Per-pupil Cost
Dr. Rayner Browne	328.0	$1,837,456	$5,602.00
Mildred Monroe	241.5	1,352,883	5,602.00
Harlem Park	521.5	2,921,443	5,602.00
Edgewood	404.5	2,266,009	5,602.00
Sarah M. Roach	367.0	2,055,934	5,602.00
Mary L. Rodman	604.0	3,383,608	5,602.00
Graceland Park	395.5	2,069,939	5,602.00
All Tesseract Schools	2835.5	$15,887,272	$5,602.00

Comparison Schools	Enrollment (number of pupils)	Total School-based Costs	Per-pupil Cost
Furman Templeton	457.5	$2,675,155	$5,845.15
Park Heights	288.5	1,582,994	5,486.98
Pimlico	606.5	2,950,980	4,865.59
Rosemont	360.0	1,654,647	4,596.24
Alexander Hamilton	398.0	1,840,092	4,623.35
Liberty	535.0	2,533,922	4,734.75
George Washington	353.0	1,675,292	4,745.87
All Comparison Schools	2998.5	$14,913,082	$4,973.51

The seven Tesseract elementary schools will receive $5,602.00 per pupil, while the seven comparison schools will receive an average of $4,973.51 per pupil. Tesseract elementary schools will receive $628.48 more per-pupil than comparison schools, or an additional 11.2 percent.

It should be noted that while the per-pupil cost in Tesseract schools is higher than most Baltimore City elementary schools, about nine non-Tesseract elementary schools, including Furman Templeton, one of the comparison schools, will have a per-pupil cost that is higher than the Tesseract schools.

It is likely that the non-school based costs for the seven comparison elementary schools exceeds the 7.5 percent that EAI remits to Baltimore City Public Schools from the total per-pupil costs of $6,056. It is even possible that the non-school based costs for comparison schools beyond 7.5 percent could reach or exceed the 11.2 percent difference in school-based costs between Tesseract and comparison schools. It is also likely that some central office-type functions are carried out by EAI with school-based funds.

The evaluation team has been looking for information on non-school based costs for comparison schools and on central office-type functions carried out by EAI with school-based funds, but has not received any. Information provided by EAI repeated the assertion that EAI receives the school system average per-pupil costs, without addressing the issue of actual non-school based costs for the seven comparison schools.

Part III: The Researcher-Developed Findings

Introduction to the Researcher-Developed Findings

The researcher-developed findings were derived from the activities of the UMBC Tesseract Evaluation in Baltimore City. The researchers looked at the ways and extent that Tesseract schools differed from comparison schools. Again, the generalizations were based on students in grades 1 through 5 in the seven Tesseract elementary schools and the modified set of seven comparison schools.

The UMBC Evaluation encompassed classroom observations, a teacher School Climate Survey, questionnaires for teachers and grade 5 students, a telephone survey for some grade 4 parents, and interviews with principals, staff development coordinators, and computer coordinators in Tesseract and comparison schools and with selected teachers and interns at Tesseract schools.

There is no break-down of findings from observations or questionnaires by individual school in the UMBC Evaluation report; findings are presented for the group of Tesseract schools and the group of comparison schools. Except for information on computer equipment and open-space schools, there is also no identification of the school from which any piece of information was obtained.

Findings from the Principal Interviews

Introduction

A qualitative research method was used to collect data from the two groups of principals who participated in the structured interview portion of this evaluation. Of the 14 possible principals identified for this portion of the study, the researcher interviewed six of seven Tesseract school principals and five of seven comparison school principals between March 1995 and June 1995.

Each one-on-one structured interview took place at the school site in the office of the principal. The structured interview questions encompassed numerous lines of inquiry, including physical plant, furniture, books and supplies, computers, other technology, teaching staff, interns, instruction, Personal Education Plans, homework, preparation for testing, parent involvement, and school-based decision making. It should be noted that lines of inquiry relative to interns and Personal Education Plans were only discussed with principals of Tesseract schools.

Interview Participants

The 11 principals who were interviewed for this study had, on average, 25 years in the education profession. The mean length of service with the Baltimore City Public Schools was 25.5 years for Tesseract school principals and 22.2 years for comparison school principals.

Each of the 11 principals who participated in structured interview portion of this evaluation began their principalship in the school they now lead. For the six Tesseract school principals and five comparison school principals, the mean length of service within the school building and in the role of principal was 4.9 years and 5.0 years respectively.

Physical Plant

There were differences in the perception of the principals regarding the improvements made to their physical plants during the last three years. Tesseract school principals believed their schools to be in better condition than those principals who worked in comparison schools. Tesseract principals believed that if major problems were to occur in their building, EAI's partner, Johnson Controls would be more than capable of handling the situation.

Tesseract school principals spoke freely about the numerous improvements that have been made to their physical plants by EAI. These improvements include repairs to building roofs, retrofitting lighting systems, extensive interior and exterior painting, new flooring and carpeting, repairs to plumbing, heating, and/or air conditioning systems. Other improvements included installation of air conditioning units (in offices, teacher lounges and computer labs), renovation work in some of cafeteria kitchen areas, and installation of building security systems. All Tesseract school principals believed these improvements greatly enhanced their buildings for both students and staff.

Principals in the comparison schools also noted numerous repairs made to their physical plants in the last three years. Many of these repairs focused on correcting major heating and/or air conditioning problems. Restoration work on some of the building roofs was also noted. Although Tesseract school principals felt their buildings were in good shape, most of the comparison principals indicated that many repairs were still needed at their school. These repairs

included extensive interior painting needs, uneven pavement in critical walkways, sink holes on play ground areas, leaky building roofs, and unsafe playground equipment.

Finally, the Tesseract school principals who served in schools prior to EAI's arrival stated they noticed a demonstrable difference in the cleanliness of their school building. These principals, thinking their building were kept clean in the past, had unanimous accolades for Johnson Controls. Tesseract principals claimed their on-site Johnson Controls staff are highly professional individuals who truly care about their customers. Moreover, Tesseract principals appreciated the fact that Johnson Controls staff members are multi-talented individuals who possess the skills of plumbers, electricians, painters, glaziers, and the traditional custodian.

Furniture

There were differences in the perceptions between the groups of principals about the furniture in their schools. Tesseract schools principals indicated their schools have newer furniture which was more conducive to the instructional needs of their students and staff. They noted a complete overhaul of furniture in the classrooms of their schools, stating that EAI replaced all individual student desks and chairs with tables and chairs. Tesseract principals expressed delight about the fact that these new furnishings not only enhanced the atmosphere of their classrooms, but added value to their instructional program because the furniture was designed to facilitate cooperative group interaction among students and instructional staff. Tesseract principals also contended that the new classroom furnishings gave students an opportunity to learn in a more informal environment, allowed students to move more freely around the classroom, and promoted the Tesseract philosophy.

Principals at both the comparison schools and the Tesseract schools expressed a need to have additional classroom storage cabinets for their teachers for the manipulative instructional materials. As one principal noted, "Manipulatives, requiring storage space, become unsightly when left out in the openness of a classroom". Tesseract principals also would like additional storage space for students' coats and books because new classroom tables are not designed to store individual student possessions.

Comparison schools have received furnishings in the last three years, most coming from used property reassigned by school system personnel. Some principals noted that they were able to obtain new furnishings a result of their school's business partnerships. Other schools are exercising their budgetary oversight by making furniture purchasing decisions. For example, one school improvement team decided to purchase 300 folding chairs for their multipurpose room, using funds from their school budget, so that their students need not sit on the floor for school-wide assemblies.

Many comparison school principals underscored the need for classroom furniture that is much more suitable for small group interaction. These comparison school principals would like to have additional small tables and chairs for their classrooms to replace the more traditional student desks and chairs.

Books and Supplies

There were differences in the perceptions between the groups of principals about the books and supplies within their schools. Tesseract schools principals believe their students and staff have more books and supplies than they did three years ago. They reported that, as a result of their relationship with EAI, a substantial number of books and supplies have been purchased for their schools. These principals, many who served in the building as principals before EAI came on

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board, seemed extremely pleased with the vast quantity and instructional quality of the books that are available in classrooms and in their school libraries. Many Tesseract principals noted that many classrooms now contain a "mini-library" for students, in addition to the numerous classroom sets of "trade books".

Tesseract principals also expressed enthusiasm when speaking of the ample instructional supplies readily available to students and staff. All Tesseract principals noted that paper, pens, markers, crayons, visual materials, video material, and other supplies were readily available to teachers and students. When additional instructional materials are needed and school funds are available, Tesseract principals have the authority to order material directly from the vendor.

Principals at comparison schools and Tesseract schools expressed great satisfaction with their budgetary autonomy. This budgetary autonomy is a rather recent phenomenon for personnel in comparison schools. Both groups of principals strongly believed that their school improvement teams were in the best position to make timely decisions regarding materials of instruction. These principals cannot easily forget the days when ordering and receiving materials of instruction was a long, drawn-out process. Both groups of principals remembered that the ordering process took so long that it was not unusual for the requesting teacher to have moved on to another school or for a school staff to forget why (and sometimes by whom) the order was made in the first place. Both groups of principals reported that their school improvement teams have approved purchases for numerous books and supplies. In fact, many principals asserted that the school-based budget for materials and instruction is second only to expenditures for personnel.

School-based budgetary autonomy for ordering books and supplies also requires some personal interaction with vendors. For the most part, principals simply consult with teachers, place their orders, and materials arrive within a few days, pending availability. However, some comparison principals complained that they were taken by surprise by the length of time it took for vendors to get paid by the City treasurer's office. As a result, these principals were unfortunate recipients of "payment overdue notices", and, in extreme cases, vendors simply refused to do additional business with these comparison schools or required payment upon delivery.

Comparison school principals noted that teachers have an adequate amount of books and supplies for all the students assigned to their school buildings. However, comparison school principals felt books were sorely lacking in the libraries. Many comparison principals expressed a strong desire to vastly increase the number of holdings in their school libraries so students could benefit from these enrichment materials, but the principals are unable to do so within current funding levels.

Computers

Tesseract schools principals were pleased to report that their schools had many more computers now as compared to three years ago; their schools have received a substantial number of new computers as a direct result of their relationship with EAI. These computers, located in all classrooms and in special computer labs, form an integrated network for delivering instruction throughout the entire school.

Many Tesseract principals believed that some of the problems they initially encountered when using computers for instructional purposes centered on the traditional instruction paradigm used by most of their teachers. Tesseract principals noted that these teachers believed that students gained most from a teacher's instruction. Thus, principals believed their teachers viewed students who sat working at computers as missing valuable doses of pertinent information.

All Tesseract principals expressed concern about their teachers' level of readiness to fully use the Computerized Curriculum Corporation (CCC) software. Many felt that their teachers could not

fully use something that they simply did not understand. As one Tesseract principal stated, "We, myself included, are a part of the generation that didn't have to use computers. It's not too late to learn, but it won't be easy."

All Tesseract principals reported using the CCC reports, in consultation with classroom teaching staff, to make instructional decisions. In addition, these reports are monitored by lab managers and school principals for the expressed purpose of determining computer utilization time and academic achievement for individual students, grade level groups, and/or classroom cohorts. Many Tesseract principals indicated they used CCC reports during their evaluation conferences with teachers.

Many of the comparison schools have computers that largely are a result of Chapter I funded school system initiatives with private companies. These companies include Jostens Learning Corporation, Sylvan Learning Systems, and International Business Machines. By setting-up special instructional programs within selected buildings, these companies have infused those schools with computer technology and the requisite staff development support. In many cases, these computers and their software programs are a part of a integrated effort nested within the school's overall instructional program.

Some comparison schools have successfully taken advantage of the "Apples in the Classroom Program" sponsored by local retail food chains. Other comparison schools have been recipients of office computers that were donated to the school system. While these donations contribute to the school's computer needs, comparison school personnel are usually presented with older-generation computer hardware that functions largely as stand-alone equipment with neither appropriate software nor staff development support.

Many comparison school principals, like their Tesseract counterparts, were quick to point out that their teachers were, for the part, at the awareness stage of basic computer literacy. These principals saw an ongoing need for further computer training for teachers in the area of computer literacy because they noted little evidence of teachers using computers for classroom-based productivity. Principals believed there was adequate access to computer technology but expressed concern over the limited support for ongoing computer training.

Other Technology

There were differences in the perceptions between the groups of principals with regard to other technology available within their schools. Tesseract school principals reported an increase in the amount of additional technology provided to their schools as result of their relationship with EAI. This included a substantial increase in the number of telephones that were available to teachers; now, teachers have a telephone right in their classrooms. These telephones allow teachers to communicate directly to parents/guardians of their students. Moreover, these new telephones are equipped with an intercom function providing a convenient communication method for staff within the school building.

Principals from both groups reported having copy machines in their school buildings. These copy machines, readily available to staff, are used for reproducing small quantities of instructional materials. Tesseract school principals noted that staff also had access to an EAI copy center for high volume reproduction needs.

Teaching Staff

There were no differences in the perceptions between the groups of principals with regard to teaching staffing. Principals from both groups were confronted by similar teaching staff issues.

Principals from both groups indicated they felt increased staffing pressures as they worked to strike a balance between a need for more instructional materials and a need for additional teaching and/or resource staff. These staffing pressures were readily evident when some comparison school improvement teams attempted to reduce student-teacher ratios within their budgets.

For example, the school improvement team at one Tesseract school elected to staff four full-day kindergarten classes at the expense of an assistant principal position. Another Tesseract school decided to "give up" a .6 resource position to gain a half time assistant principal. Similar staffing pressures occur at the comparison schools. All too often, the only viable options were to eliminate resource teacher positions and/or assistant principal positions.

Unfortunately, elementary school teacher planning time has traditionally come from the instructional time used by resource teachers. When there are limited resource teaching positions, instructional planning time for teachers are also curtailed. Nonetheless, principals from both groups expressed a earnest desire to provide a more comprehensive education for their students by offering art, music, and physical education on a regular basis despite budgetary constraints.

Interns

There were no differences in the perceptions between the groups of principals with regard to interns because these personnel were only found in Tesseract schools. Tesseract school principals believed that the role of interns was to support the instructional efforts of the classroom teacher. Moreover, principals felt interns should initially follow and model teachers, assuming more responsibility after an appropriate level of readiness was demonstrated. All Tesseract principals readily admitted that in the first year of implementation, the turnover rate of the Tesseract interns was probably at its highest. Many believed that the turnover rate of their intern staff has been reduced this past school year to about 25%.

Many Tesseract principals reported that their teachers have an ambivalent sentiment with regard to Tesseract interns. Tesseract principals were quick to note that teachers believed having an additional adult with a college degree in the classroom is a tremendous plus, but problems surfaced when Tesseract teachers felt that their interns required more on-the-job training than time permitted. As one Tesseract school principal summed up the issue, "Teachers like a good intern, but don't like training poor interns." Problems also surfaced when interns and teachers had serious differences of opinions.

When Tesseract principals see quality interns they act to find teaching positions for these individuals and encourage them to seek certification. A number of Tesseract school principals reported that they have hired many of their strongest interns as classroom teachers and found their job related performance quite satisfactory.

Instruction

There were no differences in the perceptions between the groups of principals with regard to instructional practices used within their school. The Tesseract school principals reported that their instructional philosophy embraced the notion that "all children have gifts and talents ..." and the comparison school principals report an instructional philosophy that underscored the belief that "all children can learn". Principals from both groups reported using a whole language approach to instruction and broad school-wide use of cooperative learning groups. Moreover, both groups of principals reported visiting classrooms on a daily basis to observe instruction and to monitor instructional programs.

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Principals from both groups reported their school's instructional programs provided numerous enrichment opportunities for students. These enrichment programs included a variety of clubs and tutorial opportunities which occur after the school day and on some weekends.

Both groups of school principals indicated that individualized educational plans were the primary basis for meeting the instructional needs of students with disabilities. These principals were keenly aware of the consent decree facing the school system and indicated they are evaluated on the extent to which their schools are in compliance with the law.

The Personal Education Plan

There were no differences in the perceptions between the groups of principals regarding Personal Education Plans (PEPs) because these educational documents were only found in Tesseract schools. Many of the Tesseract principals believed that processes used to create and monitor PEPs were working well. They contended that the real struggle centers around getting parents or guardians to attend all five conferences with teachers. All underscored the value of having PEPs and the importance of regular contact with parents or guardians to discuss the important issues covered in these educational documents. Principals felt, however, that fout conferences might be too many, and thought the number of teacher-parent or guardian conferences could be cut to three.

As for teacher perceptions of the PEPs, Tesseract principals felt that their staffs believed the process useful, albeit time consuming. Furthermore, Tesseract principals stressed that, where appropriate, PEPs are linked to instructional/school outcomes.

Homework

There were no differences in the perceptions between the groups of principals about the issue of homework. Both groups of school principals reported their school as having a homework policy. This policy called for teachers to assign students homework four nights a week with a Friday option at the teachers' discretion. Principals also maintained that they encourage teachers to a make some homework assignments for students that incorporate parent/guardian interaction.

Many of the Tesseract principals were aware that the CCC program could generate homework for students, but did not monitor if teachers used this software feature. Principals from both groups believed that most students complete their homework assignments.

Preparation for Testing

There were no differences in the perceptions between the groups of principals regarding steps taken to prepare students for the standardized tests. Principals from both groups stated they prepare their students for Comprehensive Test of Basic Skills and the Maryland School Performance Assessment Program (MSPAP) by coordinating daily instruction with standardized test objectives. As one principal stated, "We attempt to prepare students for these tests by building the outcomes into our instructional program and instructional strategies".

Several Tesseract principals revealed EAI's plan for bringing grade-level teams of teacher together this summer for the purpose of developing student homework packets which incorporate MSPAP objectives. These principals reported that teachers were selected from each grade level at every Tesseract school. It is anticipated that each grade-level team will produce 40 sets of homework packets for student use during the next school year.

Principals from both groups believed a number of socio-economic factors have an adverse impact on their school's test results. These principals pointed to poverty and family instability as primary barriers to improving their test school's scores.

Parent Involvement

There were no differences in the perceptions between the groups of principals about the issue of parent involvement. Principals from both groups indicated that they had a core of parents who consistently provided community service to their school buildings. Principals at both the comparison schools and the Tesseract schools expressed a desire to raise the level of parent involvement in their schools. Many noted the difficulty with garnering parental support, and cited substance abuse and high rates of mobility as primary causes for low levels of parent involvement. Some principals from both groups cited the legislative changes in welfare programs as a possible cause for a decline in parental volunteers in their schools. Recent changes requiring welfare recipients to work may have had an adverse impact on the level parent of volunteers.

School-Based Decision Making

There were no differences in the perceptions between the groups of principals with regard to the manner in which school-based decision are made. Principals at both the comparison schools and the Tesseract schools viewed school improvement teams as the primary vehicle for school-based decision making. Led by the school principal, school improvement teams were empowered to develop, monitor, implement, and evaluate school improvement plans. These teams, consisting of critical stakeholders of the school and its community, generally included teachers, administrators, BTU representative for the building, classified staff, parents, community leaders, business partners.

Summary Observations

Principals at both the comparison schools and the Tesseract schools were working hard with their faculty and staff to provide quality educational services to their students. All the principals noted the dedicated, caring nature of their staff members.

The principals were also keenly aware of the fact that the Baltimore City Public School System has undergone major changes in the last three years. Many principals from both groups pointed to the enterprise school concepts as one of the more significant organizational changes affecting school-based leaders. All the principals expressed an intense understanding of their role and the ever increasing levels of accountability they must face.

Many of the Tesseract Principals indicated that several aspects of the Tesseract philosophy have grown to become an integral part of the school. Faced with uncertainty about the future of the Tesseract program in Baltimore, many Tesseract principals insisted that their schools would attempt to hold on to many of the core components of the Tesseract philosophy. These core components include morning meetings, Personal Education Plans, cooperative learning strategies, Johnson Controls, computers (if budget allowed), staff development, and the concept of teacher interns.

Findings from the Classroom Observations

Classroom observations in grades 2, 3, 4 and 5 took place during the 1994-95 school year, with grade 4 observations in October and November, grade 2 observations in December and January, grade 3 observations in February, and grade 5 observations in March. In all, 103 classes were observed, most for 90 to 100 minutes, either in the morning or the afternoon. There were 54 observations in Tesseract school classrooms and 49 observations in comparison school classrooms.

The Observation Form

The observation form was developed by the project director after reviewing a number of other classroom observation forms and finding them inappropriate to the evaluation's purpose of documenting differences between instructional practices in Tesseract schools and comparison schools, and quantifying the extensiveness of the differences. Because of the requirement in the Request for Proposal that community observers be included in the observation phase of the evaluation, the observation form needed to be usable by many different persons after only minimal training. The need to involve many observers also precluded inferential judgments on areas such as higher-order thinking skills that would require extensive training for inter-ratter reliability.

The observer was asked to count the number of students in the classroom at the both the beginning and end of the observation period. The observation instrument required that an observer record the classroom organization format and the activities in relation to the students of both the teacher and any assisting adult at 10-minute intervals across the 90- to 100-minute observation period. In addition, an observer was instructed to select three students at the beginning of the class, and, at 10-minute intervals to judge whether each of the students was "engaged" or on-task. At each 10-minute interval, the observer was also instructed to note the number of students at the classroom computers; interruptions to the class in the form of adults or students entering or leaving the room apart from scheduled transitions; loudspeaker announcements; external noise; and the presence of disruptive students in the classroom.

A second page on the observation form asked for information about the presence or absence of various components of the Tesseract Way, including posted student work, the presence of sets of books and mathematics manipulatives, and evidence of "project work". Observers were asked to record the schedule for the day and any homework assignment, if evident. While this information informed the write-up in the next section, Further Analysis of the Classroom Observations, it was not further analyzed. Observers were also asked to rate the condition of the grounds, halls and office, and the classroom that the observer visited, and the welcoming procedures for observers.

In practice, the observation form elicited the problem of whether the judgment about an engaged student or a disruptive student needed to be based on behavior at the 10-minute interval mark, behavior over the entire 10-minute period, or behavior at any time during the 10-minute period. Observers were instructed to be generally tolerant of minor lapses in attention or behavior, but to record obvious exhibitions of inattention or disruption that occurred at any time during the preceding 10-minute period.

While the observation form required no further information, observers were encouraged to record in narrative form the activities of the 90- to 100-minute session. These narratives were primarily provided by the six staff observers. It is these narratives, along with some information from the

second page of the observation form and some information for teacher interviews on The Tesseract Way, that formed the basis of the section, Further Analysis of the Classroom Observations.

The Observers

Eighty-one of the observations were done by the staff observers which included project director, four of the project researchers, and the project research assistant. Twenty-two observations were done by persons recruited by the community involvement coordinator including seven members of the League of Women Voters and two community members. For two of the observations, League volunteers were teamed with community members.

There was a training session for observers before their first observation experience, and persons who had done any observations that month were invited to attend the monthly Observers Seminars. The Observers Seminars, run by the project director at UMBC, served as an opportunity for the debriefing of the observers and the sharing of reflections as well as for informal retraining on use of the classroom observation form.

Scheduling the Observations

Classes to be observed were randomly selected by the project research assistant, who also randomly assigned observers to the classes to be observed. While the original intent had been to schedule observations 24 hours ahead of time to discourage the extra lesson planning effort that a teacher puts into a lesson that is to be officially observed, the need to lengthen the lead time of teacher notification soon became apparent.

The intent of scheduling process was that the research assistant would telephone the secretary, who would in turn notify both the teacher and the principal of the date and time of the observers visit. The rationale behind notification of the secretary was the expectation that neither the teacher nor the principal could easily be reached by telephone, and that this was the usual method of teacher and principal contact in a school. However, it took longer than expected for information to be conveyed within a school.

After a couple of observer visits to teachers who had not been notified by the secretary, and one visit to a teacher who refused entry because her notification had not been the full 24 hours in advance, the project research assistant took particular care that the notification be well in advance and that the observation appointment be confirmed by the teacher. The research assistant quickly learned the schools where the observation could be scheduled with the secretary, the schools where the visit needed to be scheduled with the principal, and the schools where the visit was to be scheduled directly with the teacher. In at least two Tesseract schools, the research assistant's telephone call was routed by the secretary to the teacher's desk; since this was clearly a classroom interruption, it became necessary to request that the teacher be free to receive the call.

Part of the observation appointment process was ascertaining that the teacher would be in the classroom at the time of the proposed visit, and a number of times principals called the research assistant back to say that the teacher would be on a field trip or otherwise not in school at the time of a tentatively scheduled visit. However, in one case, the observer arrived to find the teacher unavailable for observation because of a special education team meeting, an instance where the teacher unavailability was almost certainly known in time to have notified the research assistant, who would, in turn, would have notified the observer of the cancellation. There were at least five other cases of classes out of the classroom at a time when an observation had been

scheduled and confirmed. However, there were at least two instances of a teacher who would have otherwise taken a sick-day, but came to school because of the scheduled observation. On the other hand, there were at least three instances of confirmed appointments with teachers who had prepared to be observed when one of the observers did not appear.

Some of the UMBC evaluation observation times also became principal observation times or, more likely, an observation that was part of the validation process in Tesseract schools. This may be have been an effort to "keep down" the number of observations, or it may have been an effort to "sit in on the observer," or it may have been an effort to "make sure the observer sees a good lesson "that would reflect well on the program. For Tesseract schools, principal observations that were part of the validation process had the additional implication that the observer saw a teaching episode that truly exemplified "the Tesseract Way". Since the research focus of the observations was to determine whether there was a difference in instructional delivery between Tesseract schools and "other Baltimore City schools" as represented by the comparison schools, this was not inappropriate.

The extent of teacher familiarization with the research study, and their expectation of observers' visits, differed from school to school. In one comparison school, the principal called an "emergency" after-school faculty meeting to review the evaluation plan and its classroom observation component with teachers as soon as she received it, and in some Tesseract schools, a copy of the Classroom Observation Form was distributed to each teacher soon after the project director's initial meeting to the principal. On the other hand, in one Tesseract school, a couple of weeks after two other fourth-grade teachers had been observed, a third teacher told the observer that, although she knew an observer was coming, she was unaware of the research study and its classroom observation component, and at the end of February, a comparison school teacher did not know why an observer was in the classroom.

Analysis of the Observations

Data about the number of students in classroom during the observations was compiled; it is presented as "observed class size" in the section on Findings from Personnel Reports in Part II of this report.

For the analysis of the activities of the teacher and, when present, the assisting adult, the total number of 10-minute periods in each 90- to 100-minute observation was ascertained. While usually nine or 10, the actual number of 10-minute periods may have been less because of the class leaving the room for another activity or, in one case, students watching a recreational Friday afternoon movie. The actual number of 10-minute periods for the teacher present in the classroom was usually the same as for the class as a whole, although in three cases, it was less because the teacher was out of the room, with the intern in charge. The actual number of 10-minute periods for an assisting adult was often less than nine or 10 because of an intern being late or a volunteer only there for a short time. Note that if an intern was known to be out of the room with part of the class, usually in the computer room, this was noted as a "monitoring students" activity.

For Tesseract schools, the number of 10-minute periods for classroom time was 507, for teacher-present time was 501, and for intern-present time was 430. For comparison schools, the number of 10-minute periods for classroom time was 445, for teacher-present time was 445, and for other adult-present time was 102.

Five categories of time use for the teacher and the other adult were established -- teaching the whole class, teaching a group (which included the original category of teaching half the class), monitoring students or groups, working with a single student, and other (including the original

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categories of interaction with an adult, administrative activities, organizing materials or preparing for instruction, reviewing or grading written work, and watching). The number of 10-minute periods that were primarily characterized by each activity for teachers and for the assisting adult were noted, and the percentage of time for the activity determined by dividing by the total number of either teacher 10-minute periods or assisting adult 10-minute periods.

Time Use of Teachers

For teachers, the time use was as follows:

Classroom Time Use of Teachers

	Tesseract Teachers Percent of total classroom time (507 10-minute periods)	Comparison Teachers Percent of total classroom time (445 10-minute periods)
Teaching the whole class	44 %	66 %
Teaching a group	35 %	13 %
Monitoring groups or students	15 %	18 %
Working with a single student	1 %	1 %
Other - preparing, grading, watching	2 %	5%

Here the differences between Tesseract and comparison school classrooms are clear. Teachers at Tesseract schools spend less time teaching the class as a whole and more time teaching groups of students. Tesseract teachers spent 44 percent of their time teaching the whole class, while comparison school teachers spent 66 percent of their time teaching the whole class. On the other hand, Tesseract teachers spent 35 percent of their time teaching groups while comparison school teachers spent 13 percent of their time teaching groups.

The time spent monitoring students or groups was not much different. Tesseract teachers monitored groups or students 15 percent of the time, while comparison school teachers monitored groups or students 18 percent of the time. There was no difference in the time teachers spent working with a single student. There was a small difference in classroom time spent in the "other" category, including preparing for instruction or grading student work, with comparison teachers spending slightly more classroom time in these activities.

Time Use of an Assisting Adult

There was an assisting adult present 84 percent of the time that Tesseract classes were observed and 23 percent of the time that comparison school classes were observed. In at least two cases, the Tesseract intern was substituting for the usual intern who was absent, and it can be presumed that if the observer had not been expected, there would have been no intern.

For Tesseract classrooms, the assisting adult was an intern, and for comparison schools, the assisting adult, when present, may have been a paraprofessional, a parent volunteer, a community volunteer or a senior citizen volunteer. In one observed Tesseract class, there was also a paraprofessional; in one Tesseract school, high school interns were occasionally present along with the Tesseract intern; and in Tesseract classrooms there sometimes was an observing parent or a parent volunteer. In one comparison school classroom, the other adult was a second teacher; a grade 5 class and a special education class had been brought together for a team-taught social studies lesson. An important distinction is that while an intern in a Tesseract school is in the classroom daily, an assisting adult in a comparison school may only come in occasionally, and does not have the same long-term relationship with the students as an intern.

Excluded from the "assisting adult" computations were instances of a resource or enrichment teacher working with a class. While every effort was made to observe classes taught by the regular classroom teacher, observations occasionally overlapped with another class activity, including a class in the computer room, a physical education class, an art class and a Spanish lesson. However, the team-teaching situation was included in the computation.

For the assisting adult, the time use was as follows:

Classroom Time Use of Adults Assisting a Teacher

	Interns in Tesseract Classrooms		Assisting Adults in Comparison Classrooms	
	Percent of total intern time (430 10-minute periods)	Percent of total classroom time (507 10-minute periods)	Percent of total other-adult time (102 10-minute periods)	Percent of total classroom time (445 10-minute periods)
Presence of an assisting adult	--	84 %	--	23 %
Teaching the whole class	4 %	4 %	7 %	2 %
Teaching a group	26 %	23 %	15 %	3 %
Monitoring groups or students	35 %	29 %	31 %	7 %
Working with a single student	11 %	9 %	16 %	4 %
Other - preparing, grading, watching	23 %	19 %	31 %	7 %

Interns "taught the whole class" for four percent of the observed class time in Tesseract schools, while an assisting adult taught the whole class for two percent of the time in comparison schools. In Tesseract classes, this "teaching" was often dictation of the Friday morning spelling test. In one instance, the intern led the lengthy science lesson, and in another, gave the complicated part of the directions for a science lesson. In three instances, the Tesseract intern taught while the teacher was out of the classroom; in one case, the teacher was out of the classroom for a 20 minute PEP conference with a parent, in one case the teacher attended a meeting of primary teachers held at 10:00 a.m., and in one case the teacher's absence was not explained. One of the instances in a comparison school of another adult "teaching the whole class" involved a senior citizen volunteer who regularly came in one afternoon a week and presented a "Special Topics Lesson" in addition providing the more usual volunteer assistance. The second instance was the team-taught lesson, where the teachers alternated the roles of "teaching the whole class" and "monitoring groups or students."

Tesseract classes differed substantially from comparison classes in the extent of time in which an assisting adult taught a group. An intern taught a group during 23 percent of the total observed classroom time while an assisting adult taught a group three percent of the total time in comparison schools. While not broken out in the table, a subset of an intern teaching a small group is that of an intern teaching one-half the class while the teacher teaches one-half the class, a special feature of the Tesseract program. An intern teaching one-half the class was observed in nine percent of the classtime when an intern was present, and seven percent of the total observed classroom time. Most of these instances were observed in a single Tesseract school.

The percentage of time that an assisting adult, when present, spent monitoring students or groups was similar, at 35 percent for Tesseract schools and 31 percent for comparison schools. With an assisting adult available so much less time in comparison schools, there was actually a monitoring adult present 39 percent of the total time in Tesseract classrooms and seven percent of the total time in comparison classrooms.

The percentage of time that a second adult, when present, worked with a single student was 11 percent in Tesseract classrooms and 16 percent in comparison classrooms. The relatively high percentage in comparison schools reflects the use of a parent volunteer or tutor or mentor in this manner. Note that only instances of an adult working with a single student in the classroom were

recorded, thus excluding situations in which a student was pulled out for work elsewhere in the building. Overall, there was an assisting adult working with a single student nine percent of the time in Tesseract classrooms and four percent of the time in comparison classrooms.

The category of "other" which included materials preparation, grading and simply watching and waiting accounted for 23 percent of the time that an assisting adult was present in Tesseract classrooms and 31 percent of the time in comparison classrooms, dropping to 19 percent of the total classroom time in Tesseract classrooms and seven percent in comparison classrooms. Fully half of that time seemed to be watching time, as Tesseract interns awaited the part of the planned lesson that involved them and parent volunteers observed the lesson being taught.

Interestingly, except for the "team-taught" lesson, there were no instances of the "team teaching" or teachers working together that open space schools were designed and built to facilitate.

Student "Engaged Time"

Student "engaged time" was determined by counting the total number of 10-minute classroom periods that each of the three students being specifically observed was present in the classroom, counting the number of 10-minute periods that each of the students was judged "engaged" or on-task, and dividing to get the percentage of "engaged time", as follows:

Percentage of Observed "Engaged Time" for a Sample of Students

Tesseract Classrooms Percent of total classroom time (507 10-minute periods)	Comparison Classrooms Percent of total classroom time (435 10-minute periods)
81 %	85 %

Observers judged students in comparison school classrooms as engaged for a slightly larger percentage of classroom time than students in Tesseract classrooms were engaged, although the difference is not large enough to be considered significant. Tesseract school students were engaged or on-task 81 percent of the time, while comparison school students were engaged 85 percent of the time.

Disruptive Students

As explained in the description of the Classroom Observation Form, observers were asked to check those 10-minute periods that there were disruptive students in the class. The total number of 10-minute periods was divided by the number of periods in which there were no disruptive students to obtain the percentage of classroom time without one or more disruptive students, as follows:

Percentage of Classroom Time Without Disruptive Students

Tesseract Classrooms Percent of total classroom time (507 10-minute periods)	Comparison Classrooms Percent of total classroom time (435 10-minute periods)
80 %	88 %

Observers recorded less instances of one or more disruptive students during classroom time in comparison schools than in Tesseract schools. There were no disruptive students during 88 percent of the time in comparison school classrooms and 80 percent of the time in Tesseract school classrooms.

Other Class Interruptions

Observers also checked other class interruptions noting instances of an adult or student entering or leaving a class while it was in session, apart from scheduled transitions times, loud speaker announcements, disruptive students, previously analyzed as percent of disruptive student time, and external noise. Note that the table above is based on classroom time, encompassing nine or ten 10-minute periods, while the table below is based on classroom observations, with a single instance over the whole 90- to 100-minute observation of an entering or leaving person or a loud speaker announcement or a disruptive student counting as a disruption in that category. Information is presented for the first three categories, as follows:

Percentage of Observed Classes Without Disruptions

	Tesseract Teachers Percent of total classroom time (507 10-minute periods)	Comparison Teachers Percent of total classroom time (435 10-minute periods)
Person entering or leaving classroom	24 %	16 %
Loud speaker announcement	46 %	45 %
Disruptive students	46 %	59 %

Fewer Tesseract classrooms than comparison classrooms had an unscheduled adult or student entering or leaving. "Entering or leaving" incidents were the rule rather than the exception in both Tesseract and comparison schools, with only 24 percent of the Tesseract classes and 16 percent of the comparison school classes free of this disturbance. The extent of observed adult "interruption" may have been higher than usual in Tesseract classrooms because of the interest of principals in the observed classes. On the other hand, Tesseract school teachers have had many visitors, and thus do not consider visiting adults an interruption.

Some of the comparison school student interruptions were students leaving or re-entering for pullout instruction. Examples included five students leaving for Chapter I in one comparison classroom and six students leaving from another. One observer found it inexplicable that students being pulled from a whole-class complex mathematics lesson for resource-room tutoring, and another noted that students were pulled from an excellent classroom lesson that almost certainly was richer than a tutoring session. The problem is much greater than just that of students going in and out of the classroom during a lesson; a teacher must see that the pulled-out students "get" whatever was missed when they were out of the classroom. Other comparison school student interruptions were students leaving early for chorus practice; although there was still a half-hour left in the day, the class was essentially over.

A particularly unnecessary interruption was the emptying of classroom trash baskets while the class was still in session by custodians in three comparison schools. In one Tesseract school and one comparison school, the open-space classrooms were also the corridor space into the adjacent classroom, and in both cases, a whole class of students filed through while the teacher was teaching.

Loud speaker interruptions were equally extensive in Tesseract and comparison classrooms, occurring in more than one-half of the Tesseract and comparison school classrooms. Even the observation process caused an interruptior ; the loud speaker announced the presence of the

observer in the office so that students could be sent down as an escort to the classroom. Although limited to the beginning of the day, loudspeaker announcements for other classes could be heard through the open space pod in one school. One unfortunate series of loudspeaker announcements asking the teacher for rollbook information repeatedly interrupted a mathematics lesson in a comparison school, and one inappropriate mid-class announcement of a faculty roller skating event was heard at a Tesseract school.

Although not tallied separately, the telephones provided for Tesseract teachers were a source of occasional interruptions. Telephones rang in some classrooms, and in one school, a loudspeaker announcement notified the teacher of a telephone call. As noted, until she asked that it not happen, some of the project assistant's calls to set up observation appointments were put directly through to teachers while teaching.

In another view of the extent of the disruptive student problem, 46 percent of the observed Tesseract classes and 59 percent of the observed comparison school classes had no disruptive student incidents.

While not included as a tallied category of disruption, noise from an adjacent classroom was an ongoing problem in at least one classroom in every open space school observed, and observers occasional noted that the voice of the teacher in the adjacent class was louder than the voice of the teacher being observed. Since the external noise problem was noted by every one of the six staff observers and by a number of the League of Women Voters volunteer observers, it can not be said to be something "that's a problem to adults but not to the kids who just tune it out." External noise compromises the learning environment.

Ratings of Overall Effectiveness

After all classroom observations were completed, the six staff observers, but not the League observers, were asked to rate the sessions each had observed for "overall effectiveness" on a holistic scale of 1 = Poor, 2 = Fair, 3 = Good and 4 = Excellent. The ratings for the 42 observations of Tesseract classes and the 39 observations of comparison school classes conducted by the researchers were, as follows:

Researcher Ratings of "Overall Effectiveness" of Observed Classes
Scale: 1 = Poor, 2 = Fair, 3 = Good and 4 = Excellent

	Tesseract Classes	Comparison Classes
Mean Rating	2.6	2.7
Number of "1"	9	6
Number of "2"	8	9
Number of "3"	14	14
Number of "4"	11	10

There was a similar range of "poor" through "excellent" classes in the Tesseract schools and comparison schools. The mean rating of overall effectiveness was minimally higher for comparison schools, with a mean rating of 2.6 for Tesseract classes and 2.7 for comparison classes.

Other Assessments of Overall Effectiveness

The researchers had high praise for some of the observed classes. One wrote of a Tesseract classroom, "In sum, it was a most warm and inviting classroom. The focus of all learning activities was the child. The teacher sought active engagement consistently, used the technology,

and sought to engage students in thinking at a higher level. The teacher implemented multi-modality, multi-sensory activities throughout the lesson. High expectations were evident, and students were expected to take responsibility for their own behavior."

A researcher wrote of another Tesseract class, "This lesson was one which fully engaged students in meaningful and challenging learning. Further, it was evident that (1) each student experienced success, (2) students were expected to take responsibility for their own learning and behavior, (3) each student was praised and given continual encouragement, (4) varied learning styles were recognized and incorporated, (5) flexible grouping was evident, (6) there was substantive instruction in developing communication skills, (7) high expectations and value for learning were evident, (8) active learning of relevant materials was readily evident, (9) values such as cooperation and respect were important and were modeled, (10) attention to individual and grade-level differences was evident in the planning and implementation of this lesson."

A community member wrote of a comparison school class, "What seemed special to me was that the teacher had the students working in groups, one group with the teacher and the other group working quietly doing what was scheduled on the board without any noise or interruptions." One researcher wrote of a comparison school class, "A most enjoyable lesson. Lots of variety in the activities. Pupils listened and followed the directions excellently. However, if a student needed help, either their peers offered help or the teacher gave it and all quickly moved forward, with the student needing help applying it and thanking the giver. Wow! Good teaching and learning." Another wrote, "Even though this teacher has few of the prescribed accouterments (writings posted, graphs, etc.), she is really good. Children are well-behaved and interested, and raise hands enthusiastically. She doesn't raise her voice ever."

After four or five observations, one researcher, influenced by media descriptions of the poor schools that Educational Alternatives, Inc. had been brought in to counter, wrote, "This is the second comparison school that I have seen that appears to rival Tesseract schools in cleanliness, order, and visible student work. This is a highly skilled teacher who, although working alone, offers variety and excitement in lesson presentation."

Further Analysis of the Classroom Observations

While the classroom observations provided most of the material in this section, transcripts of interviews with teachers in Tesseract schools on The Tesseract Way and interns and descriptions of the Tesseract school morning meetings were also used.

Physical Plant

In visiting schools for the first time, the observers found that, in the absence of a map of Baltimore City streets and schools, finding the schools was not always easy. School signs were sometimes inconspicuous, and once the school was located, it was not always easy to find the entrance.

Schools with some architectural distinction were quite handsome. Any drabness was an artifact of building materials rather than upkeep; a visitor's initial impression of Edgewood is dominated by its grayed Plexiglas windows and the tan tiles in the hallway, although like all other schools, Edgewood's halls, office and classrooms are cheerfully painted.

Security - Security was stringent at every elementary school, as it has been for years, with entrance only by bell. The newly installed bell-intercom systems, apparently installed by Baltimore City, not EAI, were an improvement over a buzzer at a height of six-feet, although the bell-intercom system was not in place in either all Tesseract schools or all comparison schools.

Maintenance - Observers were asked to judge the condition of the grounds, the condition of the halls and office. and the condition of the classrooms on a scale of 1 = Poor, 2 = Good, and 3 = Excellent. The observer ratings were, as follows:

Observer Ratings of Condition of the Grounds, Halls and Office, and Classrooms
Scale: 1 = Poor, 2 = Good, and 3 = Excellent

	Tesseract Schools		Comparison Schools		Significance
	Number	Mean	Number	Mean	of Difference
Condition of grounds	45	2.46	45	2.42	ns
Condition of halls and office	48	2.83	46	2.69	ns
Condition of classroom	49	2.53	47	2.66	ns

The observers found both Tesseract and comparison schools clean and well-maintained. There was no significant difference between Tesseract and comparison schools in the observers' ratings of the condition of the grounds, the halls and office, and the classroom. All interior paint jobs were fresh and colors were well-chosen, and, in Tesseract schools, the floors were striking, with new carpeting and sparkling floor tile.

Interior maintenance of hall areas and classrooms seen by the observers was exceptional. Hallways gleamed, and two schools "smelled" clean, although in one comparison school, the ammonia smell in hallways was unduly sharp.

Open Space Schools - One Tesseract school, Dr. Rayner Browne, and four comparison schools, Park Heights, Liberty, Furman Templeton, and Alexander Hamilton, were open space schools. Observers of most classes in the open space schools found the noise level from adjacent classes a

salient feature of the observation, even when, as was the case for many of the observed classes, the teacher's lesson was well-planned and well-executed.

In addition to the open space noise, observers noticed the minimal teaching space in "classrooms" at Dr. Rayner Browne, Park Heights and Alexander Hamilton. The classroom area was small, and furnishings and students were crowded. Open space areas had limited wall space for the posting of teaching charts used by almost all the observed elementary teachers, and for the posting of student work which is a feature of "The Tesseract Way".

Heating Plant - The observation form did not ask for any information related to the effectiveness and efficiency of the heating plant, although there were a number of observer comments about "warm, stuffy" classrooms. In one Tesseract classroom, a window was open on a 15° February day. In one comparison school, a heating plant repair involving the office suite was underway on a February day.

Windows - Windows with views of the outside world are not a feature of most Baltimore City schools! In most of the observed classes that had windows, the glass had been replaced with opaque plastic, and in many of those classrooms, shades were pulled down and used as another "bulletin board" for charts and reminders. Thus lights were on in classrooms even on sunny days.

Furnishings

New furniture in Tesseract schools was evident; there were color-coordinated chairs and trapezoidal tables in all cl·ssrooms. In most Tesseract schools, students had lockers in the hall for coats and books, although not at Dr. Rayner Browne, where students had only a coat rack within the small classroom space for coats and books, and student bookbags were hung with coats on the coat rack. While attractive, the trapezoidal tables do not have storage space for books. In contrast, most comparison schools still had desks in the classrooms, and many had lockers in the halls. At Park Heights, with open space classrooms similar to Dr. Rayner Browne, students had desks in the classroom for books and lockers in the hall for coats. At Pimlico, students had desks for books and a closed closet in the classroom for coats.

Technology for Staff Use

Fax - There was a fax machine in all schools for office use, and a number of school secretaries faxed the school's teacher roster to the project research assistant.

Telephone - While comparison schools still had the usual one or two telephone lines and phones, each teacher at a Tesseract school had a phone on his or her desk, although all were reached through a the switchboard in the office. In one Tesseract school, when the research assistant's telephone call to the secretary to schedule an observation with a teacher was put through to the teacher, a student picked up the phone, and the phone call became the center of attention for the whole class. In another instance of the negative aspects of a classroom telephone, an observer saw a student became even more difficult when the teacher called the parent on a behavior issue.

Copier - Easy copier access was a feature of Tesseract schools, and observers saw instances of copier-reproduced work-sheets and copier-reproduced reading materials used by students, and copier-produced transparencies used in the overhead projector. EAI also has a copy center with one-day turn-around for teacher use. There was some copier availability in comparison schools, as well.

Computer Work Station - Each Tesseract classroom included a teacher computer work-station, which doubled as one of the four student computers in the classroom. However, observers saw no evidence of teacher use of the computer for personal productivity. Teachers told an interviewer that Personal Education Plans were hand-written, and that, while there had been the promise of computerizing the process, the PEP form was designed for manual entry, and the computer software for PEPs was yet to come. There had also been an early promise of a data base for attendance and teacher observations, but that had not materialized.

The only teacher-created worksheet seen during an observation in a Tesseract classroom was done as a ditto sheet. Lesson plans were provided by the teacher to the observer for about ten percent of the observations; all were hand-written except one by a comparison school teacher, who used her own computer. However, the Tesseract teacher workstations are less useful than they might be because a workstation does not include a printer. The only networked printers in the Tesseract schools are in the computer lab, and distantly located from most classrooms.

The observer had noted that the computer-using teacher was a "young, new teacher"; thus she can be assumed to have the computer skills of all recent college graduates, in contrast to older teachers for whom facility with word processing does not come easily. Although one teacher in a Tesseract school mentioned that she used her Macintosh at home extensively, some teachers responded to a question about use of the computer for PEP preparation by saying, "I'm not computer literate."

Staffing

Few of the observers' notes were directly related to staffing. Observers saw a wide range of class size, with some classes of less than 20 and a few classes of 30 or more.

Office Staffing - Observers were asked to judge the welcoming procedures on a scale of 1 = Poor, 2 = Good, and 3 = Excellent. The observer ratings were, as follows:

Observer Ratings of Welcoming Procedures
Scale: 1 = Poor, 2 = Good, and 3 = Excellent

| | Tesseract Schools | | Comparison Schools | | Significance of Difference |
	Number	Mean	Number	Mean	
Welcoming procedures	48	2.37	47	2.34	ns

There was no significant difference between Tesseract and comparison schools in the observer's view of the welcoming procedures in the front office. This was the evaluation's only measure of any supporting services staff.

Enrichment Subjects Staffing - While the intent had been to schedule observations when the class was taught only by the teacher, a class being observed "went" to art at a Tesseract school, a class

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"went" to physical education with a PE teacher at a comparison school, and a Spanish teacher came into the classroom at a Tesseract school.

A comparison school class "went" to gym during an observation, but the physical education activities were led by the classroom teacher. The principal at another comparison school said that teachers voted to "take" their classes to the media center so that the media specialist position could be used for other staffing.

Heterogeneous and Homogeneous Classes - Baltimore City policy encourages heterogeneous classes, and The Tesseract Way explicitly endorses heterogeneous classes. Most classes observed in both Tesseract and comparison schools were apparently heterogeneous. Classes in one Tesseract school were homogeneous in the 1994-95 school year. While not a special education class, the teacher of one class at that school told the observer that it was a "remedial class," and said that the next scheduled observation would be with "the high class."

In one comparison school with heterogeneous classes, one observer noted that the teacher had explained that the class was a mixed-ability class, "some very low, some quite high," and another observer noted that while the teacher taught the whole class "all on the same level", some students were "very capable, some obviously not capable of doing the work required." In another comparison school that apparently had homogeneous classes, a teacher told the observer that she had the high group of fifth graders, and so "could do a lot of project work."

Interns in Tesseract Classrooms

An intern was present in most classes observed in Tesseract schools; in two cases, it was a substitute intern. However, in addition to the instances where another intern substituted for an absent intern, there were at least two instances of an intern unexpectedly absent on a day of a scheduled observation, with no substituting intern. One observer saw a Tesseract teacher managing a grade 5 class where one group was designing "record album covers" for the novel they had just read, a second group had a listening activity, and a third group was estimating distances and angles that a "catapult" would hurl a projectile, simultaneous activities that the teacher might not have undertaken without the expectation of assistance.

"Co-teaching" - There were some instances of true "co-teaching" by the teacher and the intern. In two classrooms, a teacher and an intern each took half the class as a reading group. In one of classes (where the teacher knew that the principal would be doing a "validation observation"), they simultaneously taught the same well-rehearsed lesson, with activities including going over new vocabulary, alternating silent reading and teacher reading of passages, discussing similar points, and having students break into groups of three to compose statements which groups wrote on sentence strips. In the other, the teacher worked with an activity that involved illustrating the main points of the story while the aide introduced a "same and different" Venn diagramming activity to the other group. In another classroom an observer wrote, "The teacher and intern were working as equals, teaching the whole class and walking about giving individual help when asked for it or when they observed a child clearly on task having difficulty."

Integral Involvement in the Lesson - There were other excellent examples of integral intern involvement in a lesson. In a science lesson, although the teacher was the person "in charge", the idea for the hands-on activity had apparently come from the intern, and she was the one who explained the complicated procedure to the class. In a reading lesson, the intern was well-used as the assisting adult; as the teacher elicited important points from students in answer to his

interpretive questions, he signaled the intern who wrote out the point on the blackboard while the teacher continued the intensity of his questioning. An observer who saw a grade 5 class debate on year-round schooling noted exchanged glances of appreciation between the teacher and intern as a student made an impressive point, in contrast with the usual lack of eye-contact between teacher and intern during an observation.

Useful Assistant - Observers saw examples of interns as a useful assistant to a teacher in ways which supplemented what the teacher was doing. In a class with three reading groups, the intern monitored and assisted students with a diagramming activity. In one class, an intern was left with clean up of a messy activity, but it was work that the teacher would have had to do if the intern weren't there, and the activity was so complex that the teacher was likely not to have done it if she didn't have the extra pair of hands. During portions of some observed classes, intern assistance seemed limited to monitoring students at the classroom computers. In another class, the observer noted, "The intern appeared to be a real support to the teacher by encouraging and assisting individual students and monitoring seat-work progress, use of the classroom computers and general student behavior."

Intern as Substitute Teacher - As previously noted, observers saw three instances of interns teaching the whole class for a short time in the absence of the teacher. Interviewers learned that there were occasions where an intern in another class would be pulled out to substitute for an absent teacher, and that in one school last year, an intern had been a substitute teacher for two weeks. All interns qualify as substitute teachers in Maryland.

Minimal Use of an Intern - Observers also saw examples of minimal use of an intern. In at least one class, an intern did little more than see that students took a turn at a computer. One observer checked *Other* on the Observation Form under *Time Use of Intern* and wrote "Nothing," and another wrote of the intern, "Basically just sitting there looking bored and uninterested."

Inappropriate Intern Actions - Observers saw examples of interns with poor student-management skills who contributed to unruly classes. In one class, an observer wrote, "Intern seems rude and out of touch with students, saying, 'Shut up,' 'Move,' and 'Figure it out,'" and in another, an observer wrote, "The intern seems to be continually yelling at kids."

Instructional Practices

Perhaps the most notable feature of the observations was the variety of instructional activities, particularly in Tesseract schools. Observers expressed a modest concern, however, that some Tesseract teachers were displaying a series of novel activities for the benefit of the visitor, rather than showing a typical teaching situation.

Varied Activities - Observers saw Tesseract teachers reading aloud, students "choral reading," students reading to each other in pairs, students working in threes to identify cause and effect and "make a sentence strip", students pasting words in columns for "same" and "different", students drawing pictures illustrating scenes in a story, and students using graphic organizers like the Venn diagrams or a "hand" to show five things that a character said. One grade 5 class had a "Multiple Meaning Jeopardy" drill, with students taking turns supplying the word when multiple meanings were given.

Teaching Using Modalities - The Tesseract Way emphasizes "reaching students through all modalities". Observed examples included a Tesseract school class on the playground that worked with soap bubbles, and, back in the classroom, devised "inventions" that would blow bubbles, and a grade 2 class playing "pass the word," with students in a circle chanting while a card was passed around, and the person holding the card at the end of the chant saying the word and using it in a sentence. In a grade 1 lesson on subtraction, students were used to illustrate problems; five girls stood, and three sat down to show 5 - 3 = 2. Examples of art activities hung from the ceilings of Tesseract classrooms, and a grade 5 class had made sponge cutouts of West African symbols for personal characteristics like bravery and authority and used them to print banners.

Interestingly, some of the most purely kinesthetic activities were observed at comparison schools. One teacher had an "energizing exercise break" that included directional work, "Point north, turn east, etc." Another teacher had three students act out the orbits and revolutions of Neptune (green cape) and Pluto (blue cape) around the sun (yellow cape). In "multi-modality lessons," two observed grade 2 classes were working on a Health/Science unit on foods; one taught a song on foods that are each of the colors of the rainbow to the class, and the other brought in a variety of fruits and vegetables for students to identify (with one group asking students for help with "asparagus"). In a third grade 2 class, students stood in a circle, and the teacher had students work with a partner to make up and act out sentences with prepositions that would answer a question like, "Where is Tom?"

Whole Language - While it is hard to tell from the snapshot view of a class that a single observation provides, beyond the use of hands-on activities relating to a story, the reading program in most Tesseract classrooms did not appear to be a true "whole language" program. Observers saw many examples of vocabulary review or synonym activities devoid of context.

However, a teacher told an interviewer that, "With every story read, the class makes things -- mobiles, art work, dioramas," and noted, "Anything is effective that requires a minimum of writing." In one Tesseract grade 4 classroom, the posted assignment suggested a whole language program; students reading *The Mouse and the Motorcycle* were to read and complete Reading Logs for chapters 3 - 5, while students reading *Mr. Popper's Penguins*, were to read and complete Reading Logs for chapters 4 - 6.

Spelling assignments in two comparison school classrooms suggested a "whole language" program; in a grade 3 class, the words, "loon, seagull and mallard" may have come from a story the students had read, and in a grade 4 class where a number of activities involving apples were observed, the spelling words were "preserve, fritters, cobbler, crunchy, pectin."

A language problem was observed in some Tesseract and comparison classrooms. In one, an observer noted that several errors in word choice in a synonym lesson. In another, an observer noted that during a fill-in-the-blank exercise, students occasionally used words that weren't the words that the teacher wanted but, with some modification in the sentence, would have been correct; however, instead of explaining, students were told they were wrong. In contrast, in a third, an observer noted that "teacher catches subtle mistakes in tense and usage."

Project Work - There were fewer-than-expected examples at Tesseract schools of "project work," which can either mean individual or group work over time on a topic that will yield either individual or group projects. Grade 5 students in one class were observed working in groups on a group-chosen project related to the book they had just read; most groups were developing a board game. "Project work" may also mean a product that is the result of individual

contributions by each student. An example of the latter was the 6' by 6' three-dimensional model of the city area that includes the schools, with buildings made of small boxes.

Writing Across the Curriculum - Writing was a prominent feature in all schools observed. Writing was often of the "write about the day" nature; two classes where it was well-used are cited later in the Class Morning Meeting and Feedback paragraph. More often, students were asked to write, but without adult attention to what was written, and in one class a teacher said, "Write fast. Write about anything."

Observers often saw a writing assignment that was personal, with the teacher asking students to write about "Who would I like to be" or "What secret powers I would like to have" or "Write four sentences in your journal that would explain why you would or wouldn't like to get married in the future."

Homework assignments often called for writing sentences for spelling words; a grade 4 class was asked to "Put these words in a sentence, 'walking, yelled, ran, fell...'," another grade 4 class was asked to "Write 10 sentences and use 2 spelling words in each sentence," and a grade 5 class was asked to "Use any 5 synonyms in a complete paragraph." It is not clear how much adult attention there was to the completed assignments. However, in one comparison school grade 5 class, students read aloud the sentences they had composed using spelling words, and it was obvious that there had been ongoing encouragement and appreciation of elaborated sentences.

Writing assignments related to a reading or to another subject were less often observed. One grade 5 assignment was a reminder of the book report for independent reading, another grade 5 class summarized a non-fiction reading passage on weather, and a grade 2 class wrote about a character in the book, *Aliens for Breakfast*. In the STARS lesson, Solid as a Rock, each group in a grade 2 class had to write a description of its rock so that a person from another group could pick out that rock from the pile based on the written description.

Two composing assignments were particularly well presented. Grade 5 students were asked to "Write several paragraphs about a person who has made a difference to them," and the teacher reviewed steps in writing, handed out "webs", and reviewed how to use them. Grade 2 students read nonsense poems, shared what about the poems made them laugh, (the writing of the previous day), and shared things they imagined. Then, with an assignment to "write a silly poem," the teacher talked about writing a poem and made a chart with "people, "places" and "things" they could write about.

Mathematics - Relatively few mathematics classes were observed, and a number of them were "telling time" lessons in grade 2 classes. There were a number of posted homework assignments; for example, a grade 5 class was asked to "Write these fractions in lowest terms: '2.4...4/16...3/15' and Write 3 equivalent fractions: '1/3...4/7'." Disturbingly, three of the other observed mathematics lessons used manipulatives, and in each class, the manipulatives were misleadingly used; in one case, the error was minor, but in the other two cases, the result was a confusing lesson.

Student Affirmation and Self-Esteem

Affirmations - Affirmation of self and potential is an important aspect of the program for all Baltimore City students. A Baltimore Sun article described the Morning Meeting at one Tesseract school, and noted the unison affirmations.

Observers saw The Academy Creed conspicuously posted in one Tesseract school, although in one of the observed Morning Meetings, it was led by a student whose rushed delivery missed the cadence that makes it impressive. Observers heard student-recited affirmations in comparison schools as well. One class started the day with, "I am valuable; I am accomplished; I will be successful." A grade 3 class recited in strong unison the long Samuel Banks' exhortation, "Dare to stretch your mind in all your classes...Dare to believe in your uniqueness...Respect and love yourself...I will not let anything or anybody keep me from developing my skills." Another grade 3 class had memorized Martin Luther King, Jr.'s "Letter from a Birmingham Jail."

Tesseract Morning Meetings - In larger Tesseract schools, the student body is broken into cross-grade communities with four or five classes, and in these schools Morning Meetings were often called community meetings. In all but two of the schools, the Morning Meetings are held every day. Some Morning Meetings were in the school auditorium, but they were often in the cafeteria, with students sitting on the floor. In some schools, the principal usually ran the community meeting, but in other schools, classes took turns having responsibility for the program, and often the teacher and the intern rotated the planning.

Observers found the Tesseract school Morning Meetings impressive as an orderly gathering of the total student body with its sense of community; as a moment for the unison Pledge of Allegiance with participants facing an American flag rather in classrooms with a remotely-led Pledge coming over the public address system; and as a opportunity for students to hear important ideas. The Baltimore Sun description of a Tesseract Morning Meeting contrasted the gathering of the student body with the less-personal opening exercises and announcements over either the loudspeaker or closed-circuit television in six other schools visited by the reporter.

Some Morning Meetings were primarily "opening exercises," featuring the Pledge of Allegiance, an affirmation, recognition of any birthdays, and dismissal. Students often led parts of the program, and one school has a particular emphasis on student-led Morning Meetings. Students occasional sang, often to a record; observers heard "Lift Every Voice and Sing," "This Land is Your Land," a rap poem called "Knowledge is Power", and "a new school song", "I am a Jewel." Unison responses were frequent, including, on one of the CTBS testing mornings, the "top ten test tips." In one school, the Morning Meetings ended with student response cheers in pep-rally fashion, starting low and increasing in volume until the students were shouting.

Some Morning Meetings were a "mini-lesson"; one intern led a session of "getting along with others," another wrote the words "complement" and "compliment" on the board and discussed how "friends complement each other," a teacher talked about the "word for the week" (persistence), a principal talked about American Education Week, and a teacher talked about Woman's History Month. Adults readings including a Puerto Rican folk tale; a story about friendship; a reading from The Beach, a new book with an inner-city setting; and the book set in Los Angeles during the riots following the Rodney King arrest.

Often, however, Morning Meetings provided an opportunity for a class or a student to perform for peers. Observers saw a grade 1 class dramatize "The Three Little Pigs", first grade students who "shared their favorite part of a book," a special education class put on a program about "peace begins with you," a class which has just studied the solar system sing a song called "The Family of the Sun," a group with costumed girls recite in unison a Langston Hughes poem, and an older girl read a long poem about Elizabeth Blackwell.

Classroom Morning and Closing Meetings - Morning meetings to plan for the day and closing meetings to summarize the days were occasionally observed in both Tesseract and comparison schools, although most observations did not start as early as morning meeting time nor end as

late as closing meeting time. One grade 5 morning meeting in a Tesseract school was completely led by students, and the role of the leader rotated through the whole class. "Calendar math" was apparently supposed to be part of class morning meetings, but in an observed grade 3 morning meeting the "calendar math" seemed to drag.

An observed grade 3 closing meeting in a comparison school gave the teacher a chance to complement the students, give "hug coupons," and plan for tomorrow, "There will be visitors in our school." A grade 2 teacher brought students together at the end for "summary time," and asked students, "What was your job today? What did you use? What was accomplished?"

The observed closing meetings in Tesseract schools were designed to encourage students to reflect on the day, and articulate accomplishments. "Feed-back" for grade 5 classes in two different schools followed journal writing, apparently about the day, and a person holding a ball, spoke, "I had a good day today because I finished my report," and tossed the ball to another; students vied to be the next to make a comment about their day.

Student Work Posted - Observers usually saw student work extensively displayed in halls, with very little "cute cookie-cutter cutouts", and more posting of real work. Early in the observation process, one observer noted that the posted work was "fresh" student work. However, as the time from either the validation process or American Education Week lengthened, observers noted that posted work became dated. While posted student work was always characteristic of Tesseract schools, it was also often characteristic of comparison schools.

Additional Opportunities for Students - Tesseract schools did not participate in some of the enrichment opportunities available to all Baltimore City elementary schools, although neither did most comparison schools. This year neither the Tesseract schools nor the comparison schools were involved in MathMania, a classroom problem-solving program for fourth-graders sponsored by Provident Bank of Baltimore and coordinated by Towson State University. Neither group of schools offered a Chess Club program, coordinated by the Baltimore City Office of Special Programs with 30 elementary schools participating, or an Odyssey of the Mind program, coordinated by the project director of this evaluation from UMBC with only one Baltimore City elementary school participating. One of the seven Tesseract schools and four of the comparison schools did participate in "24", a mental-mathematics program based on combinations of numbers to equal 24; the program is sponsored by the First National Bank and coordinated by the Baltimore City Office of Special Programs, and about 40 Baltimore City elementary schools participate.

Preparation for Testing

Test preparation was a major focus of the instructional day for at least three months of the school year in Tesseract and comparison schools in preparation for the early April administration of the Comprehensive Test of Basic Skills to all elementary school students and the May administration of the Maryland School Performance Assessment to all grade 3 and grade 5 students. The CTBS was also administered to students in Tesseract schools in early November, and "test awareness" was on the schedule for the day in an observed grade 4 class on November 4.

Preparation for spring testing started at the end of January; a grade 2 class in a Tesseract school spent 30 minutes on "test awareness" on January 23, a grade 3 class in a comparison school was scheduled for 45 minutes on January 26, a grade 2 class in a comparison school spent one hour taking a practice test and going over the answers on February 1, and the February 7 schedule for a grade 3 class at a Tesseract school included both "test awareness tasks" and "MSPAP tasks."

Test Best, commercial booklets of CTBS preparation exercises, and the Portfolio Assessment Program, a series of MSPAP preparation activities prepared by Baltimore City Public Schools, were seen in both Tesseract and comparison schools.

One observer saw students reading a ditto-reproduced passage on George Washington Carver, answering the "test" questions, and analyzing how the answer to each question could be found in the reading passage ("go back to the story to verify your answers"), although more attention was given to "the right answer" than to the George Washington Carver content. At least two observed Tesseract classes concluded a reading lesson with a brief assessment in CTBS format, an example of one of the Test Tips for Teachers distributed at a staff development session, "During regular classwork provide experiences similar to testing tasks."

Two of the observed teaching sessions using the BCPS Portfolio Assessment Program were disappointing in some respects. A Tesseract teacher dwelt upon the form of the return address in an activity that called for writing a friendly letter about earning money for taking care of a neighbor's dog, reiterating, "Don't forget to put a comma between Baltimore and Maryland." A comparison school teacher reviewed an exercise on the Chesapeake Bay, concentrating on the map's legend of "Resources: seafood, wild life, recreation" without any amplification of what the words conveyed.

Findings from the Questionnaires

Four questionnaires were used for the UMBC Evaluation of the Tesseract Program in Baltimore City, each with a series of items that looked for differences between Tesseract schools and comparison schools. One questionnaire, the 37-item Teacher Climate Survey, was a standardized instrument (Wayne K. Hoy et al., *Open Schools/Healthy Schools: Measuring Organizational Climate*. Sage Publications, Inc. 1991) with well-established validity and reliability. The Climate Survey phrased questions in terms of a four-point response scale, "Rarely Occurs" = 1, "Seldom Occurs" = 2, "Sometimes Occurs" = 3, and "Often Occurs" = 4.

The Teacher, Student and Parent Questionnaires were developed by the researchers, and designed to ask many of the same questions of the different groups. The 29-item Teacher Questionnaire, with five items that were also part of the Climate Survey and 24 additional items, was appended to the Climate Survey so that it was not apparent that there were two questionnaires. The Teacher Questionnaire was phrased to use the same response choices as the Climate Survey.

The Climate Survey (with the Teacher Questionnaire) was administered by a researcher to all persons present at a school staff development session or faculty meeting during February or March in six Tesseract schools and seven comparison schools. Questionnaires were passed out, usually before the session activity, and after the researcher procedure, respondents immediately filled out the questionnaires, and they were collected about 20 minutes later. Thus completed questionnaires were obtained from 100 percent of persons in attendance.

Respondents checked one of a number of choices to indicate their position. Persons checking "teacher" may have been an elementary teacher, a pre-kindergarten or kindergarten teacher, or a special subjects teacher; thus the number of teacher respondents was greater than the number of elementary teachers in both Tesseract and comparison schools. While interns and administrators were also in attendance and thus completed questionnaires, only the questionnaires from teacher respondents were analyzed for this report. As noted, the percentage of questionnaires completed by teachers was high. There were 100 Tesseract school and 127 comparison school responding teachers.

The "negatively worded" Climate Survey questions were recoded so that low numbers were negative and high numbers positive. The 37 items were grouped into five dimensions by summing and averaging the items that were components of each dimension. A t-test of the means for the independent groups of Tesseract schools and comparison schools was performed for each dimension, as follows:

Climate Survey Results for Teachers Without Missing Data
(excluding respondents who left blank any of the items included in the dimension)
ns = no significant difference; sig >.05 indicates the level of significance of the difference between group means
Scale: Rarely Occurs = 1, Seldom Occurs = 2, Sometimes Occurs = 3, Often Occurs = 4

	Tesseract Teachers			Comparison Teachers			Significance
	Number	Mean	St Dev	Number	Mean	St Dev	of Difference
Academic Emphasis	92	2.44	.52	106	2.47	.64	.ns
Institutional Integrity	77	2.72	.46	85	2.87	.52	sig >.05
Collegial Leadership	89	2.65	.76	108	2.82	.77	.ns
Resource Influence	78	2.67	.56	94	2.44	.66	sig >.05
Teacher Affiliation	88	2.88	.57	115	2.90	.57	.ns

For the dimensions of Academic Emphasis and Teacher Affiliation, there was no significant difference between the groups as well as no difference. For the dimension of Institutional Integrity, there was a slight but non-significant difference favoring comparison schools. For the dimension of Collegial Leadership, there was a significant difference favoring comparison schools. For the dimension of Resource Influence, there was a significant difference favoring Tesseract schools.

As noted, the Teacher, Student and Parent Questionnaires were designed to ask many of the same questions of the different groups. However, the phrasing for responses of the Climate Survey and Teacher Questionnaire was considered too confusing for the Parent Questionnaire, which would be administer by telephone, and unduly nuanced for the grade 5 students. Thus the Student and Parent Questionnaires used a three-point scale and simpler response choices, usually "No" = 1, "Sometimes" or "Somewhat" = 2, and "Yes" = 3.

A copy of the student questionnaire was sent to each principal for his or her review in March. Sufficient student questionnaires for each grade 5 student were sent to each school to be administered by the grade 5 teacher or another school staff member between March 6 and March 15. The completed questionnaires were picked up from the school. Questionnaires were received from all Tesseract and comparison schools. However, apparently questionnaires were not received from two classes at one of the Tesseract schools and one class at another. In addition, one Tesseract principal noted that, since the students had not taken the questionnaires seriously, the survey was administered a second time. Only the responses from this school to the two open-ended questions were analyzed. There were 259 Tesseract school and 361 comparison school responding students.

The parent questionnaires were administered as a telephone survey during March. About one-half of the telephone calls were made by two researchers and one-half by five League of Woman Voter's volunteers. A list of the currently-enrolled Grade 4 students at each Tesseract and comparison school, with telephone numbers, was obtained from the BCPS Office of Research and Evaluation in February. The list for each school was divided among the seven telephoners, so all telephoners attempted to reach parents at each school.

Telephone numbers were listed for about two-thirds of the students, but many numbers were not up-to-date; schools varied considerably in the percentage of current telephone numbers. While the goal was to obtain completed surveys for 20 percent of the parents of grade 4 students at each school, for some schools there were not enough working telephone numbers to yield that many respondents. When a telephone number proved correct, the parent or guardian almost always cooperatively answered the questionnaire's 18 items (for comparison school parents) or 28 items (for Tesseract school parents). There were 101 Tesseract school and 98 comparison school responding parents or guardians.

Mean Scores and Significance of Results from Student, Parent and Teacher Questionnaires

T = Tesseract; C = Comparison

ns = no significant difference; sig >.05, .01 or .001 indicates the level of significance of the difference between group means

Items from the Student Questionnaire (with rephrasing for Parent and Teacher Questionnaires in parenthesis)	Students number: T=259 C=361 3 point response scale		Parents number: T=101 C=98 3 point response scale		Teachers number: T=100 C=127 4 point response scale	
1. I take (My child takes) pride in the school. (Teachers: Teachers express pride...)	T = 2.20 C = 2.11	ns	T = 2.83 C = 2.81	ns	T = 2.84 C = 2.69	ns
2. The school is clean.	T = 2.32 C = 2.15	sig >.01	T = 2.88 C = 2.85	ns	T = 3.30 C = 2.89	sig >.01
3. The inside of the school is bright and cheerful. (Teachers: The school has a fresh and inviting interior.)	T = 2.56 C = 2.20	ns	T = 2.87 C = 2.74	ns	T = 3.21 C = 2.93	sig >.05
4. I feel (Your child feels) safe at school. (Teachers: Teachers and students are...)	T = 2.40 C = 2.25	sig >.05	T = 2.79 C = 2.76	ns	T = 2.93 C = 3.04	ns
5. The learning environment in my class (my child's class) is orderly and serious. (Teachers...in school...)	T = 2.56 C = 2.61	ns	T = 2.88 C = 2.73	ns	T = 2.46 C = 2.50	ns
6. My class (My child's class) is cooperative during group instruction. (Teachers: Students are...)	T = 2.17 C = 2.09	ns	T = 2.96 C = 2.78	ns	T = 2.75 C = 2.89	ns
7. My class (My child's class) has enough books so students can learn well.	T = 2.67 C = 2.51	sig >.01	T = 2.91 C = 2.92	ns	see next item	see next item
8. My class (My child's class) has plenty of writing materials and other supplies. (Teachers: Teachers receive necessary classroom supplies)	T = 2.68 C = 2.51	sig >.01	T = 2.87 C = 2.85	ns	T = 2.91 C = 2.36	sig >.001
9. I think that I am (My child is) learning to be a good reader. (Teachers: The reading program works well with our students.)	T = 2.89 C = 2.79	sig >.01	T = 2.78 C = 2.46	sig >.001	T = 3.19 C = 3.29	ns
10. I think that I am (My child is) learning to do well at mathematics. (Teachers: The math program works well with students)	T = 2.79 C = 2.66	sig >.01	T = 2.71 C = 2.44	sig >.01	T = 2.58 C = 2.34	ns
11. I feel like I experience (My child experiences) success in school every day.	T = 2.50 C = 2.39	ns	T = 2.56 C = 2.44	ns	---	---
12. I (My child) usually has homework.	T = 2.85 C = 2.76	ns	T = 2.93 C = 2.96	ns	---	---
13. I usually do my (My child usually does his or her) homework. (Teachers: Students complete homework.)	T = 2.64 C = 2.62	ns	T = 2.82 C = 2.78	ns	T = 1.47 C = 1.53	ns
14. I (My child) occasionally have homework that requires talking with a family member.	T = 2.31 C = 2.12	sig >.05	T = 1.77 C = 2.03	ns	---	---
15. I feel that I take (My child takes) responsibility for learning. (Teachers: Students take responsibility for learning.)	T = 2.70 C = 2.73	ns	T = 2.61 C = 2.52	ns	T = 2.41 C = 2.23	ns
16. I feel like I am (My child is) enthusiastic about learning. (Teachers: Students are enthusiastic...)	T = 2.63 C = 2.57	ns	T = 2.73 C = 2.59	ns	T = 2.67 C = 2.70	ns
17. Adults at this school make a special effort to make every child feel important.	T = 2.77 C = 2.43	sig >.01	T = 2.66 C = 2.57	ns	---	---
18. Overall, I feel that this school is well-run.	T = 2.48 C = 2.31	sig >.01	T = 2.80 C = 2.58	sig >.05	---	---

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There were no significant differences between Tesseract and comparison schools on the student, teacher and parent questionnaires on questions asked of the three groups relating to pride in school, the learning environment being orderly and serious, students being cooperative during group instruction, students taking responsibility for learning, and students being enthusiastic about learning. There were no significant differences between Tesseract and comparison schools on student and parent questionnaires on questions asked of the two groups relating to a child experiencing success in school each day, a child usually having homework, or a child usually doing homework. There was no item with a significant difference for all three groups, when the question was asked of all groups. There was one item with a significant difference for both groups, when the question was asked of two groups; significantly more students and parents at Tesseract schools felt the school was well-run.

Significantly more Tesseract students and teachers, but not parents, saw schools as clean. Significantly more Tesseract parents, but not students and teachers, saw interiors as bright and cheerful. Significantly more Tesseract students, but not parents and teachers, felt safe at school. Significantly more Tesseract students, but not parents, saw the class as having enough books, and significantly more Tesseract students and teachers, but not parents, saw the class as having enough materials and supplies. Significantly more Tesseract students, but not parents saw the child as having homework that requires talking with a family member and saw adults at the school making a special effort to make every child feel important.

Significantly more Tesseract students and parents felt that the child was learning to be a good reader and learning to be good at mathematics, but there was no significant difference between teachers at Tesseract and comparison schools on the issue of whether the reading program and the mathematics program work well for students.

Interestingly, similar items were highest rated by Tesseract school and comparison school respondents in each group, as follows:

The Five Highest Rated Items by Students, by Parents, and by Teachers
*Items in common for both groups

Tesseract School Respondents	Comparison School Respondents
Highest-rated Items by Students	Highest-rated Items by Students
*I think I am learning to be a good reader. (2.89)	*I think I am learning to be a good reader. (2.79)
*I usually have homework. (2.85)	*I usually have homework. (2.76)
*I think I am learning to do well at mathematics. (2.79)	*I feel that I take responsibility for learning. (2.73)
Adults at this school make a special effort to make every child feel important. (2.77)	*I think I am learning to do well at mathematics. (2.66)
*I feel that I take responsibility for learning. (2.70)	I usually do my homework. (2.62)
Highest-rated Items by Parents	Highest-rated Items by Parents
*My child usually has homework. (2.92)	*My child usually has homework. (2.96)
*My child's class has enough books. (2.91)	*My child's class has enough books. (2.95)
My child's class is orderly and serious. (2.88)	*My child's class has plenty of writing materials. (2.85)
*My child's class has plenty of writing materials. (2.87)	*The schools is clean. (2.81)
*The schools is clean. (2.87)	My child takes pride in his or her school. (2.80)
Highest-rated Items by Teachers	Highest-rated Items by Teachers
*The schools is clean. (3.30)	*Reading program works well for students. (3.28)
*The school has a fresh and inviting interior. (3.21)	*Teachers and students are safe at school. (3.04)
*Reading program works well for students. (3.19)	*The school has a fresh and inviting interior. (2.93)
*Teachers and students are safe at school. (2.93)	*The schools is clean. (2.89)
Teachers express pride in the school. (2.91)	Students are cooperative during group instruction. (2.89)
Teachers receive necessary classroom supplies. (2.91)	

Student Responses to Open-ended Questions

Methodology

As part of the Student Questionnaire, grade 5 students were asked two open-ended questions:
   I. What do you like most about the way teachers teach at this school?
   II. What ideas do you have about how teachers could teach better?

There were 312 surveys collected from Tesseract schools, and the responses to the open-ended questions from all seven schools were analyzed. There were 483 coded responses to question I and 326 coded responses to question II. Six students did not respond to question I and there were fifteen responses that could not be coded. Forty-one students did not respond to question II and there were 22 responses that could not be coded.

There were 260 surveys collected from comparison schools. There were 494 coded responses to Question I and 389 coded responses to question II. Eleven students did not respond to question I and there were twenty responses that could not be coded. Thirty-one students did not respond to question II and there were thirty-five responses that could not be coded.

The responses were analyzed using qualitative methods. A list of 80 of different responses was developed for the first question; a list of 96 different responses was developed for the second question. In counting the responses given by students, each idea articulated by a student was treated as an individual response. For example, a response "teachers make learning fun and interesting" was counted as two separate responses. A response was not coded if it was illegible, unintelligible or irrelevant.

Responses were then grouped to reflect similar sentiments. Eight different broad categories emerged for each question. Not all responses could be categorized. Twenty-five responses from Tesseract schools and 62 responses from comparison schools did not fit into established categories.

Responses were again reviewed and selected if they commented about components of "The Tesseract Way of Learning."

Findings

Students were asked, "What do you like about the way teachers teach at this school?" They responded, as follows:

   - There were 140 responses from Tesseract schools (30.9%) and 150 responses from comparison schools (30.4%) that indicated that students like that their teachers care about them and help them learn.

   · There were 85 responses from Tesseract schools (17.6%) and 86 responses from comparison schools (17.4%) that indicated that students like the way their teachers teach.

   - There were 39 responses from Tesseract schools (8.1%) and 51 responses from comparison schools (10.3%) that indicated students liked that their teachers were emotionally supportive.

- There were 32 responses from Tesseract schools (6.6%) and 23 responses from comparison schools (6.3%) that indicated that students liked their teachers' personalities. Most students commented that their teachers were "nice."

- There were 131 responses from Tesseract schools (27.1%) and 75 responses from comparison schools (15.2%) that indicated that students liked a particular subject or liked the way their teachers teach a particular subject. Most students responded that they like math (52 from Tesseract schools and 42 from comparison schools) or reading and language arts (54 from Tesseract schools and 28 from comparison schools).

- There were 36 responses from Tesseract schools (7.5%) and 43 responses from comparison schools (8.7%) that students liked a particular teaching style or technique.

- There were three responses from Tesseract schools (.6%) and 7 responses from comparison schools (1.4%) that students liked their teachers disciplinary methods.

A few of the responses reflected sentiments about components of the Tesseract Way, as follows:

- There were 9 responses (1.9%) from Tesseract schools and 4 responses (.8%) from comparison schools that indicated that students liked individualized education; 2 responses from Tesseract schools and 4 responses from comparison schools that indicated that students liked experiential learning; and 5 responses from Tesseract schools and 3 responses from comparison schools that students liked group learning.

- Two Tesseract students responded that they liked the interns.

- Four Tesseract students and 2 comparison students responded that they liked the computers.

- Five Tesseract students responded that they liked the books and materials; no comparison students made similar comments.

- There were 21 responses (4.4%) from Tesseract schools and 28 responses from comparison schools (5.7%) that indicated that students liked teacher actions related to student self-esteem.

Students were asked, "What ideas do you have about how teachers could teach better?" They responded:

- Seventeen students from Tesseract schools (5.2%) and 16 students from comparison schools (4.1%) responded that they would not change how their teachers teach.

- There are 24 responses from Tesseract schools (7.4%) and 15 responses from comparison schools (3.9%) that indicated that students would like their teachers to better help them understand school work. These include responses that teachers should "teach slower," "help students understand," and "teach everyone."

- There were 29 responses from Tesseract schools (8%) and 43 responses from comparison schools (11.1%) that indicated that students would like teachers to require more from students. These included responses that teachers should "teach more," "give more work," "give harder work," and "give more homework."

- There were 14 responses from Tesseract schools (4.3%) and 9 responses from comparison schools (2.3%) that indicated that students would like teachers to individualize instruction.

- There were 9 responses from Tesseract schools (2.8%) from Tesseract schools and 17 responses from comparison schools (4.4%) that indicated that students would like their teachers to be more supportive.

- There were 57 responses from Tesseract schools (17.5%) and 29 responses from comparison schools (7.5%) that students would like more of a particular subject. Most students asked for math, science, reading, and language arts.

- There were 62 responses from Tesseract schools (19%) and 90 responses from comparison schools (23.1%) that indicated that students would like teachers to make learning fun and interesting, or to use one of sixteen specific techniques, including group learning, activities, and flash cards.

- There were 25 responses from Tesseract schools (7.7%) and 40 responses from comparison schools (10.3%) asking for more resources. Seventeen students from one class in a comparison school responded that they would like more computers.

- There were 56 responses from Tesseract schools (17.2%) and 53 responses from comparison schools (13.6%) asking for changes in student behavior and discipline. More students in comparison schools responded that students needed to change their behavior than students in Tesseract schools (11 vs. 22). There were more responses from Tesseract schools that teachers should remove disruptive students (17 vs. 13) or use more discipline (15 vs. 8).

- There were 25 responses from Tesseract schools (7.7%) and 35 responses from comparison schools (10.8%) that indicated that students wanted changes in one of thirteen school policies.

After dividing responses into categories, responses were again reviewed. Responses that reflected sentiments about components of the Tesseract Way were selected:

- There were 64 responses from Tesseract schools (19.6%) and 67 responses from comparison schools (17.2%) that indicate that students would like individualized instruction or school work that was better suited to their level of ability, including responses that students would like their teachers to better help them understand school work; would like their teachers to require more from students; and would like more individualized instruction.

- There were 5 responses from Tesseract schools that indicate that students would like more experiential learning; no students from comparison schools made similar comments. There was one response from a Tesseract school and four responses comparison schools that students would like teachers to "let students help other students." There were 7 responses from Tesseract schools and 16 responses from comparison schools that students would like more group learning.

- There were 3 responses from Tesseract schools and 17 responses (1 class) from a comparison school that students would like more computers. One Tesseract student commented that he/she would like less computers.

- There were 12 responses from Tesseract schools and 6 responses from comparison schools that students would like more or different books. There were 2 responses from Tesseract schools that request more supplies and materials.

- There were 9 responses from Tesseract schools (2.8%) from Tesseract schools and 17 responses from comparison schools (4.4%) that indicated that students would like more emotional support from their teachers.

Discussion

Responses from students to the question "What do you like most about the way teachers teach at this school?" were remarkably similar in Tesseract and comparison schools. Approximately 30% of the responses from both types of schools indicated that students liked that their teachers cared about them and helped them learn. Many of the students commented that their teachers "help you understand" and "help us learn." Other responses included statements that their teachers "cared," "make them learn," "try hard to teach you," "think learning is important," and "are patient." Approximately 6% of the students in both Tesseract and comparison schools responded that they liked personal characteristics of their teachers; approximately 70% of those responses were that teachers were "nice."

Approximately 17% of the responses from students in both Tesseract and comparison schools indicated that students liked the way their teachers taught. Tesseract students were more likely to say that their teachers made learning fun and interesting than comparison students (9.9% vs. 7.3%); comparison students were more likely to make a general statement. Ten students from 3 classes in comparison schools commented that they did like the way their teachers taught (not included in the above 17%); no students from Tesseract schools made similar comments.

A slightly larger percentage of responses from comparison schools indicated that students liked that their teachers were emotionally supportive and wanted students to be successful (10.3% vs 8.1%); that they liked specific teaching techniques used by their teachers (10.3% vs. 8.7%); and that they liked disciplinary methods used by their teachers (1.4 vs .6%).

There was, however, one major exception. There was a strong difference in the number of responses made by students in Tesseract and comparison schools that referred to a particular subject. Approximately 25% of the responses from Tesseract schools stated that students liked the way teachers taught a subject or liked the subject itself; similar responses comprised only 15% of responses from comparison schools.

Most of the responses referred to reading, language arts or mathematics. Approximately 11.5% of the students in the Tesseract schools and 8.5% of the students in comparison schools commented that they liked mathematics. There are 10 responses from Tesseract schools and 5 responses from comparison schools that students liked science, history, social studies or test preparation.

There was a greater difference between the number of responses from Tesseract and comparison schools that referred to reading and language arts. While over 11% of the students in Tesseract schools responded that they liked the way their teachers taught reading or language arts or that they liked reading or language arts, only 5.7% of the students in the comparison schools made similar comments.

This difference could be attributed to the Tesseract program. It may be that either the teaching methodologies encouraged in "The Tesseract Way to Learning" or the increase in the number of trade books used by teachers in Tesseract schools have heightened the interest in and appreciation of these subjects.

There was little difference between the responses of students in Tesseract and comparison schools on the other components that are included in the "Tesseract Way." There were more responses from Tesseract schools that teachers made learning fun and interesting, although, as stated above, there was little difference between the percentages of comments that students liked the way their teachers taught.

There were more responses from Tesseract schools that students liked that their education was individualized (9 responses vs. 4 responses) and that :hey liked group learning (5 responses vs. 3 responses), but the numbers are too small to have much meaning. Only 2 students from Tesseract schools commented that they liked their interns, and 5 commented that they liked their books and materials. There were slightly more comments from students in comparison schools about teacher actions related to student self-esteem (5.7% vs. 4.4%).

It was more difficult to compare Tesseract and comparison schools using the responses to the question "What ideas do you have about how teachers could teach better?" First, it was difficult to know whether students responses are a reaction to good or bad experiences. Was the student advising their current teacher to change, or was the student advising other teachers to be more like their current teacher? Was a student being deprived of learning a particular subject or was learning the subject so enjoyable to the student that they want more? Some of the responses may also be the result of raised expectations of students. Students who have never experienced group learning were unlikely to ask for more group learning, while students who have experienced and enjoyed group learning were likely to ask for more.

Generally, the numbers of responses from students were fairly comparable in 7 of the 8 categories of answers. Given the difficulty in interpreting the responses described above and the small percentage difference, they were no differences in the responses of students in Tesseract and comparison schools in 7 of the categories.

However, again, there was a large difference between responses from Tesseract and comparison schools that refer to a particular subject. Approximately 17.5% of the responses from students in Tesseract schools asked for more of a subject, while only 7.5% of the responses from comparison schools asked for more of a subject. In the Tesseract schools, 21 responses asked for more reading and language arts, 17 asked for more math, 12 asked for more reading, 10 asked for more social studies and 7 asked for more science. In the comparison schools, 17 responses asked for more language arts, 6 asked for more math, and 1 asked for more social studies. Based upon the answers to the last question, it can be inferred that these responses reflected a greater enjoyment of these subjects in Tesseract schools.

Findings Related to Special Topics

Findings on the special topics of interns, Personal Education Plans, and the instructional approach embodied in "the Tesseract Way" were largely developed from interviews with teachers in Tesseract schools and, for the topic of interns, with interns. In addition, some information from the Parent Questionnaire is incorporated in the Personal Education Plan section.

The evaluation team developed structured interview protocols for each of the sets of interviews. The Baltimore office of Educational Alternatives, Inc. and the Baltimore Teachers Union were each invited to designate three teachers at each school to be interviewed. Each named teachers at three schools, which were not the same schools. The project director selected additional teachers for a mix of grade levels for each of the three topics. The project director also selected interns for a mix of grade levels; interns were selected so that if a teacher was to be interviewed on the topic of interns, that teacher's intern would not be interviewed. While the project director's selection of the teachers to be interviewed was not truly random, it was "blind"; at the time of the selection, the project director had no teacher identifying information other than each school's faculty list with teacher names and grades taught.

Two teachers were designated to be interviewed for each topic at the smaller schools and three at the larger schools. Three interns were designated at each school. While the intern had been to interview only teachers of grades 1 through 5, some teacher identified by EAI and BTU were pre-kindergarten or kindergarten teachers. Principals were given the list of teachers and interns to be interviewed, but researchers were responsible fo. initiating contact with teachers and interns and for scheduling the interviews. Neither the principals nor the researchers knew of know which teachers were nominated by either EAI or BTU.

Finding on the special topics of parent involvement, staff development and computer use were developed through interviews at both Tesseract and comparison schools with the staff member responsible for that aspect of the program. Some information from the Teacher Questionnaire is incorporated in the Staff Development section, and some information related to a topic obtained from interviews focusing on another topic has also been included. In addition, materials on these topics and others were solicited from the principal at each schools, and provided by about one-half of the principals, and these materials were reviewed.

Interns in the Tesseract Schools

A total of 14 teachers and 21 interns were identified by UMBC for interview. Of the 14 teachers identified, one was out on extended sick leave and nine teachers responded and were interviewed. Of the total of 21 interns, two were no longer working at the designated school. Seven interns responded and were interviewed; despite repeated efforts to make contact with an intern to set up an interview appointment, 12 interns chose not to be interviewed. All interviews occurred during February and March, 1995. Interviews were conducted both over the telephone and in person. Most interviews took between 20 and 40 minutes, and interview summaries were typed for analysis.

The average length of service for the interns in this interview sample was 1.3 years. Of the seven interns interviewed, six had service of less than a year, while one had served as an intern for 2.5 years; this intern had a child in the school. The nine teachers in this sample have had 10 interns this year, and a total of 21 interns last year. Seven of the nine teachers have been without an intern for periods from two weeks to as long as three and one-half months. Length of service for interns and frequency of turnover are serious problem areas.

All teachers in this sample viewed the question of frequency of turnover of interns to be a serious problem, if not from their personal experience, certainly from the perspective of other teachers in their schools. All said the low salary and non-existent benefits were a primary cause. An additional cause for the intern turnover, according to teachers, is related to their purpose for becoming an intern. Teachers suggested that many interns have little or no interest in becoming a teacher, and they believe, more often than not, interns take intern positions until they secure jobs in their field of study. While this conclusion may be a reality and related to the short tenure of interns, when asked why they became interns, at least four of the interns responded with either an interest in or in some career exploration of the teaching field, including college teaching.

Teachers reported assigning interns to work in a variety of different ways in the classroom. In this sample, five of the teachers indicated that the majority of time (65 percent of the available instructional time in the classroom or more) interns provided assistance to students in small groups situations. If the percentage of time that interns spend with students in teaching and providing active assistance to students in small groups is changed to 50 percent or more of the time, then seven of the teachers use interns in this manner. According to teachers, monitoring of students and completing administrative tasks account for the balance of time; interns spend little or no time interacting with adults. Teachers said that the key to how interns are used in the classroom is totally dependent on their motivation, attitude, and proficiencies. In this sample, two of the teachers did not use interns to work in small groups with students, and indicated that interns did only monitoring, administrative tasks, or nothing.

In this sample, six of the interns said that they spent 50 percent to 70 percent of their time providing assistance to students in small groups. In comparison with teachers' estimates on intern use, interns estimated that less time was spent in providing instruction and assistance in small group situations and more of their time was spent in monitoring students, completing administrative tasks, and in meeting with parents. Occasionally, both interns and teachers talked about the use of interns as substitutes for teachers absent in their schools.

Teachers and interns agreed that from 30 minutes to an hour of planning time is needed to coordinate their instructional efforts on a daily basis. While teachers and interns say they are told that they can use the time when students are in art, physical education, music, computer lab, or library, both groups pointed out that this time is rarely available for planning purposes; at least one of the pair is expected to accompany the students to monitor their behaviors. Teachers and

interns said that further that planning is usually completed on the run, before and after school, over the telephone, and some Wednesday afternoons following staff development meetings. Based on the comments of both groups in this sample, it is not uncommon for planning not to occur at all.

On the subject of staff development, teachers reported that they have not been provided with staff development activities from EAI, BCPS, or their local schools designed to help them use their interns more effectively in the classroom with children. All teachers said that what and how they use their interns is the direct result of their experience and knowledge, and the attitudes and competence of the intern assigned to them. Interns either confirmed that teachers have not received training on how to use interns in the classroom or that they have no knowledge of their teacher's training beyond the general Wednesday afternoon staff development programs.

When asked whether staff development has been helpful to interns in becoming more effective in their roles in the classroom, all interns said that it has not; this included the Wednesday afternoon staff development meetings and the limited number of meetings held for interns either outside their school or at their local school. Interns say, and teachers confirm, that the staff development topics are essentially designed for teachers. Often the subject and pace of presentation of ideas and methodology at these meeting are beyond the scope of the interns responsibilities and training. Interns view the limited training they have had from EAI either as being inadequate, or some cases, they can not recall the focus sufficiently to discuss. Beyond some pre-school meeting in August for interns, teachers had a difficult time recalling their interns attending meetings or their interns discussing the content of these meetings.

Teachers describe their best interns as ones who had a strong desire to become a teacher, enjoyed working with the children, were highly motivated individuals who were self-starters, were effective communicators, and were warm and caring individuals. It was apparent that these individuals described as "best interns" by teachers were ones who came with a strong mission and possessed attributes like a willingness to learn and the persistence needed to get the job done. For the least successful intern, teachers described them as not being motivated, as biding their time until another job came along, as having no interest in the field of education or in working with children, and as individuals with no initiative. Only some of the teachers interviewed had not had an unsuccessful intern. All teachers indicated that they had at least one successful intern.

When teachers were asked whether having interns has made for a more effective-teaching learning situation, most concluded that it depended on the individual, their skills and mission. Based upon their experiences with interns over the three-year period, five of the nine teachers said that having an intern in the classroom did not result in an improved learning environment for students. While teachers conceptually believed that having an intern should work, the primary view was that the skills, spirit, and mission of the interns has not been up to task. Some teachers further indicated that the socio-economic circumstances surrounding these children and their overwhelming educational and behavioral needs often results in intern frustration, dissatisfaction, and lack of success, and in high turnover rates for interns. Add to this the low salary, long hours, and low benefits of interns and you have a situation which, according to teachers, has not and will not work.

When interns were asked the extent to which they were satisfied with the roles they perform in the classroom, interns were about evenly split. Problems that the interns identified were unclear duties, poorly designed position, large class size, difficulties with and time spent on discipline and classroom management, lack of respect from the children, being inadequately trained, and being viewed as an extra, or "lackey." Interns who were satisfied said that their teachers were helpful to them and treated them with respect, and that they enjoyed their work with the children.

When asked, "To what extent being an intern has met your expectation?" five of interns responded that their expectations had been met. In explaining their response, interns said that being an intern has taught them a lot about teaching. The experience has taught them what they can do, and what they need to learn to do. Interns further indicated that how expectations are met rests basically with the teacher and school. The two who felt that interning had not met their expectations said that being an intern was a "downer", that the position was not respected, and that without a much more systematic plan in place for use of interns, this concept can not work.

When asked, "Does having two adults in each classroom make for a more effective teaching-learning situation for students?" six of the interns said that is has helped a great deal. Interns said further that it provides additional assistance, attention, and skill development for students, and that it provides a smaller student-adult ratio in the classroom. Interns did add, however, that while two adults has its positives, the situation is far from perfect, and there are many, many needs. Needs include training of interns, the elimination of the high turnover rate of interns, improved salaries, benefits, and working conditions, reduction of class size, resource assistance and training to reduce the overwhelming behavioral and educational needs of these students, planning time with teachers, and an improved teacher-intern dynamic.

When asked, "To what extent has being an intern helped you learn how to teach?" all interns responded that it taught them a lot. For some, it taught them that they did not have what it takes to teach; for some, they saw steady progress in their abilities to work effectively with the children; and for some experience had been a great teacher. While all valued the experience in one form or another, it did not appear to encourage anyone in the direction of teaching. Only one of the interns indicated an interest in becoming a teacher, but this was a career interest prior to this person becoming an intern.

"The presence and active participation of instructional interns in classrooms is a core component of the EAI philosophy." EAI' s Handbook for Instructional Interns (1994, page 4) goes on to say: ... teaching partnerships brings a second adult into the classroom to support, expand, and reinforce the work of the classroom teacher. With the addition of the second adult, the opportunities for individual and small group instruction increase. Variety and choice in learning activities expand. The needs of each child are better met when two adults share responsibility. Effective classroom teaching teams also serve as models for cooperation and shared leadership. ...They build a strong relationship that allows collaboration to occur. Partners communicate effectively while sharing the leadership and tasks of the classroom."

This guiding philosophy on the role of instructional interns is an ideal; it puts forth a sound logic to which there would appear to be few who would disagree. The reality of the operation and functioning of instructional interns in the classroom, however, is different from the ideal. Some of the conclusions about the factors that interfere with the achievement of the ideal are:

-While the intern process allows an intern to determine whether he or she will continue considering a career in teaching, many interns take the job until a position in their field opens up. Thus many interns are not persons who are considering a career in teaching.

-The intern experience and the socio-economic circumstances of a school appear to discourage careers in education rather than provide a positive practicum for individuals seeking to become educators.

-Frequency of turn over among interns weakens the teacher-intern relationship, and does not foster strong relationships and collaboration.

-The lack of time for planning does not foster shared leadership and

planning and result in opportunities to support and enrich each others' work.

- Interns do not play an active role in helping students fulfill their PEP goals.

- Limited staff development for teachers on the role of interns does not foster a partnered approach in the classroom.

- Limited staff development programs designed specifically for interns to more effectively implement their responsibilities have not been sufficient.

-Teachers and interns do not view the relationship between the teacher and intern as a partnership.

Personal Education Plans in the Tesseract Schools

Findings from Parent Questionnaires - Four questions on the telephone questionnaires for parents related to the Personal Education Plan, as follows:

Tesseract Parent Responses to Questions about the Personal Education Plan
94 Responding Parents

Question	Yes response
Have you met with your child's teacher to talk about his or her Personal Education Plan this year?	73 %
Have you signed your child's Personal Education Plan this year?	67 %
Do you know what your child's PEP Goal is?	54 %
Did you meet with a teacher to talk about a Personal Education Plan last year or the year before?	77 %

Three-quarters of the responding parents had met with their child's teacher this year for a Personal Education Plan, and more than half of the parents knew what their child's PEP goal was. This represents a significant level of parent involvement in their child's education.

Introduction to Teacher Interviews - Sixteen teachers from the seven Tesseract elementary schools were selected for interviews. One of the selected teachers was out of the school on extended leave for illness and one declined to be interviewed. Interviews with 14 teachers were completed. The grades taught by the teachers interviewed span the elementary school grades. One taught prekindergarten; one taught kindergarten; two taught grade 1; four taught grade 2; one taught grade 3; two taught grade 4; two taught combined grades 3-4 classes and one taught grade 5. They have a wide range of teaching experience. Six have under five years experience; of these, five are first-year teachers. Two of the first-year teachers had experience as Tesseract interns. Two of the teachers have between five and ten years experience; the other six have over fifteen years experience.

Methodology - The interviews were semi-structured, using an instrument consisting of 21 questions. (Five of the questions referred to parent involvement in general. Answers to these questions are incorporated in the section addressing parent involvement.) Due to the loosely structured protocol, not all teachers were asked all questions; although most teachers answered all questions. Generally the interviews took between 45 minutes and one hour. After the first three interviews, the protocol was changed slightly adding two questions and subtracting one. Interviews were taped and transcribed; much of the transcription is verbatim. Interviews were coded, and then sorted with the assistance of Ethnograph computer software.

Findings

Training - Teachers were asked if they received training on the PEP. Teachers from six of the seven schools reported receiving training on the PEP within the last two years. Generally, the vehicle for training was in-service workshops that specifically addressed the PEP. In the one school that did not give teachers formal training, teachers reported that the Master Teacher instructed them about the PEP.

Teachers reported that the primary focus of the training was conducting parent interviews. In most schools, teachers viewed a videotape of actors demonstrating a PEP parent conference and engaged in role-playing parent conferences with their colleagues. The training also covered using the PEP forms, conducting student observations, and organizing the PEP notebook. Several teachers reported that there was some information about how to use the PEP in daily activities, although most of the interviewed teachers did not remember receiving this type of information. In general, teachers felt that the training was adequate, although three teachers commented that they felt that the expectations for the PEP articulated in the training were not realistic.

Developing the PEP - Teachers were asked to describe how they develop a PEP for a specific student. Generally, teachers reported that the time spent developing a PEP depended upon the student. Six of the teachers said that they waited until the first conference before they determined what would be included in the PEP. Several teachers said that they let the parent take the lead in the first conference because they were instructed to do so and also because they did not know much about the child at that point.

Most (9) teachers reported that they reviewed children's written work and their own observation notes in preparation for the second and third conferences. Most of the teachers reported that preparing for a conference generally took little time, although one teacher reported spending five or six hours preparing for the last set of conferences and another reported spending 12 hours each semester preparing PEPs. Teachers stated that they did not need to think too much about a conference before it occurred because they felt they had a good understanding of the children in their classes, and because conferences were often held with little notice. One teacher reported conferring with students before PEP conferences. All teachers reported that they develop PEPs for all their students.

Teachers were asked if they used the computer to prepare the PEP. Only two teachers said they used a computer to record observations of students. Of the ten teachers who said they did not use the computer, four mentioned that they did not know how to use a computer and one mentioned that the PEP forms were not computerized and had to be handwritten. Three teachers mentioned that they had been promised computer training but had not received it. Five teachers reported that they took the student's work on the computer into consideration when developing the PEP; of these, three mentioned that they showed the printout of the work to students' parents.

Parent Participation - Teachers were asked several questions about parent participation in the PEP. They were asked how they contacted parents for the conference; how many parents attended PEP conferences; and what the barriers prevented parents from attending conferences. Teachers reported varying degrees of success with parents attending PEP conferences and signing PEPs. Participation rates ranged from 2% to 100% for the first conference and greatly depended upon the age of the child and/or the efforts that individual teachers expended in contacting parents. All teachers reported that they had the best parent participation in the first conference and that participation further declined throughout the year. The amount of time and effort teachers expended in contacting parents for the PEP varied widely. Teachers with high participation rates said that they contacted parents very frequently by letter and by phone and kept a constant surveillance for parents in the school.

There appears to be differences between schools in their emphasis on obtaining parent signatures on the PEP form and the importance of parents coming to the school for a conference. From their responses, it appears that teachers in two schools are strongly encouraged to have a signed PEP for each student, whether or not they have conferred with the parent in person or by phone. In two other schools, it appears that there is a greater emphasis involving parents in conferences and not as great of a concern about whether the PEP is signed.

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When asked what they believed were the barriers to parent participation in the PEPs, six teachers mentioned that parents had difficulty getting time off of work; five teachers believed that parents didn't understand their roles in their children's education; three teachers believed that parents were tired of hearing negative reports about their children; three teachers mentioned that parents had personal needs that took precedent over involvement in their children's education; two teachers mentioned that parents had other small children at home; and two teachers mentioned that parents were intimidated by the formality of the conference. Most (64%) of the teachers who were interviewed answered affirmatively when asked whether they believed parents of the students in their school were interested in their children's education.

PEP Conferences - All the teachers interviewed gave similar descriptions when they were asked to describe a typical PEP conference. The first conference was described as an opportunity for teachers to learn information about children, to introduce themselves and their program to parents, to learn what goals parents had for their children, and to learn what parents would do to assist their children in meeting educational goals. Almost of all the teachers said that they allow parents to determine the first PEP goal for their child; several teachers stated that they found they often had to guide parents in formulating the goals.

Teachers described the second conference as an opportunity to share children's progress with parents. They described playing a larger role in determining whether there would be a new PEP goal and what that goal would be. Most of the teachers also described giving parents ideas about how they could assist their children in obtaining goals. Most teachers reported that their conferences are between five and fifteen minutes long, depending upon the parent. Two teachers stated that, although they know the conferences should be shorter, they spend between twenty and thirty minutes with each parent.

Several teachers stated that EAI instructed them to set one obtainable goal for each student. Five teachers stated that they set one goal for each child; three teachers set between one and two goals; one teacher set between two and three goals; one set between three and five goals; and one stated that the number of goals varied greatly with each student. Eight teachers stated that their goals were more academic than behavioral; one teacher reported that goals were primarily behavioral and four teachers reported that their first goals were generally behavioral but, by the second conference, goals became more academic.

Teachers defined a "successful" conference as one in which the parent was responsive during the conference by either giving the teacher information about the child, giving input into the formulation of the goal, and/or telling the teacher what they will do to help the child reach the goal. Approximately 60 percent of the teachers stated that they felt that most or all of the conferences they had with parents were successful. Two teachers reported that approximately one-third of their conferences were successful; one teacher stated that she had experienced only one successful conference.

Teachers were asked whether their interns were involved in the PEPs. Only two teachers reported that their interns were actively involved in developing the students' PEPs; others noted that interns were not supposed to be involved in the development of PEPs. Teachers reported that the interns were not involved because they had to cover the class while the teacher was conducting the PEP (5); the intern was not available after school (2); and/or the teacher believed that the intern was not a professional and did not have the expertise needed to contribute to the PEP process (2). Three teachers commented that high turnover among interns in their classes precluded actively involving interns. Three teachers reported that they shared the results of the PEPs with their interns.

Teachers were asked how students were involved in the PEP. Most teachers (9) said that children attended the conferences with their parents. Only three teachers stated that children were not involved or only minimally involved in the conferences. In two of these cases, the children were very young; in the third the teacher stated that the conferences were often held during lesson time. Six teachers reported that children were engaged in activities that were directly related to their goals after the goals were formulated. Activities included talking to the teacher about the goals, writing the goals, making books about their goals, and chooses the work for the PEP notebooks. Three teachers said that they hold a PEP conference with the child if the parent does not respond. Only two teachers involved children in the initial formulation of the goals; both were upper grade teachers.

Teaching Practices - Teachers were asked several questions about whether and how the PEP's were used in their daily practice and whether their teaching practices had changed as a result of the PEPs. According to the Tesseract Way, teachers are required to keep a notebook for each child that is accessible to the children and the children's parents, and to record observations about child to be used in determining their goals.

Seven of the teachers said that their teaching practices have not changed as a result of the PEPs. Generally, teachers said that they believed in the methods being advocated by EAI and had used these methods prior to EAI's management of their schools. Three teachers indicated that their teaching practices had changed as a result of the PEP's; however, two indicated that the changes were minimal.

Six of the teachers (including three who said that their practices had not changed) used the goals in activities with their students. Five teachers reported using PEP goals in pairing and grouping students. One teacher reported using goals to individualize instruction. Two teachers commented that they believed that it was unrealistic to expect teachers to use the PEP goals for individualized education.

Questions about the use of the PEP notebooks and observations were added after the first three teachers were interviewed. None of the teacher's interviewed believed that the notebooks were very useful in their daily practice. Seven of the teachers stated that they used the PEP notebooks for record keeping and to show parents and children the child's progress. One teacher stated that she found the notebooks "helpful, to an extent, when you get a new child." One teacher stated that this year's student notebooks did not arrive until February, 1995.

All of the early childhood teachers (grades pre-kindergarten through second) stated that they had kept written observations about their students before EAI began to manage their schools. They had their own system of record keeping and, while several tried EAI's methodology, they generally continued to used their previous systems. The number of observations recorded per child generally depended upon the child and ranged from one for each child every 15 days to one a week for each child. Four teachers in the upper grades indicated that they complied with EAI's request for written observations for each child; however, three indicated that they conducted the minimal amount of observations recommended.

Nine of the teachers had students who were classified as needing special education services and, as a result, had Individualized Education Plans (IEP). When asked whether and how teachers used the IEP in developing the PEP, all said that they took the IEP into consideration. Three teachers said that the PEP used IEP goals. Two of the teachers said that they purposefully tried not to duplicate IEP goals in the PEP. For example, one teacher stated that because the IEP focused on academic goals, they gave the students social goals for their PEPs.

Evaluation - Most of the teachers did not believe that PEP's were being assessed as part of their evaluations. They stated that EAI and (sometimes) the school administration checked to see that the notebooks were complete and that there were observations for each child, but that they did not receive feedback about the content of their work.

Teacher Assessment of the PEP - Teachers were asked whether they thought the PEP helped meet the needs of students, were useful in working with parents and, in general, whether the PEP was worth doing. Thirteen of the 14 teachers believed that the PEP was a valuable idea. They reported that they used the PEP to learn more about children from their parents (7); learn more about the parents of the children in their classes (6); develop a partnership with parents (6); give parents information about themselves and their programs; to develop reachable goals for children that can be used to enhance their self-esteem (7); and assist in making children feel more responsible for their own education (2); and to individualize education (2).

It is clear from the interviews that obtaining parent participation is difficult in most of the schools. Nine of the fourteen teachers raised the issue of the difficulty of obtaining parent participation in the PEPs, including two of the teachers who expressed strong support for the PEP. One teacher stated,

> "This thing is so hooked into parent participation, when you lose that component, you're sinking, cause it all shifts back to the teacher. So you're back to the old way - teacher tell, teacher do... you really haven't changed anything because you are the one setting the goals, carrying them out, evaluating them."

Four teachers believed that the PEP would useful in their schools if they had greater participation by parents. Two of the three teachers who felt that the PEP was not worth doing stated that the limited response of parents did not compensate for the additional paperwork required of teachers.

Discussion

Thirteen of the 14 teachers interviewed believed that the PEP was "worth doing." Teachers stated that the brings parents into the school and builds students' self-confidence:

> "I think it's a wonderful process - very positive... I think it's the most positive way to work with children and parents... If children are the ones who help make up the goal and agree to it, then they're in charge of their life. I think there's nothing better."

Teachers also stated that the PEP offers teachers "a legitimate chance to meet other (non-academic) needs," gives children and teachers a concrete goal to work on, helps teachers organize student's work, and helps teachers focus on students' needs.

However, the PEP does not appear to fulfill the goal of creating an comprehensive educational plan for each student. Descriptions of the PEP evoke comparisons with the detailed Individualized Education Plans (IEP) that are required for children with special needs, although the PEP is not meant to be comporable to an IEP. Instead, the PEP appears to be more of a goal· setting exercise whose primary purpose is to begin to involve parents in educational decisions.

Most teachers spend little time in developing the PEPs for their students, often purposefully waiting until they meet with parents to develop goals. One teacher stated,

> "... the whole purpose of it is for it to be a joint project between parent, child and teacher. So if I come to the table with a whole slew of what I want -that's not the point. The whole point is that we all agree on goals that can be achieved in the classroom and worked on at home."

In most cases, goals were general, and often focused on behavior rather than academic achievement.

Most teachers reported that their educational practices had not changed as a result of the PEP. Three teachers reported that they did not use the PEP notebooks and seven reported that they only used the notebooks as a repository for the children's records. Most early childhood teachers reported recording observations of students as part of their practice prior to the PEP. Several teachers admitted that, while they had always observed and analyzed student's behavior, they recorded the minimal number of observations requested by the administration.

Reports of training given to teachers raise the question of whether EAI ever intended the PEP to be used to individualize education. Teachers reported that the inservice training on the PEP focused primarily on the conference itself, with some information about conducting observations and structuring the PEP notebooks. Teachers were instructed to set one realistic goal with students and parents, to defer to parents in the conferences and to limit the conferences to between ten and fifteen minutes. Within its limited focus, the training appears to have been very effective. There was strong consensus among teachers about the purpose of the conferences and how the conferences should be conducted. However, there was little consensus of whether and how the PEP should be utilized in practice. Few teachers report receiving information about how to develop the plan, how to incorporate the plan into instruction, and how to provide individualized instruction to their students. Teachers reported that EAI and their school administrators checked to see whether the plans were completed for each child but paid little attention to the content of the plans.

If the primary purpose of the PEP is to develop an operable individualized education plan for each child, then more attention needs to be given to the documents themselves, the use of the PEP in teaching, and integration of the PEP with the IEP. There also needs to be serious consideration of whether individualized education is a realistic goal, given the level of available resources, the quality of the Tesseract intern program, the numbers of children with special needs, and the size of the classes.

PEP has also been described as the cornerstone of the Tesseract parent involvement component, involving parents in the development of educational goals for their children. This use of the PEP appears to be more promising. Some teachers report using the PEP as way to bring parents into the schools and involve them in decisions about their children's education. Parents and Parent Liaison staff applaud the structure of the conferences, reporting that they feel they now can have more input into their children's education.

However, most teachers have described great difficulty with persuading parents to come to the conferences. Participation in conferences varies widely, both by school and by teacher. In some of the schools, teachers are held accountable for the number of signed PEPs they are able to get. However, obtaining a signed PEP does not address the quality of parent involvement. For example, a teacher who reported that she had conferred with only 2% of her students' parents reported that she would have signed PEPs for 100% of her students. Many of the teachers expressed great frustration with this aspect of the PEP:

> "If you get to the point where you're just writing something and you're just sending it - it's different from if a parent really cares and takes the time to come in... But so many times, that's what it comes to because you don't have the time to get them in - for everybody's schedule to jell, or for them to care enough to just want to come."

The issue of parent participation has not been adequately addressed. Teachers in three of the schools stated that they and other teachers brought this issue to EAI and school administrators. Several teachers stated that they felt that answers given to their concerns were not realistic or adequate. One teacher stated,

"Teachers brought up this problem a lot the first and second years. We were told we just had to make it a fine oiled machine and when the process is smooth, it will just bring in the parents. Well, it hasn't."

When solutions to the problem of low parent participation were enacted, they consisted of measures that limited the effectiveness of the PEP as a parent involvement strategy. In one school, teachers were given permission to conduct PEP conferences over the phone. In another school, the number of conferences was reduced from four to two per year. Parent recruitment has not been discussed in training. In most cases, assistance from school administrators is limited to issuing form letters inviting parents to the conferences, a practice described in the last evaluation as ineffective.

For the PEP to fulfill it's promise of a successful parent involvement strategy, there must be recognition of the problem of involving parents in the schools. EAI and the schools must explore and address the reasons that parents do not attend PEP conferences, develop reasonable expectations of parent involvement, and provide adequate training and support for teachers.

"The Tesseract Way" in Tesseract Schools

The objective in conducting the interviews was to understand how a randomly selected sample of teachers were implementing "The Tesseract Way" in Tesseract schools. Educational Alternatives, Inc., describes the Tesseract Way to Learning as follows:

"Every child has gifts and talents. We accept the challenge to find and nurture these qualities in each child."

1. Each student experiences success in school every day.

2. Parents are partners in their child's education.

3. A Personal Education Plan is developed for each student.

4. Real-life experience is the basis for learning.

5. Students take responsibility for their own learning by planning, accomplishing, and evaluating their own work, and making the best use of their time.

6. Technology helps students learn and teachers teach.

7. Hands-on projects provide experiences upon which students establish a solid foundation of understanding.

8. Cross-disciplinary and thematic units produce learning that is relevant and challenging.

9. All areas of curriculum are important.

10. Students learn productive and positive behaviors.

11. Creativity is fostered and celebrated.

12. Learning styles vary. Teachers design and present learning experiences in a variety of learning modalities.

13. Teachers use flexible grouping to meet the changing needs of individual students.

14. Students develop communications skills through a literature-based program that includes phonics, reading, writing and spelling.

15. Receiving instruction in a world language enriches students' understanding of other cultures and extends their language skills.

16. Students develop a global perspective, learning to appreciate and accept all peoples of the world.

17. Homework is a natural extension of classroom activities.

18. Students, staff, parents, and the community work, learn, and share together.

From the 18 Tesseract Way statements, ten were selected as the most appropriate for a teacher interview. These ten were assumed to be performance expectations, i.e., intended classroom behaviors of teachers that will foster improved student learning. The areas of performance expectations were:

1. Hands-on activities

2. Real-life experience as the basis for learning.

3. A literature-based reading and writing program.

4. Cooperative learning.

5. Varied student learning modalities.

6. A global perspective.

7. Students experience success each day.

8. Homework as an extension of class activities.

9. Interdisciplinary instruction.

10. Staff development for components of The Tesseract Way

The statements were used to devise questions which became a structured instrument for use in interviewing teacher about how he or she implemented The Tesseract Way. For each of the ten selected Tesseract Way components, each interviewee was asked:

a. What staff development and support has EAI provided to help you implement this component?

b. What additional support would you like?"

c. How important or effective is this item to you in helping children to learn?

Twelve teachers in Tesseract schools were interviewed during February and March 1995. The median length of service for this group of teachers was 26 years. Interviews were completed with teachers of kindergarten, grade 1, grade 3, grade 4, and grade 5 and one computer lab manager. The same structured questionnaire was used with all twelve teachers. Each interviewee was invited to add any additional comments about his or her classroom teaching experience.

Eight of 12 teachers interviewed expressed varying degrees of dissatisfaction with the Tesseract program, while four were very positive. A veteran teacher said: "Teaching was fun, when I was in charge of my classroom. . .Now I feel relegated to a subservient role to the children. We are told everything done in the past has been wrong, an ' made to feel that we have been part of a conspiracy to keep children ignorant. It is very disheartening." Another veteran teacher said: "I am more in tune with Baltimore City's regular teaching methods and enjoyed teaching in that program more." One veteran reported that she had been given an opportunity to transfer, but chose to stay because she is open to new strategies and expected flexibility. Her positive views were similar to several others, who explained that the greatest difference between the Tesseract Way and Baltimore City is training and support.

Hands-on Activities - All teachers stated that "hands-on" projects were possible in all areas of the curriculum. The whole language approach was conducive to involving students in drawing pictures, creating artwork and dramatizing ideas. With advanced students, hands-on activities added enrichment and supported higher-level thinking skills; with less advanced students, hands-on activities provided the teacher a better understanding of their level of mastery. One teacher reported that Spanish-speaking students in her classroom have benefited from the Tesseract approach to language. Concrete examples for mathematics instruction was mentioned.

Real-life experience - All teachers report using real-life experiences of students to help them share feelings, to understand similarities and differences, to apply reason and logic to every day affairs. Teachers also reported use of field trips to provide experiences for students. Teachers cited examples of having students draw parallels between fictional characters (for example, a bossy older sister) and persons they know. Several commented that urban real life presents very complex problems to the children while EAI's "suburban orientation" offers simple solutions. All teachers would like more assistance in helping children to navigate through their complex home and community lives because these factors impact on classroom behavior and academic success.

Literature-based program - The literature-based program is kept interesting by the use of many strategies, including developing skits based on readings; selecting stories to read aloud that students can identify with, then asking lots of questions; and class trips to the library, with parent participation, and bringing back books to share. One noted that her class had four versions of "Three Little Pigs", and the class employed music, art, and drama to explore the social studies theme "around the neighborhood." All teachers believe the literature program is very important and effective. For one teacher "effective" was evidenced by the number of students asking to borrow books to take home, the number of students volunteering to read out loud or independently writing stories from their reading. One teacher described bringing in materials to embellish stories, and another dresses in costume when possible to add interest to the reading. Some teachers team up to share resources, to create more interesting projects and develop activities to make reading fun. Equally important, some teachers are stressing phonics to "give students word attack skills" because "whole language does not work for all students". While all teachers liked the trade books, some felt that the books did not always fit into the Baltimore City curriculum, and some noted that not enough of the books are ethnic-oriented, and one said, "It's a lot of work for teachers to pull things out of these books." One teacher told of receiving three foundation grants to buy her own selection of African-American focused books.

Cooperative learning - While teachers were able to explain the purpose and techniques of cooperative learning, not all accepted and used it. Three teachers said that they do not use cooperative learning, citing class size as too large (34 students), too many emotional problems in the group with no place to send children needing time-out, or cooperative learning as "too hard." One said, "Group seatwork is cooperative learning, something we have always done" and another said, "Before I participated in an all-day workshop on cooperative learning, I thought it was cooperative cheating!" Many teachers spoke highly of cooperative learning as a strategy; one said, "Group work helps keep students on task more so than individualized work where they tend to daydream". Most said they learned the cooperative techniques they used through trial and error, and would like more help from the lead teacher and more demonstrations of good technique.

Learning modalities - All teachers acknowledged that a good lesson plan addresses the variety of learning styles presented by including activities for teacher and student(s) that involve all learning modalities. One felt the modality test may be a good predictor of styles at the fifth grade level, but it was not useful at third grade level. Several would like help in this area, citing the difference between preparing a good lesson plan and being able to implement it in the classroom.

Global perspective - All teachers agreed that it is very difficult to teach appreciation for peoples of the world given the students' real-life experiences. A child must feel good about self. Teaching mutual respect for classmates is a big issue in many classes. Both Baltimore City and Educational Alternatives, Inc. stress character education and respecting cultural differences. In one school that emphasizes multi-cultural experiences through literature, a librarian will read a story dressed in costume and discuss differences between the characters in the story and the students. Where there are foreign-born teachers or interns, they have been used by their colleagues to share cultural stories and artifacts to help children understand that there are more similarities than differences between children around the world.

Success everyday - To ensure that every student feels some measure of success each day, some teachers give frequent verbal praise, not only for correct answers, but for earnest effort and for showing progress, no matter how small. One teacher makes sure that there are elements of familiar material when presenting new ideas. Some teachers use stickers and treats of various kinds to reward good behavior and effort. Others give hugs, smiles and positive verbal feedback. Teachers find small classroom jobs where slower learners may experience achievement. Only one teacher said Tesseract does not permit praise of individuals; only groups or teams may be praised. However, children are allowed to applaud one another.

Homework as extension of class activities- - Homework is very important to all of the teachers interviewed, who said that homework is given every day and is always an extension of classroom work. One teacher said, "Homework is on the board for children to copy each day," and another said, "Homework is given every day requiring parent input. For example, a list of words are sent home, and a parent asked to read a word while the child gives the opposite word." One teacher said that to reinforce skills taught that day, she gives creative assignments, i.e., "Paint a picture from a news article or something observed over the weekend," but another said, "Dittos get more homework done; independent creative assignments are not completed." One teacher noted that "Homework is automatically set in math because it is computer-generated." Some teachers report that 75% of students complete homework with parent involvement (though this may mean that the parent is doing the work). Another reported that in her class of 28 students, only two parents consistently initialed homework. Others reported that a small group of students never do homework.

Interdisciplinary instruction - All interviewees responded yes to teaching across the curriculum, noting that EAI has offered training in how to do this and strongly encourages it. One teacher commented that the Baltimore City curriculum is not conducive to teaching across the curriculum. On the use of thematic units, one observed, "Baltimore City has singular units. EAI is more interdisciplinary. One teacher saw "team" teaching as an example of teaching across the curriculum." Another said, "Terminology is different in Tesseract, but curriculum is the same as Baltimore City. A major difference is that the City still uses basal reader while EAI uses "trade books" and literature. Teachers said students enjoy thematic units most, and some noted thematic units are most helpful in preparing students for the MSPAP exam.

Staff development - More than half of the interviewed teachers felt EAI workshops and weekly staff development sessions were more than adequate in helping them to use the Tesseract Way to Learning. Others felt that the workshops were inadequate and without sufficient demonstrations of how to use trade books more effectively. Some reported staff development as generally a re-hash of things well known, and one said, "Teachers are pulled into too many meetings."

The four teachers in this sample of interviewees who had less than five years of teaching experience were all enthusiastic about the training and support they have received. The longer-tenured teachers were more apt to say that they were not particularly helped in either workshops or staff development sessions. On the negative side: EAI presented workshops but more often gave teachers manuals to figure things out for themselves. "Weekly workshops are good," said one teacher, "but so much is pitched at you from all directions that there is not enough time to plan." She went on to say that young teachers have an easier time with this schedule. On the positive side: Summer workshops and weekly staff support activities have presented many examples of how to do hands-on projects. Some teachers have benefited from classroom visits of lead teacher or specialists in language arts.

Additional comments - Many teachers cited relationship problems with interns. Role clarification between classroom teacher and the intern is a major issue for some teachers, and they emphasized, "Interns are not assistants nor co-teachers." It is good to have another person in the room, teachers said, but interns have become an added burden to overworked teachers. Teacher must model what is to be done because interns lack elementary education experience and classroom management skills. They are frequently absent or leave the program early. In contrast, para-professionals stayed on year-after-year getting to know the students, winning acceptance of their role in the classroom by both students and teachers. Teachers report that para-professionals reinforced skills taught by teacher, did their own plans, kept logs, and some had their own reward systems. Several teachers said they talked with the para-professional during the morning and/or afternoon sessions for purposes of planning. The outcome was a team approach that teachers miss, because interns do not do these things. The teachers suggested a longer training period is needed for them in how to work with an intern, and time is needed to plan with the intern how they will work together to make the best use of each others skills.

The next most frequently-mentioned problem was that of paperwork, particularly, observational notes in preparation of Progress Reports to parents. One teacher said, "Tesseract insists on four PEP's when one is about all that can be completed." Teachers felt that the structure of the Progress Reports is too lengthy and complex for parents to understand. Teachers also said that they must translate the Tesseract Progress Reports into Baltimore City grades for system report cards.

Finally, there were some concerns about classroom management problems, and, in the words of one person interviewed, " The policy of no suspension coupled with minimal discipline is not good for student learning."

Conclusion - The interviews were undertaken with an assumption that the teachers in the Tesseract schools would have more than the one-page "The Tesseract Way" to guide them in implementing a new approach to instruction. There was an expectation that there must be a "Tesseract Curriculum and Tesseract Method" that was not a public document, and that the "Tesseract Curriculum and Tesseract Method" differed from Baltimore City's curriculum and teaching methods. Instead, it was learned that all Tesseract schools are using the Baltimore City curriculum, with the teachers attempting, with varying degrees of success, to employ an unoperationalized "Tesseract Way to Learning" in implementing the standard curriculum.

Parent Involvement in Tesseract and Comparison Schools

Three questions formed the basis of the evaluation of the parent involvement component of the Tesseract Project. First, parent involvement in Tesseract schools was compared to parent involvement in comparison schools to see if there were differences in parent involvement in the two types of schools. The second question asked whether parent involvement in Tesseract schools has changed as a result of EAI's management. Finally, this evaluation explored whether the Tesseract program has demonstrated an adequate commitment to involving parents in their children's education.

Sample

Six staff persons from Tesseract schools and five staff persons from comparison schools were interviewed. Interviews were sought with persons in charge of parent involvement in all Tesseract and comparison schools; however, one staff person was out on leave for illness, and two staff persons did not make themselves available for interviews. All eleven staff persons who were interviewed are female; ten of the eleven are African-American and one is white.

In the Tesseract schools, parent involvement is staffed by full-time Parent Liaison staff in six of the schools and a half-time Guidance Counselor in one of the schools. All Parent Liaison staff persons and the Guidance Counselor are funded with federal funding through Chapter 1. In addition, the Coordinator of Community Relations for the Tesseract Project and the Vice-chairman of the Parent Coalition were interviewed by telephone.

Only three of the staff people in charge of parent involvement in the comparison schools are full-time Parent Liaisons. Only one of the full-time Parent Liaisons was interviewed for this evaluation. Two of the people responsible for parent involvement in the comparison schools are retired school administrators working as part-time Parent Educators. One of the Parent Educators is a retired principal who works 18 hours a week; the other is a retired adult education counselor who works approximately ten hours per week. In another comparison school, parent involvement is split between the Master Teacher, the Chapter 1 Coordinator and a Resource Teacher. In another, a Parent Educator, who is also the Chapter 1 Coordinator, a consulting teacher and a Chapter 1 teacher, spends 30 percent of her time on parent involvement.

Four parents were also interviewed in person, including two from Tesseract and two from comparison schools. In each school, one parent was interviewed with the staff person and one was interviewed alone. The study design was originally conceptualized to include interviews with a parent from each of the schools; however, interviews with parents did not add enough additional information to warrant the additional interviews.

Methodology

The initial interviews of school personnel were conducted in person, using a semi-structured protocol consisting of nine general questions. Staff and parents from Tesseract schools were asked an additional six questions pertinent to the Tesseract program. Notes were taken during the interviews and transcribed after the interviews. Second interviews, in person and via the telephone, were conducted in June 1995 to gather additional information. Six questions about parent involvement were asked of teachers in the Tesseract schools during interviews conducted in the evaluation of the Tesseract Personal Education Plans. The transcripts of interviews with

parents and school personnel were coded, and then sorted with the assistance of Ethnograph computer software.

To compare the Tesseract and comparison schools, a rating scale was developed for this evaluation. Schools were rated on 13 areas of parent involvement, including the Parent Action Council (PAC), the PTA/PTO, parent involvement in the School Improvement Council (SIT), parent education workshops, school events, volunteer opportunities, parent fundraising, academic resources available to parents, opportunities available to parents for broader community involvement, communication with parents, visible indicators in the school that parents are welcome, the parent room, and general parent participation.

Schools were rated using a five point scale. In general, schools were given 0 points if the activity did not exist, 1 point if the activity existed but was not functional, 2 points if the activity appeared to be minimally functional, 3 points if the activity appeared to be functional, and 4 points if the activity appeared to be fully functional. Given the diverse nature of the activities examined, more specific definitions for ratings were developed for each activity (attached). Ratings given to the schools were averaged to give an overall rating to Tesseract and comparison schools.

Findings

Partnership between parents and educators is one of the principles of "The Tesseract Way to Learning." EAI has promoted parent involvement in their expectations of how schools will implement "The Tesseract Way" and has introduced four new parent involvement activities in the schools they manage:

- In its first year, EAI offered schools training and curricula for a series of parent workshops called "Active Parenting." Last year, there was training for school staff to conduct their own Active Parenting workshops. This year, the materials continued to be available to staff.

- All Tesseract Schools hold Personal Education Plan conferences that invite parents to meet with their children's teachers to develop goals for their children.

- EAI has sponsored three annual parent conferences that offered a variety of workshops for parents. There was no corresponding activity for comparison school parents.

- In January of 1995, with staff support from EAI's Community Relations Coordinator, parents from some of the Tesseract schools organized the "Parent Coalition." The Parent Coalition was described as a vehicle for parents to address problems in EAI managed schools.

Comparison of Parent Involvement in Tesseract and Comparison Schools - Despite the introduction of four new parent involvement activities into Tesseract schools, there appears to be little difference between parent involvement in Tesseract and comparison schools. Most of the schools that participated in the evaluation welcome and promote parent involvement, offering a range of activities to parents. Generally, the level of parent involvement appears to depend upon the commitment and experience of the staff person assigned to the task and the receptivity of the principal of the school to parent involvement rather than who is managing the school.

Tesseract schools obtained an average rating of 2.54 on the 13 measured parent involvement activities, with a range of 1.92 -3.17. This is slightly lower than the comparison schools, which

obtained an average rating of 2.63, with a range of 1.23 - 3.38. Only one Tesseract school and one comparison school received a rating under 2.

There were few differences between Tesseract and comparison schools on the ratings of specific parent involvement activities. More of the Tesseract schools have parent rooms, although in two of the schools, the rooms did not appear welcoming or functional. Only one of the comparison schools has a parent room that appears welcoming and functional. Two had rooms that did not appear functional, and two did not have parent rooms. Tesseract schools also have more events designed to draw parents into the schools.

Despite the lack of space for parents, more of the comparison schools had academic materials that were easily accessible to parents so that parents could assist their children with school work. Comparison schools also appeared to have stronger parent-teacher organizations and more parent initiated fundraising activities.

The number of parent conferences held in comparison schools is comparable to the number of Personal Education Plan (PEP) conferences held in Tesseract schools. Three schools hold conferences four times a yea:, when report cards are distributed; one school held conferences twice a year; and one schoo. held five conferences and four grade-level meetings. However, unlike PEP conferences, there are no requirements to include parents in setting goals for their children.

Whether Parent Involvement Has Changed as a Result of EAI's Management - The level of involvement of school personnel and parents in Tesseract parent involvement activities varies from school to school. All of the Tesseract schools sent parents to the Annual Conference, and five of the six had parents on the planning committee for the conference. Attendance at this year's conference was significantly lower than in the past two years. Five of the six schools have parent representatives who attend Parent Coalition meetings. Three of the Tesseract schools use the Active Parenting curriculum in their schools, although two of the three alter the curriculum, to include other information they feel is pertinent for parents.

Although most of the school personnel utilize the parent involvement opportunities provided by EAI, only two Parent Liaison staff and one parent felt that there was a positive difference in parent involvement in their schools because of EAI. The parent stated that, because the Tesseract Project teaching strategies were more interactive, parents felt more welcome in the classes. A Parent Liaison worker believed that the PEP brought more parents into the school and contributed to increased interest in their children's school work. She also believed that parents felt "more ownership" of the school since EAI. Another Parent Liaison stated that BCPS has a good parent involvement program, but "it was like a good cake. If you put icing on it, you give it more flavor."

Most of the teachers in the Tesseract schools interviewed for the evaluation of PEP component believed that the level of involvement in the schools had not changed as a result of EAI's management. Two teachers stated that they felt parent involvement in their schools had decreased, although one of them believed that the PEP conferences had increased the number of parents who called her about their children.

The Nature of EAI's Commitment to Parent Involvement - EAI has clearly articulated a commitment to parent involvement which has reached active parents, some of whom feel there is easier access to their children's schools. In addition, Tesseract schools have retained full-time Parent Liaison staff persons to a much greater degree than the Comparison schools, which have drastically cut these positions. In 1994-95, six Tesseract schools had full-time Parent Liaison

positions compared to seven in 1991-92. In 1991-92, all the comparison schools had full-time Parent Liaison position; in 1994-95, only three of the schools had full-time positions.

However, EAI's current level of commitment to parent involvement activities has not significantly increased parent involvement in its schools. The limited success of the Tesseract Project's parent involvement component is due to three factors: the low level of support provided to school personnel by EAI central staff; the lack of a central staff person who is responsible for the development and oversight of parent involvement activities; and the lack of clearly articulated goals and strategies for parent involvement.

Support for the Active Parenting series and the PEP conferences was limited to the provision of materials and in-service training for the PEPs and the Active Parenting series. There is cursory oversight of these activities that focuses primarily on the numbers of PEP's completed or workshops held. This is not enough to significantly affect the quality of the activities and their success with parents. The Annual Parent Conference and Parent Coalition receives significantly more EAI support; however, these activities do little to increase parent involvement in the schools.

The Coordinator of Community Relations for EAI contended that the limited success of its parent involvement activities can be attributed to their limited authority over in-school management, particularly in regards to the activities of Parent Liaisons and Parent Educators who are funded with Chapter I funding. This is, to a great extent, true. All the staff persons interviewed reported that they were accountable to the principals of their schools and to the Department of Compensatory Education in BCPS. Only one Parent Liaison stated that she felt responsible for parent involvement activities related to the Tesseract Project, although there was "no pressure from Tesseract."

While EAI may not be able to direct the activities of Parent Liaison personnel and teachers, it is possible to win their active participation by offering training, consultation and other services. Only one teacher in a Tesseract school reported receiving in-service training on parent involvement. Training on the Active Parent program was the only training from EAI reported by most of the Parent Liaisons interviewed.

EAI sent one staff person to Brooklyn to receive training in a parent involvement program that works with parents and students to improve math skills. This staff person was extremely supportive of EAI and the Tesseract Project. Attention to the needs, concerns and professional development of other staff may have gotten similar results.

The lack of a central staff person coordinating parent involvement activities also hampers EAI's success in this area. Responsibility for parent involvement is split between three staff persons who include parent involvement among their other tasks. The Coordinator of Community Relations staffs the Tesseract Parent Coalition, organizes the Annual Parent Conference and is responsible for community relations, in addition to coordinating Tesseract's public and media relations efforts. The implementation of Personal Education Plans is under the purview of the Director of Staff Development. Other parent involvement efforts, such as a developing initiative to offer parents GED programs in the schools, are handled by a third office.

When information about EAI's parent involvement component was requested by this evaluator, EAI sent a sheet describing 21 tasks that define "The Role of the Parent" in the Tesseract Way. "Partnership" implies that equal effort is expended by both partners; yet the EAI and the school's responsibilities to parents do not appear to have been defined.

There does not appear to be a specific plan for parent involvement with articulated goals and objectives. Teachers, who were able to clearly articulate the goals and strategies for the PEP

conferences, were less able to discuss goals and strategies for more general parent involvement. Only two of six teachers questioned had a clear idea of what EAI meant by "partnership" between parents and schools.

Rating Matrix for Parent Involvement Study

DEFINITION OF RATINGS BY ACTIVITY

SCHOOL SETTING
    0 - Nothing in entrance or halls of school directly or indirectly addressing or welcoming parents
    1 - Nothing in entrance or halls of school directly addressing or welcoming parents
    2 - Minimal amount of information, signage directly addressing and welcoming parents
    3 - Information, signage directly addressing and welcoming parents
    4 - Information, signage addressing parents prominent, directions to Parent Room posted

PARENT ROOM
    0 - Does not exist
    1 - Exists, is not welcoming, does not appear utilized
    2 - Appears welcoming, does not appear utilized
    3 - Appears welcoming, appears utilized
    4 - Appears welcoming, appears utilized, contains resources for parents

COMMUNICATION - Includes formal written information about the school and its activities, and calls to parents about activities
    0 - No communication
    1 - Flyers sent home with students about events and activities
    2 - Flyers and monthly newsletters are sent home with students
    3 - Flyers and monthly newsletters are sent home with students; parents are given a parent handbook
    4 - Flyers and monthly newsletters are sent home; parents are given a parent handbook; parents are telephoned about events and activities, and to volunteer

RESOURCES - This category refers to resources that are available to parents to help them assist their children in school
    0 - Does not have
    1 - Has materials but they are unorganized, not readily accessible to parents
    2 - Materials are organized, accessible to parents
    3 - Materials are organized, centrally located and easily accessible to parents
    4 - Materials are organized, centrally located and easily accessible to parents; organized distribution of materials via students

PARENT ACTION COUNCIL (PAC)
    0 - Does not exist
    1 - Exists, inactive
    2 - Active membership of under 5, limited meetings
    3 - Active membership of over 5, regular meetings
    4 - Active membership of over 5, regular meetings, defined activities

PTA/PTO
- 0 - Does not exist
- 1 - Exists, does not meet
- 2 - Irregular meetings
- 3 - Regular meetings, fundraises
- 4 - Regular meetings, fundraises, other defined activities

PARENT INVOLVEMENT IN SCHOOL IMPROVEMENT TEAM (SIT)
- 0 - Does not exist
- 1 - Exists, no active parent participation
- 2 - Includes two parents required by guidelines, meets regularly
- 3 - Includes more than two parents, meets regularly
- 4 - Includes more than two parents, meets regularly, parents appear to have an active role

ADVOCACY - This includes opportunities for parents to become involved in broader community issues and activities, including BCPS and EAI parent coalitions
- 0 - No information or opportunities offered to parents
- 1 - Information about community activities distributed to parents
- 2 - Information distributed and parent participation in one activity organized by the school
- 3 - Information distributed and parent participation in up to three activities organized by the school
- 4 - Information distributed and parent participation in more than three activities organized by the school

PARENT VOLUNTEERING - The rating primarily refers to school organization and recruitment of parent volunteers; however, to obtain the highest rating, there must also be evidence of good participation
- 0 - Volunteers do not appear to be welcomed at the school
- 1 - Volunteers are welcome; no formal volunteer program exists
- 2 - Volunteer program exists but does not appear well-organized
- 3 - Volunteer program exists and appears well-organized
- 4 - Volunteer program exists, appears well-organized, evidence of good participation

PARENT FUNDRAISING - This activity includes fundraising by parent organizations. It does not include fundraising activities organized by school administrators, such as the candy drives conducted in most schools
- 0 - No organized fundraising activities by parents
- 1 - Past fundraising activities, none this year
- 2 - One fundraising activity this year
- 3 - Between two and four fundraising activities conducted this year
- 4 - More than four fundraising activities conducted this year

WORKSHOPS - This activity includes classes
- 0 - Not offered
- 1 - Offered sporadically and less than four times this year
- 2 - Offered sporadically and more than four times this year
- 3 - Offered once a month on a regular basis
- 4 - Offered more than once a month on a regular basis

EVENTS - This activity includes all assemblies, special events, fundraising events to which parents are invited
    0 - No events to which parents are invited
    1 - Parents are invited to daytime events for children
    2- Parents are invited to daytime events for children and there are less than two events for parents
    3 - Parents are invited to daytime events for children and there are more than two events for parents
    4 - Parents are invited to daytime events for children, there are more than two events for parents and there are evening events for parents

PARENT PARTICIPATION - Interviewees were asked about participation in all the activities and whether they felt parent participation was reasonable for their school. Participation numbers given were vague. Chapter I forms did not help as staff define participation differently; for example, in some schools, event attendance is counted as volunteering. Responses about participation in all activities were coded and sorted and, taking into account the size of the school, an overall rating was obtained.
    0 - No participation by parents
    1 - Small numbers of parent attend events only. Staff feels attendance very inadequate
    2 - Small numbers of parents attend events, meetings, workshops and volunteer in the school. Staff feels participation inadequate
    3 - Reasonable numbers of parents attend events, meetings, workshops and volunteer in the school. Staff feels participation reasonable for the school.
    4 - Relatively large numbers of parents attend events, meetings, workshops and volunteer in the school. Parent volunteers are obvious in the school. Staff satisfied with participation.

Staff Development in Tesseract and Comparison Schools

Information in this section was derived from interviews with the staff development coordinators in the Tesseract and comparison schools about the staff development program in 1994-95, a review of the staff development schedules for 1992-93 and 1993-94, the teacher questionnaires, observations of some staff development sessions at the Tesseract schools, and classroom observations.

Interviews with Staff Development Coordinators - The researcher sought to interview the person at each school with primary responsibility for staff development. For the comparison schools, staff development information was provided by principals in four of the schools, the assistant principal in one school, and the "staff development facilitator/coordinator" in two schools. In contrast, staff development was not the primary responsibility of the principal in any of the Tesseract schools. While three of the respondents were lead teachers, the titles of the other respondents were unexpectedly varied; one was a coordinator, one was a facilitator, one was a presenter, and one was "the staff developer on the staff development team."

The day and time for staff development, Wednesday afternoon, 1:00 to 3:00 p.m., was the same in each of the Tesseract schools. The day and time for staff development varied in the comparison schools. Most comparison schools had taken advantage of the opportunity to gain a half-day a week for staff development by lengthening the school day on the other four days; the half-day was usually on Wednesday, but sometimes on Friday. While one comparison school had extra staff development last year, the faculty had not voted to do so this year, so that only the city-wide staff development half-days were used at that school. One comparison school combined the half-days into two whole-days a month, and another school used two of the half-days for staff development and two for teacher planning days. In one school, teachers voluntarily came in 45 minutes early every morning for staff development of planning activities.

EAI's original staff development model brought together the staff development specialist from each school on Tuesday to be "trained" for the presentation of that topic to the school staff on the Wednesday afternoon of the following week. Two and one-half years into the Tesseract program, that was the model noted in only one of the six staff development sessions observed in Tesseract schools. Some of the observed staff development presentations in Tesseract schools were done by an "outside expert", and some were done by an EAI "trainer".

It was not always apparent from the information given who the presenter was for most staff development at comparison schools, although probably it was either someone from the Baltimore City Public Schools central office staff or an "outside expert." One principal noted that teachers who attended a workshop were expected to give a presentation on the workshop topic to the staff. While the "trainer of trainers" model is a popular one in staff development, the coordinators spoke of "the ideal staff development model" as being one where the whole staff is "trained together first hand," a repudiation of the trainer-of-trainers model. In addition to having the whole staff trained together, coordinators also desired opportunities for staff to visit sites to see strategies in operation.

The range in the number of different topics of staff development sessions in 1994-95 was great, with two Tesseract schools and one comparison school coordinators mentioning just two topics, and one Tesseract school and one comparison school coordinator listing 12 topics. At least one comparison school had designed staff development as a series of three to five presentations on a single topic, usually by the same presenter.

Most staff development sessions at both Tesseract and comparison schools were for all of the faculty, and most staff development sessions at Tesseract schools were also attended by interns. As one coordinator at a comparison school said, "Everyone wants to know what everyone was doing because no one knew when the tasks might become his or hers." Coordinators reported some differentiation of staff development by grade level, usually elementary or intermediate, although none was seen in the observed Tesseract school staff development sessions. Tesseract school coordinators also reported some staff development sessions, usually off-site, specifically for new teachers.

Virtually all staff development was at the school, although EAI had tried some grade-level staff development, with concurrent sessions at different schools. EAI had also tried the concurrent multi-school session approach with repeated earlier presentations for new teachers and new topics for veteran teachers. With a two-hour limit on staff development time, any travel makes sessions too short for substantial accomplishment.

Staff development coordinators for Tesseract schools reported that the focus of staff development was determined by "state mandates" (particularly for the topic of special education and inclusion), by EAI or "Minneapolis", and, at the school level, by either the staff development coordinator or the School Improvement Team, from either "test data" or "individual school needs". Staff development coordinators for comparison schools more often reported that the focus of staff development was determined at the school level, often by the School Improvement Team or a faculty survey, and that "test data" often drove the decision.

Content-related topics were slightly more prevalent in Tesseract school staff development sessions. Whole Language was a staff development topic in five Tesseract schools and four comparison schools, with one Tesseract staff developer specifying trade book use and another "development questions to go along with the activities in the literature books." Whole mathematics was a topic in five Tesseract schools, and S.T.A.R.S. (the Baltimore City elementary science curriculum) a topic in another. Preparation for testing was equally stressed in staff development in Tesseract and comparison schools.

Staff development coordinators in both Tesseract and comparison schools felt that staff development was valuable to them personally. They felt that their role as the coordinator, and often the presenter, was helpful in keeping them abreast of new trends in education, in providing ways to share the latest trends with their colleagues, in enabling them to apply the research done by others to the concerns at their school, and in increasing their personal tolerance and confidence. They felt that it was satisfying as a staff developer to see teachers take ideas back to the classroom, to see what works and does not work -- and going back to the drawing board when it does not, seeing the staff increasingly share successes as well as errors as they assist each other and the students, and hearing staff say, "I tried something new and I feel good about it." One principal in a comparison school spoke of the value of the involvement of the faculty in planning for staff development, saying, "I've seen a side of my staff that I had not seen before. I've seen people take on leadership roles and take responsibility for a lot that goes on in the building."

Staff development coordinators felt strongly about the importance of staff development for faculty members. One staff development coordinator at a comparison school said, "Staff does not have a clue where to start with so many problems at once. Staff development needs to be intensified to get efficacy, conflict resolution and character education (which was thrown out and now thrown back in) plus whole math, whole language and hands-on science in such little allotted time." Another said, "Seasoned teachers have a hard time changing their ways. If they have been successful in the past, it is hard for them to see the value of change. They need to understand that they need to mesh those old successful strategies with newer ones to help our boys and girls who are so different now because of technology and social change." One noted,

"Staff development lacks proper status as the change agent for building skills and the knowledge base of persons.

Staff development coordinators felt that teachers were appreciative of staff development. A coordinator at a Tesseract school said, "We are a very receptive group at this school. If it is out there, give it to us; we're thirst for it. We want it for our children. We can grow, our children can grow." A coordinator at a comparison school said, "Staff development is sometimes viewed that teachers as participants are reluctant. Teachers here fully participated. Teacher want to know what they can do; they want to be successful. Programs that give them a chance for success, that they can internalize, and that have a sound approach to staff development get full cooperation and participation on the part of teachers."

Interview Comments of Teachers Related to Staff Development - While none of the questions in the interview protocol of the researcher interviewing teachers about The Tesseract Way was specific to staff development, there were a number of teacher comments related to that topic. Positive comments related to the assistance given by the EAI language arts specialist and the many useful hands-on techniques learned including mobiles, dioramas, art work, and a variety of booklet formats. The mathematics staff development sessions were also well-received. One teacher contrasted the good, ongoing staff development in Tesseract schools with previous experiences in Baltimore City schools where there had been limited staff development.

Some teachers expressed concerns, however. One felt overwhelmed by the amount of information provided, with no time to plan how to use it, and another noted the need for time to plan and implement new ideas. One felt that the workshops provided "manuals rather than actual exercises." One teacher said that the Tesseract staff development has become of "repeat of things she knows," and, while most helpful to new teachers, it is "dropping in value to me each year."

Extent of Staff Development at Tesseract Schools - Apparently, during the first year of the Tesseract program, staff development was held every Wednesday afternoon, although by the second year, it was no longer held weekly. During the third year, the project assistant's efforts to set up appointments for researchers to visit Wednesday staff development sessions verified the fact that, despite public statements to the contrary, staff development at Tesseract schools was not an "every Wednesday" activity. By that time, the first Wednesday of every month was for "teacher planning," and not all remaining Wednesdays had scheduled staff development programs.

Staff Development Questions on the Teacher Questionnaire - A number of questions related to staff development were included on the teacher questionnaire. The results are presented, as follows:

Mean Scores and Significance of Results from Teacher Questionnaires
T = Tesseract; C = Comparison
ns = no significant difference; sig >.05 or .001 indicates the level of significance of the difference between group means
1 = Rarely Occurs, 2 = Seldom Occurs, 3 = Sometimes Occurs, 4 = Often Occurs

Items from the Teacher Questionnaire related to staff development	Teachers number: T=100 C=127 4 point response scale	
1. Teachers provide input for selecting staff development topics.	T = 2.28	sig >.001
	C = 2.76	
2. Staff development programs are scheduled so they do not intrude on the instructional planning time of teachers.	T = 2.84	ns
	C = 3.09	
3. Staff development is taken seriously by teachers in this school.	T = 2.68	ns
	C = 2.87	
4. Teacher view most staff development programs offered at the school as being important.	T = 2.32	ns
	C = 2.59	
5. Teachers view most staff development programs offered at the school as being relevant.	T = 2.47	ns
	C = 2.56	
6. Teachers view most staff development programs offered as being practical.	T = 2.49	ns
	C = 2.65	
7. Teachers receive support to develop ideas presented at staff development programs.	T = 2.62	ns
	C = 2.59	
8. Staff development programs offered at the school are designed to enhance the professional skills of teachers.	T = 2.89	sig >.05
	C = 3.13	
9. Staff development programs offered at the school are designed to improve student achievement.	T = 2.99	sig >.05
	C = 3.26	
10. The principal implements a school-wide philosophy which encourages teacher improvement through reflection.	T = 2.13	ns
	C = 2.18	

There was a significant difference in the responses of teachers at Tesseract schools and comparison schools for three items. Teachers at comparison schools were more positive in their response to the item, "Teachers provide input for selecting staff development topics," which corresponds to the interviewer's finding that comparison school staff development was more often designed by the school staff. Teachers at comparison schools were also more positive in their response to the items, "Staff development programs offered at the school are designed to enhance the professional skills of teachers," and "Staff development programs offered at the school are designed to improve student achievement," although these were the highest rated items for both groups.

There was no significant difference in teachers' views of staff development as important, relevant or practical, nor in the seriousness with which teachers take staff development, nor in the support that teachers receive to develop the ideas presented in staff development. Two other items with a non-significant difference are of interest. For the item, "Staff development programs are scheduled so they do not intrude on the instructional planning time of teachers," the fact that Tesseract teachers responded at any level below "Frequently Occurs" shows that they have begun to regard Wednesday afternoons as planning time rather than staff development time. The other

item ,"The principal implements a school-wide philosophy which encourages teacher improvement through reflection." was the lowest rated of all items for both groups, and represents a fairly recent and sophisticated approach to program improvement.

Observations of Staff Development Sessions at Tesseract Schools - Most observed staff development sessions were notable as exemplification of "practicing what is preached;" teachers were taught as they were expected to teach. Although within a direct instruction format, the presentation was fast-paced and varied, and the audience was involved in group activities including "discuss in your groups", writing ideas generated by a group on a large sheet of paper to be posted and considered by the whole group, ordering a series of cards across a continuum of ideas, and using provided materials to create a structure. Not all activities were "age-appropriate" to the audience, however; an observer noted, "teachers do not always have to engage in a physical activity to get the point of a discussion," and went on to say, "There is a fine line between modeling an activity, with teachers in a student role, and modeling and then stepping back to discuss the approach with teachers as professional colleagues."

Considerable information was presented during the observed Tesseract staff development sessions. However, ideas were often general, and, except for test preparation, not connected to a larger whole. The exercises were not coordinated with Baltimore City's curriculum, and even though teachers were seated by grade level, this was not used to tailor the activities to students of a specific age or to develop activities specific to that grade's curriculum. Many handouts were provided, but handouts were "mish-mash of ideas from everywhere"; a few had been copied and recopied so many times that their legibility was compromised, and most were only peripherally related to either the presentation or the curriculum. None of the reviewed hand-outs provided a "match" between techniques presented and curriculum objectives.

One session that a researcher observed involved a number of aspects that run counter to the tenants of effective staff development. The session was presented by a CCC technician apparently newly assigned to Baltimore City, and was intended as a demonstration of new CD-ROMS to be projected on a large screen, and also accessed by students at individual computers. All hook-ups were not in place, so, technically, the demonstration was only partially successful. More serious, however, was the fact that teachers from all grades were seeing a demonstration that presented reading and language arts material for early elementary students; this was a demonstration that might better have been presented to teachers by grade level. In addition, the science-mathematics CD-ROM was presented without any reference by the demonstrator to the topics of the Baltimore City science curriculum, and thus without selecting segments that would support the topics.

The Impact of Staff Development in the Classroom - Staff development is a centerpiece of the Tesseract program, and the observers were looking for evidence of staff development for The Tesseract Way in classroom activities. Indeed, staff development sessions were sometimes prefaced with the statement that "the principal would be visiting the classrooms to see that teachers use information presented in staff development."

Observers saw more direct teaching and less "facilitative" management than might be an inferred from a description of The Tesseract Way. The direct teaching at Tesseract schools was coupled with an impressive variety of student activities, and the richness of instructional techniques for active student learning can be attributed to staff development. Although not "counted," there was a larger variety of instructional techniques observed in Tesseract schools than in comparison schools. Some of the techniques may already have been in a teacher's "bag of tricks," but many can be attributed to staff development.

Observers saw Venn diagrams used in reading lessons at three different schools in a ten-day period, suggesting a recent staff development session on graphic organizers including Venn diagrams; two of the schools used the same Venn diagram worksheet, which may have been a hand-out at the session. The variety of art activities was particularly notable; observers saw hanging pyramids, with plot elements written on three of the pyramid faces; little books made from index cards, with each page a different width and color; and dioramas large and small. However, an observer saw an activity that may have been an "mis-application" of a Tesseract staff development-presented idea. As part of a planets activity, students did a "planets puzzle" that involved cutting apart and reassembling a jig-saw puzzle with the planet names, a hands-on activity clearly irrelevant to the concept of the lesson.

Instructional Technology in Tesseract and Comparison Schools

Information in this section was derived from classroom observations, interviews by the project director with principals and with the computer laboratory managers in Tesseract and comparison schools, and excerpts from some teacher interviews on other topics.

Computers in Tesseract Schools

CCC Computer Laboratories in Tesseract Schools - Use of Computer Curriculum Corporation integrated learning system software is central to the Tesseract model, and four computers were placed in each classroom in a Tesseract school along with one or two labs of 24 to 28 computers or, in one school, 16 computers. For classes with more students than the number of computers in the laboratory, ingenious approaches were developed to see that all students had the number of "computer lab periods." Until the last months of the third year of the Tesseract program, the number of computers in some schools fell short of the number needed to implement the model with minimum disruption to the rest of the instructional program.

The technology available to each student is impressive, and includes the computer, headphones and a mouse. However, except for the opportunity to use a sophisticated piece of equipment, and for the mouse point-and-mark technique which is a good introduction for later mouse use, there is little about the computer-using experience can be considered "preparation for the age of technology." The software is less impressive. The graphics are good, but limited and repetitious, and the mixed-drill, while providing supplementary phonics drill and practice exercises, is antithetical to authentic activities or a whole language approach.

An integrated learning system presents a series of lessons and is, essentially, an electronic workbook. Student complete each lesson at his or her own pace, and if a student has difficulty, there is "instruction" in the form of the exercise broken down into components, and the student led step-by-step through the compor nts. A student who completes a lesson satisfactorily progresses to the next; a student who can not do it after "instruction" and two or three tries is "sent down" to an earlier lesson.

Classes of students went to the computer lab two, three or four times a week. In one school that was not a school-wide Chapter I school, a whole class went to the computer lab twice a week; however, most Chapter I students went one extra period, and the "weakest" Chapter I students went two extra periods, and, as the lab manager said, "missed what ever the teacher is doing." In another school, students in grades 1, 4, and 5 went to the computer lab twice a week, and students in grades 2 and 3 went three times a week for "Chapter I time."

Both computer lab and classroom sessions were 20 minutes long for students in the lower grades and 30 minutes for students in the upper grades. Students were expected to complete seven sessions a week; for students in upper grades, this was three and one-half hours of computer "clock" time. Students were expected to complete a reading "lesson" and a mathematics "lesson" during each computer session.

In addition to the reading and mathematics sequences, one computer lab manager said that students in grades 3, 4 and 4 were also "enrolled' in a science program and a spelling program "which is really language arts", and were allowed to occasionally access the science and spelling programs. However, another decried the fact that even students well above grade-level in the reading program had to stick with reading and couldn't enroll in the science program.

The computer lab managers interviewed took pride in their role in the Tesseract program, one noted that she gave students "a nice, positive greeting," and most mentioned special efforts to maximize the ease of students' computer use for teachers. The lab managers spoke well of their training, and one said, "I love technology."

Most of the students on computers in the computer laboratories were intent on their work, and highly engaged. However, observers noted exceptions. One said, "Students at computers spend more time socializing than working," another said, "When finished in the computer lab, students are not sure what to do next," and a third said, "Students called this 'kill time'." Two of the computer lab managers mentioned the problem of "students who do not belong in a computer lab," and one of them said, "Students get bored and say, 'Why do we have to do this?'" although, the other said, "There are also students who would like to be in here a lot more." One observer, who had considerable experience with early CCC system installations, expressed surprise that students in a Tesseract school computer lab were not displaying the level of attentiveness usually characteristic of computer-assisted instruction.

CCC Classroom Computers in Tesseract Schools - Teachers were expected to "be diligent" in cycling all students through the four classroom computers each day, in order that each student log the necessary computer time each week. Observer records show that students were at computers during 61 percent of the observed classroom time. The practice of having students participate in the day's formal teaching activities, with students not going to computers until small group or independent activity time was fairly universal. While for many classes, the goal of having each student have a computer session was met, the classes where students were at the computers close to 100 percent of the observed class time were often those classes judged less effective by observers. Most classrooms had a published computer rotation schedule. In one class, the time-schedule was augmented by the practice of having each student, on completion of his or her session, tap the shoulder of the student scheduled to take his place.

While the classroom computer sessions were probably effective for most students, observers have noted the exceptions. Students at computers were seen watching or listing to the story if the teacher was reading aloud, leaving the computer after a few minutes to rejoin the teacher-led activity, swiveling in the computer chair at the teacher's workstation, or just sitting at the computer (in the observer's words, "It didn't look like any work was being done."). More seriously, one observer saw students "trying answers until they get the right one," and another noted that grade 5 students "guessed at the reading questions, although they worked the math problems."

CCC-generated Homework - During the third year of the Tesseract program, EAI placed emphasis on students regularly doing homework that used CCC-generated worksheets. The worksheets were made up of exercises at the student's current placement level on the integrated system; thus worksheets were individualized, and different for each student. Lab managers were conscientious about producing the worksheets to order for each requesting teacher.

The directive was implemented to varying degrees; not all teachers faithfully used CCC-generated work sheets, some did not use them at all, and the mathematics worksheets were more likely to be used than the reading worksheets. While usually mixed drill, worksheets could also focusing on those skills a student was having difficulty with. In variations on the use of worksheets for homework, they were used in some classes for morning drill, and one school made a point of see that students were sent home on the Wednesday half-days with a worksheet as homework.

<u>CCC Student and Class Reports</u> - Principals and EAI personnel monitored closely the CCC student and class reports to check that students were clocking sufficient computer time, and particularly, to see that teachers were seeing that students achieved sufficient computer time. Student computer "progress" is given as a grade-level equivalent, and CCC's "guarantee" of a year's growth is contingent on a specified number of hours at the computer. The CCC "gain scores" were watched closely, and one lab manager was pleased that, while students at that school had an expected gain of 1.6 years since September 1993, their actual gain had been 1.8 years.

Teachers sometimes shared student information from the computer with parents, usually the average mathematics and reading scores and a computer-generated list of skills that students "need to work on". However, as one lab manager pointed out, the Parent Reading Report is not accurate for all students.

The term "grade-level equivalent" had its basis in graded basal readers and mathematics textbooks, and no longer correlates quite so closely with a whole language- and whole mathematics-based curriculum. There has been an implicit expectation CTBS results would closely correspond to CCC gain scores. Because the computer-assisted instruction model has been implemented so faithfully, the Tesseract program has provided a demonstration project of its effectiveness with urban students, particularly in relation to CTBS results.

<u>Other CCC Equipment</u> - While video-disc projection equipment and some video-discs have been placed in all Tesseract schools, observers saw no indication of the use of the equipment or disks. The video-disc players are in every classroom although, although as one lab manager said, the video-disc players were in the schools a year before the video-discs. Video-discs are considerably more complicated than a movie or film strip, but have much more potential for active student involvement; however, video-disc use requires a considerable investment of teacher time in preparation for use.

A very large monitor has also been placed in every school. In one school, some lessons for kindergarten classes used the large monitor, and it may have been used in some schools for to show video-taped movies to a large audience. However, in at least two of the schools, the size of the monitor meant that it could not be moved from one floor to another.

<u>Non-CCC Computers in Tesseract Schools</u> - Edgewood has retained its TLC computers; the IBM system called Teaching and Learning with Computers that placed four networked computers with TLC software in each second through fifth-grade classroom in the spring of 1991. The principal said that teachers had become familiar with the TLC software and liked to draw upon it when a student needed help in a specific topic; the teachers had apparently not learned to access specific CCC lessons in the same way. The teachers also liked having the TLC computers in the room because of immediate access to a printer, in contrast to the single printer in the building for all CCC computers. An observer saw a grade 4 class which had developed a survey, used the classroom computers to type the question, administered the survey and compiled the results, and, at the time of the observation, students were using the computers to prepare the final report. In another class, the observer noted students at computers doing math problems which complemented the lesson on adding and subtracting fractions just taught; all students had a turn at the same set of computer-presented problems, instead of the individualized mixed-drill of the CCC computers.

From visits to principals, the project director learned that three of the five pre-K-5 schools that had Writing To Read labs in 1991-92 still have them; the Writing To Read computers at Edgewood and Dr. Rayner Browne have been placed in other schools. Harlem Park and Mildred

Monroe still used the Writing To Read labs in a modification of the full Writing To Read model, while the Writing To Read computers at Graceland Park O'Donnell Heights were used for student "publishing." A number of the computer lab managers in Tesseract schools had been Writing To Read computer lab managers.

Computers in Comparison Schools

Although less heralded than the Tesseract school technology, the comparison schools have acquired considerable technology over the last three or four years, largely with Chapter I funding, but also through a patchwork of grants and principal's discretionary funds, and, this year, donations. An overview of instructional computers in comparison schools is presented below:

Overview of Instructional Computers in the Comparison Schools

Furman Templeton	Writing To Read lab in regular use; Jostens computer lab not used during the 1994-95 school year; some use of Take Home computers in lower-grade classrooms; upgrade of Jostens lab with sufficient memory to allow use in 1995-96 underway; purchase initiated of a Satellite Receiving Center with television, VCRs and down-load and file-server for use in 1995-96.
Park Heights	Jostens computer lab in regular use by grades 1, 2 and 3; 50 or so donated IBM office computers placed in school during 1994-95, but plans for student use along with necessary software and teacher training not complete.
Pimlico	IBM Stories and More networked software in computer lab and on four computers in each classroom in grades 1, 2 and 3 and in regular use; Galaxy Classroom equipment of television and VCR in one classroom in each grade with down-load and file-server in the office and in regular use; purchase initiated of Sylvan integrated learning system for use in 1995-96.
Rosemont	IBM Stories and More networked software in computer lab in regular use by Chapter I students in grades 1, 2 and 3; 50 or so donated IBM office computers placed in school during 1994-95, as at Park Heights.
Alexander Hamilton	Writing To Read lab used by remedial and special education; other computers in classrooms.
Liberty	Macintosh lab of 15 computers with printers and CD-ROM players; 70 donated IBM office computers placed in school during 1994-95, as at Park Heights.
George Washington	Writing To Read lab new to the school in 1994-95 and used by grade 1 and grade 2; an Apple II networked lab of 15 computers and printers with a menu of MECC software, word processing software, and a new Cornerstone Basic Skills Language Program; 50 donated IBM office computers placed in school during 1994-95, as at Park Heights.

While the available technology was much less extensive in comparison schools than comparison schools, observers saw some instances of it well-used. A Stories and More software session with a grade 2 class was observed in a computer lab; the teacher introduced the story, The Mouse and

the Cookie, students reviewing the vocabulary orally, the teacher reading the story, some students doing worksheet exercises, all students making a "cookie hat" to wear back to the classroom, and students taking turns doing the activities on the seven computers in the computer lab. A Jostens session with a grade 3 class was observed in a computer lab. A classroom lesson for grade 2 students on "telling time" was observed, with students cycling through "telling time" activities on the four classroom computers after the presentation. The only instance of students working on computers in pairs and cooperatively "doing" the work was observed in a comparison school classroom.

Other Instructional Technology in Tesseract and Comparison Schools

Copier Worksheets - As noted, copier-reproduced worksheets were well-used at Tesseract schools. Students at one school read two copied fables, and underlined cause statements in red and effect statements in blue; students at another school read a copied fable and used a highlighter to mark either the lion's conversation or the mouse' conversation; and students at three schools used copied Venn diagram outlines to distinguish ways in which two characters were alike and ways that they were different. Usually, however, the copier-reproduced materials were either hand-written or made from "masters." However, in another use of copier-reproduced information, a grade 4 mathematics lesson was based on a chart of absentee ballots by Maryland county from the Baltimore Sun.

Availability of the copier, along with a variety of other methods of presenting information to students, was supposed to eliminate "copying from the blackboard" as a feature of Tesseract classrooms. While more prevalent on the blackboards of comparison schools than Tesseract schools, there were spelling word lists and homework assignments that were obviously meant to be copied in both Tesseract and control schools.

Ditto Worksheets - "Ditto" worksheets were also seen in use, more often in comparison schools. While most dittos were made from commercial ditto masters, the one "teacher-developed" worksheet seen used in a Tesseract school and a teacher-prepared information sheet used in a comparison school was produced on a ditto machine. In one comparison school, students were instructed not to write on the ditto worksheet, which were collected at the end of class, presumably for reuse.

Calculators - The absentee ballot lesson mentioned above also was the only instance of calculator use seen by any observer. The Tesseract teacher presented a mathematics lesson which used an overhead projector to project a transparency made from a newspaper article with the Maryland absentee ballot count a week after the election, and students worked with calculators to "add up" totals in different configurations of results.

Overhead Projectors - There was an overhead projector in almost every observed classroom, and they were often seen used. Most use of an overhead projector involved a transparency, which a teacher probably made using the school copier. A teacher in a comparison school displayed a map of Dorchester County in connection with the study of Harriet Tubman, and another teacher led "tic, tac, toe" using a projected matrix of consonant digraphs. As students in a comparison school used ditto worksheets, the teacher displayed the same worksheet on the overhead projector, and used it to give directions to the students. Similarly, another comparison school teacher had students working with a ditto-reproduced CTBS test-preparation exercise, and displayed the same exercise on the overhead projector.

Some use of the overhead projector involved the teacher or a student writing directly on a plain transparency. In one comparison school, a teacher used the overhead to demonstration multiplication of a 4-digit number by a 1-digit number, and then wrote a problem on the transparency for a student to come up and do. In another, the teacher had students do a math problem on the overhead, with the rest of the class signaling the correctness of an answer with ":humbs up" or thumbs down." In a grade 5 class in a comparison school, transparencies had been prepared with unlabeled graphs, and students added labels to the transparency while projected.

In comparison schools, math manipulatives were used with an overhead projector to show place value in subtraction in a grade 3 class and fractional parts of a circle in a grade 5 class, and an "overhead projector clock" was used for a telling-time lesson in a grade 2 class.

Record or Tape Player - The use of a recorded story was noted in one Tesseract classroom where, as a treat, it was played for the class; the teacher had not known that most students had heard the story before in another class.

Audio-Tape Player with Headphones - At least one Tesseract classroom and one comparison classroom was observed to have an audio-tape player with multiple headphones. While the equipment was not observed in use in the comparison classroom, a group in a Tesseract grade 5 class listed to the poem, Hiawatha. However, once out from under the eye of the teacher, the group listened, but didn't follow along in the book as they had been directed. Similarly, a Baltimore Sun reporter described a group listening to taped subtraction activity, but noted that the group didn't follow through on what had been assigned.

Slide or Filmstrip Projector - A slide projector was seen in a comparison school, but no use of either a slide projector or filmstrip projector was noted.

Video-Tape Player or Movie Projector - Observers saw one grade 5 class in a comparison schools saw a video of The Boy Who Cried Wolf as background for a discussion of cause and effect, and another grade 5 class involved in a lesson on the Lewis and Clark Expedition built around a videotape story of Sacagawea. A guidance counselor in a comparison school showed a grade 2 class a video on acceptable behavior.

An observer saw a grade 3 class in a comparison school spending most of a Friday afternoon watching a videotape of The Lion King, and the teacher explained that students "saved up points" to watch Friday afternoon videos. A observer in a Tesseract school heard the class morning meeting plans for most students in grade 5 class who would be going to the afternoon movie in the auditorium for students with perfect attendance that month. An observer at a school-wide Morning Meeting heard the announcement that The Lion King would be shown that afternoon (Wednesday) during the staff development period.

Other Technology - One Tesseract teacher used a microphone in a whole-language lesson on the conception of "contrast." He modeled contrast statements, such as "on the one hand....on the other hand", with a jack-in-the-box and a puppet, students wrote contrast sentences, and then students read their completed comparisons over a microphone.

Part IV: Researcher-Identified Issues

Issues Related to "Test Scores"

Percentage of students represented by scores - The percentage of students for whom 1994-95 CTBS test scores were reported in this document is only 75 to 80 percent of the students actually enrolled in a school. Thus the scores for 20 to 25 percent of the students were not reflected in the published scores for a grade or a school. The mean CTBS scores in this document do not include scores for students transferring into a school between February 1 and the end of the school year (including those who transferred into a school after the testing date in April), for students absent on the date of testing, for students with a "1" score, or for students receiving Level IV special education services. Note that Baltimore City Public Schools reports test scores for some but not all students receiving Level IV special education services.

Percentage of Grade 1 through 5 Students
for Whom CTBS Total Reading Scores Were Reported
1991-92 and 1994-95

Tesseract Schools		Comparison Schools		Baltimore City	
1991-92	1994-95	1991-92	1994-95	1991-92	1994-95
84%	80%	83%	75%	82%	80%

Source: Baltimore City Pupil Information File and CTBS File for Baltimore City

The percentage of reported test scores in 1994-95 was down from the 1991-92 level four percentage points in Tesseract schools and two percentage points Baltimore City schools, but eight percentage points in the comparison schools.

However, the percentage of students eligible for Level IV special education services declined by five percentage points in Tesseract schools, so it would be expected that the percentage of reported scores would have increased by five points. Thus there has been a decrease of nine percentage points in Tesseract schools over the expected level of reported test scores, which is comparable to the decrease in comparison schools. Similarly, but to a lesser degree, the percentage of students eligible for Level IV services declined by two points in Baltimore City schools, so it would be expected that the percentage of reported scores would have increased by two points. Thus there has been a decrease of four percentage points in Baltimore City schools over the expected level of reported test scores.

Stability of students - The percentage of continuously-enrolled students for whom CTBS test scores were reported was about one-half of the students actually enrolled in a school, as follows:

Percentage of Continuously Enrolled Grades 2 through 5 Students
for Whom CTBS Total Reading Scores Were Reported
1992-93 and 1994-95

Tesseract Schools		Comparison Schools		Baltimore City	
1992-93	1994-95	1992-93	1994-95	1992-93	1994-95
56%	56%	56%	51%	54%	51%

Source: Baltimore City Pupil Information File and CTBS File for Baltimore City

However, by adding one-half of the students in a school for whom scores were not reported in the mean NCE score for that group of schools, it can be estimated that nearly two-thirds of the students were continuously enrolled in a school for at least two full years, as follows:

Estimated Percentage of Continuously Enrolled Students
1994-95

Tesseract Schools	Comparison Schools	Baltimore City
68%	63%	66%

Source: Baltimore City Pupil Information File and CTBS File for Baltimore City

Mobility rates, derived from the number of entering students and withdrawing students, for some Baltimore City schools suggest a greater student turnover. With about 60 percent of a student body stable, high mobility rates suggest multiple transfers for a small group of students rather than a larger group of transferring students.

General decline in scores over grades - In general, the mean score for a grade declines over the grades in Baltimore City elementary schools, as in most urban school district. In 1994-95, grade-by-grade NCE total reading and total mathematics scores for Baltimore City elementary schools were as follows:

NCE Scores for Baltimore City Elementary Schools
1994-95

	Reading	Mathematics
Grade 1	47	50
Grade 2	44	49
Grade 3	44	46
Grade 4	44	45
Grade 5	40	48

Source: Baltimore City Pupil Information File and CTBS File for Baltimore City

While almost no single set of scores, including those displayed above, show each grade's scores as one or two points lower than the preceding grade's score, the grade 1 scores were almost always considerably higher than the grade 5 scores, and the scores for grades 1 and 2 were higher than the scores for grades 4 and 5. This decline would be even more evident with the inclusion of kindergarten scores.

In contrast, the decline over grades in the 1994-95 reading scores for Tesseract schools was less marked, although the decline over grades in mathematics scores considerably greater, as follows:

NCE Scores for Tesseract Elementary Schools
1993-94

	Reading	Mathematics
Grade 1	42	51
Grade 2	38	45
Grade 3	41	45
Grade 4	41	43
Grade 5	38	42

Source: Baltimore City Pupil Information File and CTBS File for Baltimore City

While the more uniform achievement of Tesseract schools in reading at each grade level may be an ideal, its accomplishment in 1993-94 represented relatively lower achievement in the early grades rather than increased achievement at the upper grades.

Gain scores - The gain score concept dates back to an earlier era when grade-equivalent scores were the more usual reporting method. Gain or change scores with NCE scores have less apparent meaning, because of the expectation that they will remain relatively constant for an individual over time, although any increase can be considered improvement.

Gain or change scores for matched students as the appropriate measure of student achievement have a built-in negative bias; change scores over two years on the CTBS, will, for most Baltimore City elementary students, show a loss or no change rather than a gain, even when their is an increase in the mean score, as shown in this example for the first two years of the Tesseract program.

NCE Scores for Baltimore City Elementary Schools
1991-92 and 1993-94

	Reading		Mathematics	
	1991-92	1993-94	1991-92	1993-94
Grade 1	46	47	49	52
Grade 2	43	45	46	50
Grade 3	43	47	44	48
Grade 4	43	44	43	45
Grade 5	39	41	46	48
Mean	43	45	46	48

Source: Baltimore City Pupil Information File and CTBS File for Baltimore City

As displayed in the table above, the total reading grade mean NCE scores were 46 for grade 1 in 1991-92 and 47 for those students two years later in grade 3 in 1993-94, 43 in grade 2 and 44 in grade 4, and 43 in grade 3 and 41 in grade 5, for no net gain, even though there was a mean gain of two points. The total mathematics grade mean NCE scores were 49 for grade 1 and 48 for grade 3, 46 in grade 2 and 45 in grade 4, and 44 in grade 3 and 48 in grade 5, for a net gain of 1/3 point, even though there was a mean gain of two points.

Again note that the table presents information for grades 1 through 5, while CTBS score information from Baltimore City Public Schools includes kindergarten. Kindergarten CTBS scores are usually higher than other scores, so the grade-by-grade decline in scores is more pronounced, and there may be a net loss instead of no gain.

EAI has said that the difference in NCE scores over a two-year period for matched students is the best measure of student achievement, and the Baltimore Sun presented matched-student gain score information for Tesseract, comparison and Baltimore City elementary schools, as follows:

Matched-Student Gain Scores for Grades 1 through 5
1991-92 to 1993-94

	Tesseract Schools	Comparison Schools	Baltimore City
Reading	-5.5	-3.1	-1.3
Mathematics	-5.2	-4.2	-0.6

Source: The Baltimore Sun, June 2, 1995, from data supplied by Baltimore City Public Schools

All group gain scores and most individual school gain scores were negative, representing a loss. Baltimore City "losses" of 1.3 points in reading and 0.6 point in mathematics contrast with the mean two-point gain in each subject; the information for Tesseract and comparison schools is similarly distorted.

Gain Scores in Relation to the Base Year - Data with 1991-92 (the pre-implementation year) as the base year was presented early in the documents under Findings from the Comprehensive Test of Basic Skills, as follows:

Three-Year Change in Mean NCE Scores on the Comprehensive Test of Basic Skills
for All Students in Grades 1 through 5*
1991-92 and 1994-95
*All Students were those enrolled by February 1 of the testing year and not Level IV special education and not "1" score

	Tesseract Schools			Comparison Schools			Baltimore City		
	1991-92	1994-95	Change	1991-92	1994-95	Change	1991-92	1994-95	Change
Reading	41	40	-1	39	39	0	43	44	+1
Mathematics	44	45	+1	41	42	+1	46	48	+2

Source: Baltimore City Pupil Information File and CTBS File for Baltimore City

A similar table can be presented, but with 1992-93 (the first year of the Tesseract program) as the base year, as follows:

Two-Year Change in Mean NCE Scores on the Comprehensive Test of Basic Skills
for All Students in Grades 1 through 5*
1992-93 and 1994-95
*All Students were those enrolled by February 1 of the testing year and not Level IV special education and not "1" score

	Tesseract Schools			Comparison Schools			Baltimore City		
	1992-93	1994-95	Change	1992-93	1994-95	Change	1992-93	1994-95	Change
Reading	38	40	+2	40	39	-1	44	44	0
Mathematics	39	45	+6	40	42	+2	46	48	+2

Source: Baltimore City Pupil Information File and CTBS File for Baltimore City

Thus the reading score change for Tesseract schools from the base year of 1991-92 is a one-point loss, while the change from the base year of 1992-93 was a two-point gain. Similarly, the mathematics score change for Tesseract schools from the base year of 1991-92 was a one-point gain, while the change from the base year of 1992-93 was a six-point gain. On the other hand, the reading score change for comparison schools from the base year of 1991-92 was no change and from the base year of 1992-93 a one-point loss, and the mathematics score change for Tesseract schools from the base year of 1991-92 was a one-point gain, while the change from the base year of 1992-93 was a two-point gain. The base year of 1992-93 displays the Tesseract program to an advantage, especially in relation to the comparison schools and Baltimore City schools, while the base year of 1991-92 displays it to a disadvantage.

"Three-year Matched Scores" versus "Two Year Students" - EAI has developed "three-year matched student scores" for students who took the CTBS in spring 1993 and again in spring 1995. The Baltimore City Public Schools Department of Research and Evaluation has used this score-reporting format previously, and presumably still uses the same criteria of a student continuously enrolled in the same school who was not receiving Level IV special education services in any of the three years and who was tested on the appropriate level of the CTBS form.

The "three years" is misleading; the spring 1995 testing date was two years later than the spring 1993 testing date. Thus a student had been enrolled for 24 months, and been part of the instructional program for 20 months. The UMBC data analysis for "two-year students" was for students who had been at the school from September 1 of the preceding school year; thus a student had been enrolled for 19 months, and been part of the instructional program for 17 months. The "three-year matched cohort" is similar to the "two-year students" in this report.

The concerns with the "three-year matched cohort" data analysis are that it is really a two-year rather than a three-year longitudinal study and that it uses the base year of 1992-93, when scores in Tesseract schools had declined below the pre-implementation year, rather than the pre-implementation year of 1991-92.

Comparison of NCE Scores and Percentile Scores - The use of NCE scores to report the achievement level of Baltimore City elementary schools has conveyed the impression that achievement is closer to the national average than percentile scores would indicate, as follows:

NCE and Percentile Mathematics Scores
1994-95

	Baltimore City		Tesseract Schools	
	NCE	Percentile	NCE	Percentile
Grade 1	50	50	42	39
Grade 2	49	49	38	33
Grade 3	46	44	41	37
Grade 4	45	42	41	37
Grade 5	47	46	38	33

Source: Baltimore City Pupil Information File and CTBS File for Baltimore City

NCE, or National Curve Equivalent, scores have intrinsic properties that make them the correct score form for use in comparison and computations across grades, which may include finding the school mean score for students in all grades or finding the matched-student gain score. The interval between each point represents the same differential of achievement. While there is a range of scores from 1 to 99, NCE scores cluster near the mid-point of 50 for a bell-shaped curve of the frequency of scores, with two-thirds of the NCE scores falling in the interval from 34 to 66. In contrast, percentile scores flatten the bell-shaped curve over the whole range of 1 to 99, and two-thirds of the percentile scores in the interval from 16 to 83. Thus a NCE reading score of 45 for Baltimore City grade 4 students is at the 42nd percentile, while an NCE score of 38 for Tesseract school grade 3 and grade 5 students is at the 33rd percentile.

Ironically, once Baltimore City scores rise to above the national average, it is almost certain that score reporting will be in percentile rather than NCE form!

The Practice Effect of Fall Testing - The Tesseract schools have had a fall testing program during the 1993-94 and 1994-95 school years, using alternate forms of the Comprehensive Test of Basic Skills, in addition to the spring administration of the CTBS in all Baltimore City elementary schools. In 1994-95, the fall testing program took place during the first week of November, just over five months before the spring administration in April, and close enough to the spring test to be considered to have a small "practice effect" that increases scores.

Alternatives to Test Scores as an Indicator of School Success - Test scores are not the only indicator of school success. A norm-referenced test like the CTBS have the built-in disadvantage that one-half of the students in the country will always be below the national average, and as tests are renormed to reflect improved teaching and learning, schools which may have been above the 50th percentile can fall below. In contrast, a standards-based test like the MSPAP can reflect improved teaching and learning, and a standards-based test anchored in a respected philosophy can be a test score that is a worthy measure of a successful school program.

Stability or increase in enrollment can be an indicator of success, as parents "vote with their feet" to enroll a child in a school with an attractive program, and keep a child in a school because the program is serving the child well. Improvement in the various attendance measures can be an indicator of success. Long-term data-based indicators of success can include better attendance at the middle and high school levels and staying in school once a student is 16, particularly staying in school through high school graduation. The school record of students receiving Level IV special education services or of Tesseract students who would otherwise have been identified as

eligible to receive Level IV special education services can be another long-term indicator of school success.

Non-data-based indicators are elusive, but could include recognition of the accomplishments of the faculty in the larger education arena and the participation of students and teams in city-wide and regional student activities. At the school level, student selection of more challenging activities within the academic program and student participation in non-compulsory school activities are potential measures. Negative measures, or indicators of school non-success include records of student disciplinary actions and, beyond that, police records.

Issues Related to the Tesseract Program

Based on their activities in carrying out the UMBC Evaluation of the Tesseract Program in Baltimore City, the research team has developed the following observations:

1. The accomplishments of Educational Alternatives, Inc. in the management of seven elementary schools in Baltimore City are considerable, particularly in the area of change in classroom instructional practices toward varied activities, flexible grouping and a focus on the individual student. The initial test score decline was substantial, with the lost ground recovered only by the end of the third year, and early implementation problems were accentuated by the opposition of the Baltimore Teachers Union. However, EAI would not be faulted for the level of change already accomplished in Tesseract schools were it not for the public's expectation of immediate and substantial change, and the symbolism of "a really different education" implied by the Tesseract name. Nevertheless, the early problems have been largely resolved and the infrastructure for program management is now in place. Change takes time and there has been an investment in the first three years that can be recouped by continuation. Should the Tesseract program continue through the last two years of the contract, EAI has an obligation to effect real improvement in the schools that they have been managing and to demonstrate an excellent urban education program. In turn, it is important that Baltimore City have an appropriate monitoring mechanism of the EAI contract and its components.

2. Change takes courage, and Baltimore City Public Schools boldly took a step that was controversial and different. BCPS is to be commended for considering an untried but promising approach, and allowing EAI full rein to implement its program. The EAI experience has focused public attention on Baltimore City schools in ways that ultimately benefit student achievement in all schools. Interestingly, the three-year period of EAI management of Baltimore schools parallels the initial three-year funding period of nine models of school change by the New American School Development Corporation, and the track record of the NASDC schools is not that different from EAI. Like the Tesseract program, the nine models initially lacked specificity of program, proved harder to implement than expected, and have not resulted in dramatic increases in test scores.

3. The promise that EAI could improve instruction without spending more than Baltimore City was spending on schools has been discredited. The exact level of difference between Tesseract and comparison schools in spending for school-based and non-school-based costs has yet to be determined, although the difference between Tesseract and comparison schools for school-based costs will be 11.2 percent in 1995-96. Understandably, there is an expectation of visible and significant results for an increase in expenditure. However, EAI management of the seven Baltimore City elementary schools at a cost of 11 percent more than comparison schools is not an excessive price differential for significant school improvement efforts in a school system with a per-pupil spending level that is considerably lower than the average per-pupil spending in Maryland school systems. In fact, an 11 percent differential is modest for a substantive level of program transformation, which will require some outside expertise; stipends for teachers for summer curriculum work and additional summer and school year staff development, and for teachers and interns for an extended-day enrichment program for upper elementary students; and a proper level of compensation and benefits for interns.

4. The evaluation team found Tesseract and comparison schools more alike than different, and the researchers saw innovation in leadership and teaching in the comparison schools. The new managerial latitude for all Baltimore City schools was in evidence at the comparison schools, the

visible level of maintenance was high, the chronic shortage of books and materials had been overcome by a substantial level of spending for instructional materials in the 1992-93 school year, formal staff development in comparison schools was, for most schools, at least as extensive as at Tesseract schools, and Chapter I monies and various school initiatives have brought considerable technology into Baltimore City elementary schools.

5. To date, the "management expertise" that the private sector should be able to bring to bear on a public enterprise has not been sufficient for the expected level of transformation of the Tesseract schools in Baltimore City. The evaluation team inferred inadequate strategic planning processes in a number of areas. These include the selection and training of interns and the provision of ongoing training involving both interns and teachers; the non-focused aspects of staff development; and an inadequately-operationalized Tesseract Way program statement. However, EAI has made an important management contribution through the Tesseract validation process which has de.nonstrated a monitoring mechanism for the implementation of a program at the classroom level.

6. EAI was not as constrained by Baltimore City Public Schools requirements as some of their public statements would suggest and, in actuality, they were freed of many. It is important to differentiate the mandates or constraints of Baltimore City Public Schools, the Maryland State Department of Education, and the negotiated agreement with the Baltimore Teachers Union. On the other hand, with its eye on the national arena, EAI has not been attuned to the significance of the Maryland School Performance Assessment Program and its potential role in the transformation of instruction.

7. The evaluation team found too much instructional time devoted to testing and, particularly, to test preparation in Baltimore City schools. The preoccupation with test scores, and the concomitant use of instructional time for testing and test preparation, was particularly evident at Tesseract schools, where, instead of moving toward less testing, EAI added a fall administration of the CTBS. Baltimore City has been unique among Maryland school systems in administering the CTBS to all students in kindergarten through grade 5 instead of only at grades 3, 5 and 8, although Title I (formerly Chapter I) has required this level of testing. This may change as the Maryland School Performance Assessment Program becomes acceptable for Title I program monitoring. Already, BCPS has cut testing time by not administering the Language portion of the CTBS in 1994-95.

8. Recent public statements that EAI will "bring in our own curriculum" are apparently not true, but EAI does plan a curriculum realignment to more nearly match the Maryland State Outcomes. The Tesseract Way is an instructional approach rather than a curriculum; however, basing the Tesseract program on a coherent, focused curriculum should be considered, including the provision of books and materials specific to the curriculum. Any specification of curriculum should not ignore the work of the National Science Foundation-funded Urban System Initiative in Baltimore City in mathematics and science, the directions set by the Maryland School Performance Assessment Program tasks, or the opportunity for the development of a program with a Baltimore and urban context. Curriculum delineation should be comprehensive rather than piece-meal, and EAI's summer work on the development of a series of activities to "prepare students for the MSPAP" at every grade level may miss the point that the MSPAP should influence instruction by changing the teaching process rather than by adding another "test preparation" activity.

9. EAI is to be commended for focusing attention on the central role of staff development in changing instruction; however, the Tesseract staff development program has fallen short of its promise. While two-hours a week of formal staff development sessions had been provided during the first year, by the middle of the third year, formal staff development sessions were held once or twice a month in most schools. Tesseract staff development has focused on teaching strategies and, indeed, the evaluation team observed substantial use of the strategies in the classroom. The staff development was generalized, however, and EAI has not yet tied staff development to specific content, and particularly to content at the various grade levels. While the school has been the unit of EAI's strategies-based staff development, inter-school grade-level staff development is a more appropriate unit of content-based staff development which should include familiarization with technology-delivered enrichment for curriculum topics, with stipends to teachers for full-afternoon attendance. In addition, EAI staff development needs to encompass teacher visits to school sites to see well-implemented aspects of The Tesseract Way, the sharing of teacher expertise with colleagues, and attendance at conferences and workshops sponsored by professional societies and by colleges and universities in Maryland.

10. Computer-assisted instruction was sufficiently implemented in the Tesseract schools so that the CCC reading integrated learning system was given a fair test of its effectiveness in raising test scores. After two full years, the CTBS reading scores were not sufficiently improved to establish the success of the reading integrated learning system. The CCC mathematics integrated learning system may be worth retaining, but with the addition of occasional sessions that reinforce or extent the concept taught in the classroom that day. The model of computer use that draws students away from classroom instruction should be rethought, and the focus on seeing that students "clock" as much as three hours a week of computer time dropped. The intensive use of computers for drill and practice is incompatible with the whole language and whole mathematics philosophy of The Tesseract Way. With the level of equipment that has been placed in schools, there is now an opportunity to use computers for imaginative instruction and to immerse students in exciting and useful information.

11. It has been gratifying to learn that Tesseract school principals support the Tesseract philosophy, and that most teachers support the philosophy of the school. Principals said that, even if EAI's contract were not continued, they would hope to hold on to many of the meritorious aspects of the Tesseract program, including cooperative learning strategies, flexible grouping, the second degreed-adult in the classroom, the Personal Education Plan, computer technology, morning meetings and staff development. The evaluation team saw these components implemented, but not always well-monitored, and often with monitoring focusing on quantitative rather than qualitative aspects.

12. EAI is to be commended for its success in cutting the number of students eligible for Level IV special education services, its mission to educate otherwise-segregated students in the regular classroom, and its efforts to eliminate the fragmentation of "pull-out" instruction through a full inclusion program for students needing special services. This aspect of the Tesseract program, if eventually judged successful, may be EAI's shining contribution to urban education. However, the program needs careful evaluation to determine whether the students who would otherwise have been identified as eligible for Level IV special education services have been well-served, particularly since EAI has cut the number of students eligible for all special education services; this may mean that students that should be receiving services are not. It needs to be pointed out that the inclusion in test score reporting for Tesseract schools of the students who, in other schools, would be identified as Level IV special education students and whose scores would thus not be reported, almost certainly accounts for some of the lack of increase in CTBS test scores over the pre-implementation year in this report, although not necessarily in test score reporting for

Baltimore City Public Schools. To the extent that students who would otherwise have been identified as eligible for Level IV special education services have depressed test scores, EAI has paid a great public relations cost for its decrease in the number of students eligible for special education services.

13. It is difficult for any program of school reform to be successful without the full support of teachers. The opposition of the Baltimore Teachers Union and the American Federation of Teachers to EAI management of schools in Baltimore City has drawn attention to the importance of securing the support of a school's faculty in the initiation of any program of change. On the national level, the AFT has been a proponent of school improvement efforts, and their new report on expectations for student learning put the American Federation of Teachers in the forefront of national curriculum change efforts. The AFT and BTU could look to Baltimore City as one arena for development and implementation of their ideas, either in partnership with EAI as EAI undertakes curriculum revision, or in another subset of schools.

14. The fact that EAI did not close off the open classrooms at their only open space elementary school is inexplicable. This is a physical facilities modification that would have demonstrated a commitment to an optimum learning environment for students. Alternately, there is an opportunity to use the facility to demonstrate a true team-teaching instructional model.

15. The less-than-complete success of EAI management of some Baltimore City schools does not mean that private management of public schools can not work. On the other hand, there have been lessons learned from this experience that can be applied without private management. John Golle's words, spoken in a number of contexts, are worth repeating; "It isn't something that they can't do, but they don't do it." Two compensation issues arise from the Baltimore experience. First, while per-pupil cost is an appropriate reimbursement level for managing a whole school system, a proper level for a subset of schools is a more difficult issue. Second, privatization that is restricted to "managing daily operations" should not be reimbursed at the same level as private management that also encompasses the instructional program.

Part V: Appendices

The School-by-School Data Appendix

End-of-School-Year Enrollment of Students in Grades 1 through 5

Tesseract	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1994-95	258	187	440	345	345	510	342	2427
1993-94	275	206	493	370	341	535	304	2524
1992-93	265	209	523	395	372	575	306	2645
1991-92	221	210	502	379	358	597	314	2581

Group I	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1994-95	449	236	484	347	497	476	320	2809
1993-94	441	252	499	379	520	475	320	2886
1992-93	414	309	519	402	538	514	330	3026
1991-92	421	309	512	427	560	565	327	3121

Group II	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1994-95	349	236	484	289	361	476	320	2515
1993-94	406	252	499	328	394	475	320	2674
1992-93	342	309	519	354	417	514	330	2785
1991-92	347	309	512	389	423	565	327	2872

Source: Baltimore City Pupil Information File

1994-95 Enrollment as Percentage of 1991-92 Enrollment

Tesseract	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1994-95	117%	89%	88%	91%	96%	117%	110%	94%
Group I	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1994-95	107%	76%	95%	81%	89%	84%	98%	90%
Group II	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1994-95	100%	76%	95%	74%	85%	84%	98%	88%

Source: Baltimore City Pupil Information File

Attendance Information for Students in Grades 1 through 5

Attendance Rate

Tesseract	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1994-95	92%	92%	93%	94%	95%	93%	92%	93%
1993-94	92%	94%	93%	93%	93%	94%	93%	93%
1992-93	92%	93%	90%	94%	93%	92%	92%	92%
1991-92	9 %	91%	92%	93%	94%	92%	93%	93%

Group I	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1994-95	94%	94%	92%	93%	96%	94%	95%	94%
1993-94	94%	95%	92%	94%	96%	95%	96%	94%
1992-93	93%	91%	87%*	93%	96%	93%	93%	92%*
1991-92	93%	92%	92%	94%	95%	93%	94%	93%

Group II	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1994-95	92%	94%	92%	93%	94%	94%	95%	93%
1993-94	93%	95%	92%	93%	96%	95%	96%	94%
1992-93	93%	91%	87%*	91%	92%	93%	93%	91%*
1991-92	93%	92%	92%	91%	93%	93%	94%	92%

Source: Baltimore City Pupil Information File for 1991-92, 1992-93, 1993-94 and 1994-95
Note: *The Pimlico attendance information for 1992-93 may be incorrect, thus distorting the summary information for Group I Schools and Group II Schools

Average Number of Days Absent

Tesseract	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1994-95	13	13	11	11	9	12	13	12
1993-94	13	10	12	11	11	11	12	12
1992-93	14	12	17	11	12	13	14	13
1991-92	13	15	14	11	11	13	12	13

Group I	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1994-95	11	10	13	12	6	10	9	10
1993-94	10	8	13	11	7	9	7	9
1992-93	13	15	23*	12	5	11	11	13*
1991-92	12	11	14	11	8	13	11	12

Group II	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1994-95	14	10	13	12	10	10	9	11
1993-94	12	8	13	11	7	9	7	10
1992-93	11	15	23*	15	14	11	11	15*
1991-92	13	14	14	11	11	13	11	13

Source: Baltimore City Pupil Information File for 1991-92, 1992-93, 1993-94 and 1994-95
Note: *The Pimlico attendance information for 1992-93 may be incorrect, thus distorting the summary information for Group I Schools and Group II Schools

Attendance Information for Students in Grades 1 through 5, Continued

Percent of Students Absent Less Than 5 Days

Tesseract	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	Total
1994-95	32%	25%	33%	33%	34%	31%	29%	31%
1993-94	26%	33%	25%	25%	32%	29%	29%	28%
1992-93	26%	26%	18%	27%	23%	25%	23%	24%
1991-92	30%	24%	23%	25%	35%	23%	28%	26%

Group I	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	Total
1994-95	33%	33%	26%	28%	54%	28%	41%	35%
1993-94	32%	32%	26%	32%	48%	33%	45%	36%
1992-93	27%	16%	0%*	27%	50%	27%	27%	25%*
1991-92	27%	22%	21%	30%	35%	25%	27%	27%

Group II	Templeton	Pk Heights	Pimlico	Rosemont	A. Hamiltn	Liberty	Washingtn	Total
1994-95	21%	33%	26%	28%	31%	28%	41%	29%
1993-94	22%	32%	26%	22%	41%	33%	45%	32%
1992-93	29%	16%	0%*	19%	20%	27%	27%	25%*
1991-92	27%	22%	21%	21%	28%	25%	27%	25%

Source: Baltimore City Pupil Information File for 1991-92, 1992-93, 1993-94 and 1994-95
Note: *The Pimlico attendance information for 1992-93 may be incorrect, thus distorting the summary information for Group I Schools and Group II Schools

Percent of Students Absent More Than 20 Days

Tesseract	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	Total
1994-95	20%	18%	15%	16%	10%	16%	20%	16%
1993-94	19%	12%	18%	12%	15%	13%	18%	15%
1992-93	21%	19%	31%	12%	17%	17%	20%	20%
1991-92	18%	26%	22%	13%	18%	16%	19%	19%

Group I	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	Total
1994-95	14%	12%	19%	18%	5%	13%	8%	13%
1993-94	12%	6%	21%	14%	5%	7%	5%	10%
1992-93	17%	24%	45%*	19%	3%	13%	12%	19%*
1991-92	17%	22%	22%	15%	8%	19%	15%	17%

Group II	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	Total
1994-95	22%	12%	19%	15%	12%	13%	8%	15%
1993-94	18%	6%	21%	14%	4%	7%	5%	9%
1992-93	14%	24%	45%*	26%	20%	13%	12%	19%*
1991-92	21%	22%	22%	22%	15%	19%	15%	19%

Source: Baltimore City Pupil Information File for 1991-92, 1992-93, 1993-94 and 1994-95
Note: *The Pimlico attendance information for 1992-93 may be incorrect, thus distorting the summary information for Group I Schools and Group II Schools

Level IV Special Education Students

Percentage of Students Eligible for Level IV Special Education Services in Grades 1 through 5

Tesseract	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1994-95	5%	6%	3%	1%	2%	1%	1%	2%
1993-94	6%	4%	3%	1%	2%	2%	2%	3%
1992-93	13%	6%	8%	0%	7%	3%	3%	5%
1991-92	15%	8%	10%	3%	9%	5%	12%	8%

Group I	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1994-95	5%	6%	7%	6%	5%	10%	7%	6%
1993-94	8%	7%	6%	7%	4%	10%	7%	7%
1992-93	8%	7%	7%	9%	4%	9%	9%	7%
1991-92	10%	7%	8%	8%	4%	8%	7%	7%

Group II	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1994-95	9%	6%	7%	3%	5%	10%	7%	7%
1993-94	12%	7%	6%	4%	6%	10%	7%	8%
1992-93	10%	7%	7%	5%	5%	9%	9%	8%
1991-92	9%	7%	8%	8%	6%	8%	7%	7%

Source: BCPS Pupil Information File, 1991-92, 1992-93, 1993-94 and 1994-95

Percentage of Students Eligible for Level IV Special Education Services in Grade 5

Tesseract	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1994-95	8%	19%	3%	3%	4%	2%	6%	5%
1993-94	8%	10%	7%	0%	2%	5%	1%	4%
1992-93	30%	16%	13%	0%	11%	8%	12%	12%
1991-92	22%	22%	11%	7%	15%	10%	24%	14%

Group I	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1994-95	6%	9%	14%	13%	9%	19%	11%	11%
1993-94	14%	11%	5%	9%	3%	11%	6%	8%
1992-93	15%	12%	9%	18%	2%	10%	6%	10%
1991-92	15%	13%	10%	14%	3%	10%	11%	10%

Group II	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1994-95	16%	9%	14%	7%	10%	19%	11%	13%
1993-94	19%	11%	5%	7%	13%	11%	6%	12%
1992-93	11%	12%	9%	15%	8%	10%	6%	10%
1991-92	11%	13%	10%	15%	9%	10%	11%	11%

Source: BCPS Pupil Information File, 1991-92, 1992-93, 1993-94 and 1994-95

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Staffing and Class Size Information

Number of Grade 1 through 5 Classrooms, Enrollment in Grades 1 through 5, and Estimated Class Size, 1994-95

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
Elementary teachers	10	6	17	13	14	20	11	91
Self-contained DEC teachers	1	1	1	1	1	1	0	6
Classroom master teachers	0	1	0	0	0	0	0	1
Total grades 1 - 5 classrooms	11	8	18	14	15	21	11	98
Enrollment in grades 1 - 5	259	199	466	358	333	522	330	2467
Estimated class size	24.7	26.7	26.7	26.6	22.9	25.5	30.0	26.0

Group II Comparison Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
Elementary teachers	13	8	15	10	13	16	14	89
Self-contained DEC teachers	2	2	3	2	2	3	2	17
Classroom master teachers	0	1	1	0	1	0	0	2
Total grades 1 - 5 classrooms	16	10	18	12	15	19	16	106
Enrollment in grades 1 - 5	360	250	500	312	351	460	314	2565
Estimated class size	25.8	28.3	30.9	28.8	25.6	26.5	20.7	25.9

Source. BCPS Personnel Staffing Report and , September 30. 1994 enrollment data
Note: September 30, 1994 enrollment will differ from 1994-95 end-of-year enrollment used elsewhere in this report.

Number of Grade 1 through 5 Classrooms, Enrollment in Grades 1 through 5, and Estimated Class Size, 1991-92

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
Elementary teachers	10	7	23	13	12	19	15	99
Self-contained DEC teachers	3	2	4	1	3	2	3	18
Classroom master teachers	0	0	0	0	0	0	0	0
Total grades 1 - 5 classrooms	13	9	27	14	15	21	18	117
Enrollment in grades 1 - 5	221	210	502	379	358	597	314	2581
Estimated class size	18.5	26.6	19.7	28.2	26.8	26.9	18.5	23.9

Group II Comparison Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
Elementary teachers	15	9	17	14	14	18	13	100
Self-contained DEC teachers	3	2	3	3	3	2	3	19
Classroom master teachers	0	0	0	0	0	0	0	0
Total classrooms	18	11	20	17	17	20	16	119
Enrollment in grades 1 - 5	347	309	512	389	428	565	327	2884
Estimated class size	17.5	31.7	28	25.2	28	30.0	22.7	26.6

Source: BCPS Personnel Staffing Report and Pupil Information File, 1991-92

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Observed Class Size

Number of Students in Grades 2 through 5 Classrooms, 1994-95

Tesseract	Browne	M. Monroe	Harlem Park	Edgewood	S. Roach	M. Rodman	Graceland	Tesseract
Grade 2	17,27	26,23	28,26,21	25,20	22,19,22	26,20,18,24	31	23.2
Grade 3	20	30,27	19,20	20	28,22	26,23	30	24.1
Grade 4	22,21,20	32	26,19,27	32,26	23	20,24,22	29,29	24.9
Grade 5	26	-	24	28	-	22,24	24	24.7
Mean Size	21.9	27.6	23.3	25.1	22.7	22.9	26.3	24.1
Group II	Templeton	Pk. Heights	Pimlico	Rosemont	A. Hamiltn	Liberty	Washington	Group II
Grade 2	20,20,22	16,18	20,24	17,18,19	15,25,18	26,22,21,33	22,23,24	23.2
Grade 3	25,27	24	28,28	-	28	21	19	24.1
Grade 4	18,17,22,18	18	27,28	34	28	32	30,29	24.9
Grade 5	17	25	26,23	33	31	31	26	24.7
Mean Size	20.6	20.2	25.5	24.2	24.2	27.0	25.0	24.6

Source: Classroom observations for UMBC Evaluation of the Tesseract Program

Note: The number of students was counted at the beginning and end of an observation, and the higher number recorded. For teachers observed more than once, the higher number was used. "Combination" classes (3/4 or 4/5) were listed as the lower grade. The number of classes in this table is less than the total number of classes observed because class size information was not recorded for a few observations.

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Staffing and Staff Stability Information

Elementary Teachers, Length of Service, and Teachers and Principal Still at the School, 1994-95

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
Elementary teachers	10	6	17	13	14	20	11	91
Average length of service	13.0	20.3	6.1	13.0	7.8	11.3	12.4	10.9years
Number, 10 or more years	4	4	4	6	3	8	4	33
Number, 3 or less years	3	1	11	3	6	7	3	34
Teachers from 1991-92	4+1*	5	4	9	6	11	6	46
Principal from 1991-92?	no	no	n/a	yes	yes	yes	no	

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
Elementary teachers	13	8	15	10	13	16	14	89
Average length of service	12.0	18.0	21.5	10	7.0	14	10.0	13.1years
Number, 10 or more years	5	5	12	3	2	7	5	39
Number, 3 or less years	5	2	2	3	8	3	7	30
Teachers from 1991-92	11+1**	7	11	7	5	9	6	56
Principal from 1991-92?	yes	no	yes	yes	yes	yes	no	

Source: BCPS Personnel Staffing Report , 1994-95
Note: *A master teacher who was an elementary teacher in 1991-92
   **A Kindergarten teacher who was an elementary teacher in 1991-92

Elementary Teachers and Length of Service, 1991-92

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
Elementary teachers	10	7	23	13	12	19	15	99
Average length of service	20.0	21.0	8.7	13.3	13.8	8.0	7.0	11.5years
Number, 10 or more years	7	6	9	8	6	14	4	54
Number, 3 or less years	3	1	11	3	5	3	10	36

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
Elementary teachers	15	9	17	14	14	18	13	100
Average length of service	11.6	18.8	19.6	9.5	11.7	15.0	12.0	14.0years
Number, 10 or more years	6	7	14	5	7	10	8	57
Number, 3 or less years	8	2	3	7	3	4	4	31

Source: BCPS Personnel Staffing Report , 1991-92

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Staffing for School Leadership Positions

Principals, Assistant Principals, Master Teachers, and Guidance Counselors, 1994-95

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
Principal	1	1	0	1	1	1	1	6
Assistant principals	1	0	1	1	1	1	1	6
Master teachers	1	1	1	1	1	1	2	8
Guidance counselor	0	0	1	0	.5	.5	.5	2.5

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
Principal	1	1	1	1	1	1	1	7
Assistant principals	1	.5	1	1	.5	1	.5	5.5
Master teachers	1	2	1	0	0	0	1	5
Guidance counselor	0	1	.5	.5	1.1	0	.5	3.6

Source: BCPS Personnel Staffing Report s, 1994-95

Principals, Assistant Principals, Master Teachers, and Guidance Counselors, 1991-92

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
Principal	1	1	0	1	1	1	1	6
Assistant Principals	.5	.5	1	.5	.5	1	.5	4.5
Master Teachers	0	0	0	0	0	0	0	0
Guidance Counselor	1	.5	.5	.5	.5	.5	1	4.5

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
Principal	1	1	1	1	1	1	1	7
Assistant Principals	1	.5	1	.5	.5	1	0	4.5
Master Teachers	2	1	1	1	0	0	2	7
Guidance Counselor	0	.5	.5	.5	1	0	.5	3

Source: BCPS Personnel Staffing Report s, 1991-92

Staffing for Enrichment Positions

Art, Vocal Music and Physical Education, Total "Planning Time" Positions, and Instrumental Music Positions, 1994-95

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
Art positions	1	1	1	0	0	0	0	3
Vocal music positions	0	0	0	0	1	.5	0	1.5
Physical education positions	0	.4	0	.4	0	.6	0	1.0
*Total "planning" positions	1	1.4	1	0	1	1.1	0	4.5
Instrumental music positions	0	0	0	.4	0	0	0	0.4

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
Art positions	0	.4	.8	.4	.4	.5	.2	2.7
Vocal music positions	0	0	.5	.4	.4	0	.2	1.5
Physical education positions	.2	.4	.8	0	0	.5	.4	2.3
*Total "planning" positions	.2	1	2.1	1.2	1	1	.8	6.4
Instrumental music positions	0	.2	0	.4	.2	0	0	0.8

Source: BCPS Personnel Staffing Report, 1994-95

Art, Vocal Music andPhysical Education Positions, Total "Planning Time" Positions, and Instrumental Music Positions, 1991-92

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
Art positions	.3	.4	.6	.5	.4	.6	.3	3.1
Vocal music positions	.3	.3	.7	.5	.4	.7	.4	3.3
Physical education positions	.4	.2	.4	.4	.4	.6	.2	2.6
*Total "planning" positions	1.0	.9	1.7	1.4	1.2	1.9	.9	9.0
Instrumental music positions	.2	0	0	.2	0	0	0	0.4

Group II Comparison Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
Art positions	0	.4	.7	.5	.4	.5	1	3.5
Vocal music positions	.5	.3	.7	.4	.4	.5	.4	3.2
Physical education positions	.4	.2	.4	.4	.4	.4	.4	2.6
Total "planning" postions	.9	1.1	1.8	1.3	1.4	1.4	1.8	9.7
Instrumental music positions	0	.2	0	0	.2	0	0	0.4

Source: BCPS Personnel Staffing Report. 1991-92

Note: Art, vocal music and pysical eduaton classes are usually used as teacher "planning -time"

Maryland School Performance Assessment Program Results, 1992-93 and 1993-94

Students enrolled before February 1 of the assessment year and not Level IV special education or non-English proficient

Grade 3 Results for Tesseract Schools as Percent of Students Scoring Satisfactory

1993-94	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
Students Testable	39	29	80	69	67	91	51	426
Reading	10.3%	3.4%	2.5%	10.1%	7.5%	4.4%	0.0%	5.4%
Mathematics	15.4%	0.0%	3.8%	14.5%	0.0%	2.2%	5.9%	5.6%
Social Studies	7.7%	3.4%	1.3%	15.9%	7.5%	5.5%	2.0%	6.3%
Science	15.4%	0.0%	2.5%	27.5%	6.0%	2.2%	3.9%	8.2%
Writing	7.7%	0.0%	2.5%	23.2%	16.4%	8.8%	11.8%	10.8%
Language Usage	15.4%	0.0%	6.3%	29.0%	13.4%	9.9%	5.9%	12.2%
Mean	12.0%	1.1%	3.2%	20.0%	8.5%	5.5%	4.9%	8.1%

1992-93	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
Students Testable *	--	--	--	--	--	--	--	--
Reading	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Mathematics	0.0%	0.0%	0.0%	8.0%	18.3%	0.0%	1.5%	4.4%
Social Studies	0.0%	6.3%	0.0%	10.7%	11.3%	3.0%	4.4%	5.1%
Science	4.7%	0.0%	1.0%	16.0%	15.5%	1.0%	2.9%	6.2%
Writing	14.0%	6.3%	4.8%	18.7%	29.6%	14.0%	11.8%	14.7%
Language Usage	9.3%	9.4%	1.0%	12.0%	19.7%	18.0%	4.4%	11.1%
Mean	5.6%	4.4%	1.4%	13.1%	18.9%	7.2%	5.0%	8.3%

Source: Maryland School Performance Report for Baltimore City Public Schools. 1994

* Number Testable from 1993-94 was used in the computation of weighted mean percent scoring satisfactory for all schools

Grade 5 Results for Tesseract Schools as Percent of Students Scoring Satisfactory

1993-94	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
Students Testable	42	39	73	77	51	102	59	443
Reading	7.1%	0.0%	2.7%	11.7%	9.8%	5.9%	5.1%	6.3%
Mathematics	9.5%	10.3%	2.7%	5.2%	2.0%	9.8%	0.0%	5.6%
Social Studies	4.8%	7.7%	1.4%	1.3%	7.8%	8.8%	3.4%	5.0%
Science	2.4%	7.7%	0.0%	3.9%	2.0%	4.9%	3.4%	3.4%
Writing	2.4%	20.5%	4.1%	2.6%	17.6%	9.8%	10.2%	8.8%
Language Usage	9.5%	20.5%	2.7%	13.0%	7.8%	8.8%	11.9%	9.9%
Mean	6.0%	11.1%	2.3%	6.3%	7.8%	8.0%	5.7%	6.5%

1992-93	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
Students Testable *	--	--	--	--	--	--	--	--
Reading	0.0%	8.6%	0.0%	15.3%	10.8%	5.6%	2.9%	6.3%
Mathematics	5.1%	11.4%	5.9%	20.3%	7.7%	0.9%	2.9%	7.5%
Social Studies	2.6%	14.3%	3.9%	13.6%	9.2%	11.1%	2.9%	8.5%
Science	0.0%	5.7%	2.0%	8.5%	12.3%	2.8%	0.0%	4.4%
Writing	5.1%	22.9%	17.6%	15.3%	26.2%	12.0%	4.4%	14.4%
Language Usage	2.6%	14.3%	7.8%	5.1%	10.8%	2.8%	5.9%	6.4%
Mean	2.6%	12.9%	6.2%	13.0%	12.8%	5.9%	3.2%	7.9%

Source: Maryland School Performance Report for Baltimore City Public Schools. 1994

* Number Testable from 1993-94 was used in the computation of weighted mean percent scoring satisfactory for all schools

Grade 3 Results for Group I Comparison Schools as Percent of Students Scoring Satisfactory

1993-94	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group 1
Students Testable	71	38	85	67	100	93	49	503
Reading	4.2%	5.3%	9.4%	4.5%	7.0%	5.4%	6.1%	6.2%
Mathematics	2.8%	2.6%	7.1%	25.4%	35.0%	8.6%	8.2%	14.5%
Social Studies	5.6%	10.5%	7.1%	6.0%	7.0%	9.7%	8.2%	7.6%
Science	4.2%	10.5%	8.2%	10.4%	12.0%	11.8%	2.0%	8.9%
Writing	2.8%	15.8%	10.6%	13.4%	17.0%	16.1%	8.2%	12.3%
Language Usage	1.4%	7.9%	8.2%	16.4%	16.0%	9.7%	6.1%	9.9%
Mean	3.5%	8.8%	8.4%	12.7%	15.7%	10.2%	6.5%	9.9%

1992-93	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group i
Students Testable *	--	--	--	--	--	--	--	--
Reading	%	%	%	%	%	%	%	%
Mathematics	2.7%	0.0%	9.2%	2.6%	3.6%	0.0%	11.9%	4.2%
Social Studies	9.3%	5.3%	10.5%	3.8%	9.9%	0.0%	6.0%	6.5%
Science	5.3%	0.0%	6.6%	5.1%	63.3%	1.4%	14.9%	5.5%
Writing	13.3%	5.3%	18.4%	15.4%	17.1%	11.3%	11.9%	14.1%
Language Usage	6.7%	3.5%	11.8%	7.7%	18.0%	1.4%	7.5%	8.8%
Mean	7.5%	2.8%	11.3%	6.9%	11.0%	2.8%	10.4%	7.8%

Source: Maryland School Performance Report for Baltimore City Public Schools. 1994

* Number Testable from 1993-94 was used in the computation of weighted mean percent scoring satisfactory for all schools

Grade 5 Results for Group I Comparison Schools as Percent of Students Scoring Satisfactory

1993-94	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group 1
Students Testable	60	40	101	46	87	85	44	463
Reading	3.3%	17.5%	2.0%	13.0%	6.9%	8.2%	4.5%	6.9%
Mathematics	5.0%	0.0%	5.9%	0.0%	3.4%	2.4%	11.4%	4.1%
Social Studies	5.0%	0.0%	2.0%	2.2%	3.4%	5.9%	9.1%	3.9%
Science	6.7%	5.0%	5.0%	4.3%	3.4%	2.4%	4.5%	4.3%
Writing	11.7%	22.5%	8.9%	8.7%	6.9%	7.1%	2.3%	9.1%
Language Usage	5.0%	15.0%	11.9%	10.9%	9.2%	2.4%	9.1%	8.7%
Mean	6.1%	10.0%	5.9%	6.5%	5.5%	4.7%	6.8%	6.2%

1992-93	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
Students Testable *	--	--	--	--	--	--	--	--
Reading	4.0%	4.4%	2.3%	1.7%	4.9%	1.1%	10.0%	3.6%
Mathematics	6.7%	0.0%	20.5%	5.0%	5.9%	0.0%	16.7%	8.5%
Social Studies	5.3%	11.1%	8.0%	8.3%	3.9%	4.3%	16.7%	7.3%
Science	8.0%	4.4%	10.2%	8.3%	0.0%	1.1%	13.3%	5.9%
Writing	13.3%	31.1%	15.9%	21.7%	18.6%	13.8%	18.3%	17.8%
Language Usage	2.7%	15.6%	10.2%	13.3%	10.8%	7.4%	6.7%	9.3%
Mean	6.7%	11.1%	11.2%	9.7%	7.4%	4.6%	13.6%	8.8%

Source: Maryland School Performance Report for Baltimore City Public Schools. 1994

* Number Testable from 1993-94 was used in the computation of weighted mean percent scoring satisfactory for all schools

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Grade 3 Results for Group II Comparison Schools as Percent of Students Scoring Satisfactory

1993-94	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
Students Testable	60	38	85	58	62	93	49	445
Reading	0.0%	5.3%	9.4%	13.8%	4.8%	5.4%	6.1%	6.5%
Mathematics	0.0%	2.6%	7.1%	17.2%	0.0%	8.6%	8.2%	6.5%
Social Studies	0.0%	10.5%	7.1%	17.2%	0.0%	9.7%	8.2%	7.4%
Science	1.7%	10.5%	8.2%	17.2%	1.6%	11.8%	2.0%	7.8%
Writing	0.0%	15.8%	10.6%	22.4%	3.2%	16.1%	8.2%	11.0%
Language Usage	0.0%	7.9%	8.2%	13.8%	6.5%	9.7%	6.1%	7.6%
Mean	0.3%	8.8%	8.4%	16.9%	2.7%	10.2%	6.5%	7.8%

1992-93	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
Students Testable *	--	--	--	--	--	--	--	--
Reading	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Mathematics	0.0%	0.0%	9.2%	31.7%	0.0%	0.0%	11.9%	7.2%
Social Studies	1.6%	5.3%	10.5%	15.9%	0.0%	0.0%	6.0%	5.4%
Science	1.6%	0.0%	6.6%	14.3%	0.0%	1.4%	14.9%	5.3%
Writing	9.8%	5.3%	18.4%	20.6%	7.5%	11.3%	11.9%	12.7%
Language Usage	4.9%	3.5%	11.8%	6.3%	6.3%	1.4%	7.5%	6.0%
Mean	3.6%	2.8%	11.3%	17.8%	2.8%	2.8%	10.4%	7.3%

Source: Maryland School Performance Report for Baltimore City Public Schools. 1994

* Number Testable from 1993-94 was used in the computation of weighted mean percent scoring satisfactory for all schools

Grade 5 Results for Group II Comparison Schools as Percent of Students Scoring Satisfactory

1993-94	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
Students Testable	67	40	101	58	70	85	44	465
Reading	6.0%	17.5%	2.0%	1.7%	2.9%	8.2%	4.5%	5.4%
Mathematics	0.0%	0.0%	5.9%	3.4%	0.0%	2.4%	11.4%	3.2%
Social Studies	1.5%	0.0%	2.0%	1.7%	2.9%	5.9%	9.1%	3.2%
Science	0.0%	5.0%	5.0%	3.4%	1.4%	2.4%	4.5%	3.0%
Writing	1.5%	22.5%	8.9%	3.4%	2.9%	7.1%	2.3%	6.5%
Language Usage	4.5%	15.0%	11.9%	6.8%	4.3%	2.4%	9.1%	7.3%
Mean	2.2%	10.0%	5.9%	3.4%	2.4%	4.7%	6.8%	4.8%

1992-93	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
Students Testable *	--	--	--	--	--	--	--	--
Reading	4.8%	4.4%	2.3%	0.0%	4.1%	1.1%	10.0%	3.3%
Mathematics	4.8%	0.0%	20.5%	20.3%	1.4%	0.0%	16.7%	9.5%
Social Studies	1.6%	11.1%	8.0%	0.0%	5.4%	4.3%	16.7%	6.1%
Science	1.6%	4.4%	10.2%	10.2%	4.1%	1.1%	13.3%	6.2%
Writing	7.9%	31.1%	15.9%	11.9%	8.1%	13.8%	18.3%	14.2%
Language Usage	7.9%	15.6%	10.2%	1.7%	4.1%	7.4%	6.7%	7.5%
Mean	4.8%	11.1%	11.2%	7.4%	4.5%	4.6%	13.6%	7.8%

Source: Maryland School Performance Report for Baltimore City Public Schools. 1994

* Number Testable from 1993-94 was used in the computation of weighted mean percent scoring satisfactory for all schools

Maryland School Progress Index

Students enrolled before February 1 of the assessment year and not Level IV special education or non-English proficient

Tesseract	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1993-94	19.7	16.6	11.8	25.8	19.0	17.4	15.7	18.0
1992-93	13.3	19.9	13.1	25.3	28.6	16.7	13.3	18.7
Change Index	6.4	-3.3	-1.3	0.5	-9.6	0.7	2.4	-0.7

Group I	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1993-94	14.7	21.2	17.3	21.4	22.8	18.4	17.2	19.1
1992-93	17.4	17.6	22.8	19.3	20.3	13.2	24.2	19.1
Change Index	-2.7	3.6	-5.5	2.1	2.5	5.2	-7.0	0.0

Group II	Templeton	Pk Heights	Pimlico	Rosemont	A. Hamiltn	Liberty	Washingtn	All Group II
1993-94	10.0	21.2	17.3	21.1	11.5	18.4	17.2	16.5
1992-93	13.7	17.6	22.8	24.0	13.4	13.2	24.2	18.1
Change Index	-3.7	3.6	-5.5	-2.9	-1.8	5.2	-7.0	-1.6

Source: Maryland School Performance Report for Baltimore City Public Schools. 1993(attendance only) and 1994

Note: Number testable from 1993-94 was used in computation of weighted percent scoring satisfactory for 1992-93, thus slightly desorting the 1992-93 School Progress Index and the Change Index

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Maryland School Performance Assessment Scale Scores and Levels
1992-93 and 1993-94
Students enrolled before February 1 of the testing year and not Level IV special education or non-English proficient

Grade 3 Reading Scale Scores and Proficiency Levels
350 - 489 = 5; 490 - 529 = 4; 530 - 579 = 3; 580 - 619 = 2; 620 - 700 = 1

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1993-94 Scale Score	447	427	444	471	456	456	452	453
1993-94 Proficiency Level	5	5	5	5	5	5	5	5
1992-93 Scale Score	438	452	437	466	465	451	454	453
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Group I Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1993-94 Scale Score	469	462	467	477	473	456	469	468
1993-94 Proficiency Level	5	5	5	5	5	5	5	5
1992-93 Scale Score	455	443	463	463	460	448	474	458
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1993-94 Scale Score	453	462	467	471	442	456	469	462
1993-94 Proficiency Level	5	5	5	5	5	5	5	5
1992-93 Scale Score	445	443	463	465	450	448	474	454
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Source: Maryland School Performance Assessment Program File for Baltimore City, 1992-93 and 1993-94

Grade 5 Reading Scale Scores and Proficiency Levels
350 - 489 = 5; 490 - 529 = 4; 530 - 579 = 3; 580 - 619 = 2; 620 - 700 = 1

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1993-94 Scale Score	456	483	443	472	481	457	462	462
1993-94 Proficiency Level	5	5	5	5	5	5	5	5
1992-93 Scale Score	471	452	463	487	478	463	460	470
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Group I Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1993-94 Scale Score	468	480	464	477	466	476	466	470
1993-94 Proficiency Level	5	5	5	5	5	5	5	5
1992-93 Scale Score	461	443	464	470	478	453	476	466
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1993-94 Scale Score	453	480	464	452	456	476	466	463
1993-94 Proficiency Level	5	5	5	5	5	5	5	5
1992-93 Scale Score	457	443	464	475	450	453	476	460
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Source: Maryland School Performance Assessment Program File for Baltimore City. 1992-93 and 1993-94

Maryland School Performance Assessment Scale Scores and Levels
1992-93 and 1993-94, Continued
Students enrolled before February 1 of the testing year and not Level IV special education or non-English proficient

Grade 3 Mathematics Scale Scores and Proficiency Levels
489 - 530 = 4; 531 - 582 = 3; 583 - 625 = 2; 626 - 700 = 1

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1993-94 Scale Score	472	433	448	487	448	455	455	458
1993-94 Proficiency Level	5	4	5	4	5	5	5	5
1992-93 Scale Score	451	447	437	482	476	438	453	454
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Group I Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group 1
1993-94 Scale Score	456	469	475	510	503	477	477	483
1993-94 Proficiency Level	5	5	5	4	4	5	5	5
1992-93 Scale Score	466	416	469	466	472	438	477	459
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1993-94 Scale Score	424	469	475	485	424	477	477	461
1993-94 Proficiency Level	5	5	5	5	5	5	5	5
1992-93 Scale Score	426	416	469	519	421	438	477	448
1992-93 Proficiency Level	5	5	5	4	5	5	5	5

Source: Maryland School Performance Assessment Program File for Baltimore City. 1992-93 and 1993-94

Grade 5 Mathematics Scale Scores and Proficiency Levels
350 - 489 = 5; 490 - 529 = 4; 530 - 579 = 3; 580 - 619 = 2; 620 - 700 = 1

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1993-94 Scale Score	470	474	446	458	458	462	444	458
1993-94 Proficiency Level	5	4	5	5	5	5	5	5
1992-93 Scale Score	473	456	462	484	464	446	458	461
1992-93 Proficiency Level	5	5	5	4	5	5	5	5

Group I Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group 1
1993-94 Scale Score	456	459	462	510	503	448	478	483
1993-94 Proficiency Level	5	5	5	4	4	5	4	5
1992-93 Scale Score	426	457	488	466	472	434	475	459
1992-93 Proficiency Level	5	5	4	5	5	5	4	5

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1993-94 Scale Score	447	459	462	454	437	448	478	451
1993-94 Proficiency Level	5	5	5	5	5	5	4	5
1992-93 Scale Score	450	457	488	504	440	434	475	455
1992-93 Proficiency Level	5	5	4	4	5	5	4	5

Source: Maryland School Performance Assessment Program File for Baltimore City. 1992-93 and 1993-94

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Maryland School Performance Assessment Scale Scores and Levels
1992-93 and 1993-94, Continued
Students enrolled before February 1 of the testing year and not Level IV special education or non-English proficient

Grade 3 Social Studies Scale Scores and Proficiency Levels
350 - 494 = 5; 495 - 524 = 4; 525 - 579 = 3; 580 - 621 = 2; 622 - 700 = 1

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1993-94 Scale Score	458	440	450	488	463	461	456	462
1993-94 Proficiency Level	5	5	5	4	5	5	5	5
1992-93 Scale Score	445	453	448	475	476	451	460	459
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Group I Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1993-94 Scale Score	461	467	471	476	467	468	480	469
1993-94 Proficiency Level	5	5	5	5	5	5	5	5
1992-93 Scale Score	473	445	471	463	478	443	474	465
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1993-94 Scale Score	445	467	471	487	447	468	480	467
1993-94 Proficiency Level	5	5	5	5	5	5	5	5
1992-93 Scale Score	441	445	471	488	456	443	474	458
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Source: Maryland School Performance Assessment Program File for Baltimore City. 1992-93 and 1993-94

Grade 5 Social Studies Scale Scores and Proficiency Levels
350 - 528 = 4; 529 - 579 = 3; 580 - 618 = 2; 619 - 700 = 1

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1993-94 Scale Score	469	465	447	455	474	463	460	460
1993-94 Proficiency Level	5	4	4	4	4	4	4	4
1992-93 Scale Score	456	463	457	468	464	466	441	461
1992-93 Proficiency Level	4	4	4	4	4	4	4	4

Group I Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1993-94 Scale Score	459	471	458	467	457	455	488	462
1993-94 Proficiency Level	5	4	4	4	4	4	4	4
1992-93 Scale Score	453	467	461	462	464	448	471	460
1992-93 Proficiency Level	4	4	4	4	4	4	4	4

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1993-94 Scale Score	440	471	458	447	440	455	488	453
1993-94 Proficiency Level	4	4	4	4	4	4	4	4
1992-93 Scale Score	447	467	461	469	443	448	471	455
1992-93 Proficiency Level	4	4	4	4	4	4	4	4

Source: Maryland School Performance Assessment Program File for Baltimore City. 1992-93 and 1993-94

Maryland School Performance Assessment Scale Scores and Levels
1992-93 and 1993-94, Continued
Students enrolled before February 1 of the testing year and not Level IV special education or non-English proficient

Grade 3 Science Scale Scores and Proficiency Levels
350 - 487 = 4; 488 - 526= 3; 527 - 579 = 2; 580 - 700 = 1

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1993-94 Scale Score	477	446	456	494	470	443	459	463
1993-94 Proficiency Level	4	4	4	3	4	4	4	4
1992-93 Scale Score	441	460	437	488	482	441	460	457
1992-93 Proficiency Level	4	4	4	4	4	4	4	4

Group I Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1993-94 Scale Score	464	475	481	494	485	478	460	478
1993-94 Proficiency Level	4	4	4	3	4	4	4	4
1992-93 Scale Score	469	438	457	455	475	442	477	455
1992-93 Proficiency Level	4	4	4	4	4	4	4	4

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1993-94 Scale Score	424	475	481	480	439	478	460	461
1993-94 Proficiency Level	4	4	4	4	4	4	4	4
1992-93 Scale Score	437	438	457	498	434	442	477	453
1992-93 Proficiency Level	4	4	4	3	4	4	4	4

Source: Maryland School Performance Assessment Program File for Baltimore City, 1992-93 and 1993-94

Grade 5 Science Scale Scores and Proficiency Levels
350 - 483 = 5; 484 - 524 = 4; 525 - 579 = 3; 580 - 624 = 2; 625 - 700 = 1

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1993-94 Scale Score	469	473	430	443	458	452	451	451
1993-94 Proficiency Level	5	5	5	5	5	5	5	5
1992-93 Scale Score	458	454	431	461	468	448	451	452
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Group I Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1993-94 Scale Score	485	458	459	470	443	445	458	454
1993-94 Proficiency Level	5	5	5	5	5	5	5	5
1992-93 Scale Score	454	448	480	468	452	438	477	459
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1993-94 Scale Score	442	458	459	443	427	445	458	443
1993-94 Proficiency Level	5	5	5	5	5	5	5	5
1992-93 Scale Score	446	448	480	470	431	438	477	449
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Source: Maryland School Performance Assessment Program File for Baltimore City, 1992-93 and 1993-94

Maryland School Performance Assessment Scale Scores and Levels
1992-93 and 1993-94, Continued
Students enrolled before February 1 of the testing year and not Level IV special education or non-English proficient

Grade 3 Writing Scale Scores and Proficiency Levels
350 - 527 = 4; 528 - 576 = 3; 577 - 613 = 2; 614 - 700 = 1

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1993-94 Scale Score	477	465	469	497	484	470	480	478
1993-94 Proficiency Level	4	4	4	4	4	4	4	4
1992-93 Scale Score	490	477	472	490	500	480	476	483
1992-93 Proficiency Level	4	4	4	4	4	4	4	4

Group I Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1993-94 Scale Score	473	485	481	482	483	482	480	481
1993-94 Proficiency Level	4	4	4	4	4	4	4	4
1992-93 Scale Score	476	468	485	486	487	479	482	481
1992-93 Proficiency Level	4	4	4	4	4	4	4	4

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1993-94 Scale Score	460	485	481	493	468	482	480	478
1993-94 Proficiency Level	4	4	4	4	4	4	4	4
1992-93 Scale Score	474	468	485	480	468	479	482	478
1992-93 Proficiency Level	4	4	4	4	4	4	4	4

Source: Maryland School Performance Assessment Program File for Baltimore City, 1992-93 and 1993-94

Grade 5 Writing Scale Scores and Proficiency Levels
350 - 489 = 5; 490 - 529 = 4; 530 - 579 = 3; 580 - 619 = 2; 620 - 700 = 1

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1993-94 Scale Score	457	484	458	459	481	463	465	465
1993-94 Proficiency Level	5	5	5	5	5	5	5	5
1992-93 Scale Score	461	483	470	471	482	469	462	471
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Group I Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1993-94 Scale Score	467	482	467	480	461	463	455	467
1993-94 Proficiency Level	5	5	5	5	5	5	5	5
1992-93 Scale Score	468	468	469	474	477	462	475	472
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1993-94 Scale Score	452	482	467	454	458	463	455	460
1993-94 Proficiency Level	5	5	5	5	5	5	5	5
1992-93 Scale Score	464	468	469	475	461	462	475	469
1992-93 Proficiency Level	5	5	5	5	5	5	5	5

Source: Maryland School Performance Assessment Program File for Baltimore City, 1992-93 and 1993-94

Maryland School Performance Assessment Scale Scores and Levels
1992-93 and 1993-94, Continued
Students enrolled before February 1 of the testing year and not Level IV special education or non-English proficient

Grade 3 Language Usage Scale Scores and Proficiency Levels
350 - 520 = 4; 521- 575 = 3; 576 - 619 = 2; 620 - 700 = 1

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1993-94 Scale Score	476	458	465	493	481	473	466	475
1993-94 Proficiency Level	4	4	4	4	4	4	4	4
1992-93 Scale Score	470	473	460	478	481	475	467	472
1992-93 Proficiency Level	4	4	4	4	4	4	4	4

Group I Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1993-94 Scale Score	458	474	470	483	481	473	468	473
1993-94 Proficiency Level	4	4	4	4	4	4	4	4
1992-93 Scale Score	464	402	471	467	483	462	467	469
1992-93 Proficiency Level	4	4	4	4	4	4	4	4

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1993-94 Scale Score	456	474	470	474	462	473	468	468
1993-94 Proficiency Level	4	4	4	4	4	4	4	4
1992-93 Scale Score	464	402	471	466	462	462	467	464
1992-93 Proficiency Level	4	4	4	4	4	4	4	4

Source: Maryland School Performance Assessment Program File for Baltimore City. 1992-93 and 1993-94

Grade 5 Language Usage Scale Scores and Proficiency Levels
350 - 532 = 4; 533 - 566 = 3; 567 - 596 = 2; 597 - 700 = 1

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1993-94 Scale Score	471	495	454	476	488	470	475	473
1993-94 Proficiency Level	4	4	4	4	4	4	4	4
1992-93 Scale Score	455	475	467	468	486	477	460	472
1992-93 Proficiency Level	4	4	4	4	4	4	4	4

Group I Schools	Madison S	Fk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1993-94 Scale Score	459	501	484	490	474	474	492	479
1993-94 Proficiency Level	4	4	4	4	4	4	4	4
1992-93 Scale Score	464	502	472	478	482	462	481	475
1992-93 Proficiency Level	4	4	4	4	4	4	4	4

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1993-94 Scale Score	463	501	484	469	463	474	492	473
1993-94 Proficiency Level	4	4	4	4	4	4	4	4
1992-93 Scale Score	470	502	472	478	458	462	481	472
1992-93 Proficiency Level	4	4	4	4	4	4	4	4

Source: Maryland School Performance Assessment Program File for Baltimore City. 1992-93 and 1993-94

Maryland School Performance Assessment Program Results, 1991-92
Students enrolled before February 1 of the testing year and not Level IV special education or non-English proficient

Grade 3 Results as Percent of Students Scoring Satisfactory

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
Students Testable	31	40	75	79	46	115	52	438
Reading	3.2%	5.0%	5.3%	24.1%	13.0%	6.1%	0.0%	8.9%
Mathematics	0.0%	15.0%	0.0%	30.4%	17.4%	1.7%	15.4%	11.0%
Social Studies	6.5%	10.0%	4.0%	31.6%	34.8%	4.3%	9.6%	13.7%
Science	6.5%	2.5%	2.7%	16.5%	21.7%	3.5%	13.5%	8.9%
Mean	4.1%	8.1%	3.0%	25.6%	21.7%	3.9%	9.6%	10.6%

Group I Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
Students Testable	63	47	77	71	94	93	47	492
Reading	3.2%	4.3%	13.0%	39.4%	27.7%	14.0%	8.5%	17.3%
Mathematics	3.2%	2.1%	7.8%	32.4%	39.4%	7.5%	19.1%	17.3%
Social Studies	1.6%	2.1%	13.0%	42.3%	35.1%	9.7%	29.8%	19.9%
Science	3.2%	0.0%	11.7%	43.7%	50.0%	6.5%	23.4%	21.6%
Mean	2.8%	2.1%	11.4%	39.5%	38.1%	9.4%	20.2%	19.0%

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
Students Testable	70	47	77	61	78	93	47	473
Reading	5.7%	4.3%	13.0%	1.6%	16.7%	14.0%	8.5%	9.9%
Mathematics	2.9%	2.1%	7.8%	8.2%	37.2%	7.5%	19.1%	12.5%
Social Studies	7.1%	2.1%	13.0%	19.7%	50.0%	9.7%	29.8%	19.0%
Science	8.6%	0.0%	11.7%	16.4%	35.9%	6.5%	23.4%	14.8%
Mean	6.1%	2.1%	11.4%	11.5%	35.0%	9.4%	20.2%	14.1%

Source: Maryland School Performance Report for Baltimore City, 1993

Grade 5 Results as Percent of Students Scoring Satisfactory

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
Students Testable	24	29	75	59	68	102	36	393
Reading	16.7%	20.7%	4.0%	10.2%	8.8%	4.9%	5.6%	8.1%
Mathematics	16.7%	6.9%	5.3%	3.4%	42.6%	12.7%	30.6%	16.5%
Social Studies	8.3%	3.4%	4.0%	3.4%	19.1%	3.9%	16.7%	7.9%
Science	4.2%	10.3%	1.3%	10.2%	5.9%	3.9%	13.9%	6.1%
Mean	11.5%	10.3%	3.7%	6.8%	19.1%	6.3%	16.7%	9.7%

Group I Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
Students Testable	57	50	72	61	79	89	45	453
Reading	5.3%	0.0%	4.2%	16.4%	8.9%	6.7%	8.9%	7.3%
Mathematics	10.5%	4.0%	36.1%	36.1%	22.8%	30.3%	17.8%	24.1%
Social Studies	7.0%	0.0%	8.3%	11.5%	11.4%	3.4%	4.4%	6.8%
Science	0.0%	0.0%	6.9%	19.7%	7.6%	7.9%	8.9%	7.5%
Mean	5.7%	1.0%	13.9%	20.9%	12.7%	12.1%	10.0%	11.4%

Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
Students Testable	49	50	72	57	63	89	45	425
Reading	2.0%	0.0%	4.2%	7.0%	4.8%	6.7%	8.9%	4.9%
Mathematics	4.1%	4.0%	36.1%	24.6%	22.2%	30.3%	17.8%	21.9%
Social Studies	4.1%	0.0%	8.3%	8.8%	6.3%	3.4%	4.4%	5.2%
Science	2.0%	0.0%	6.9%	5.3%	17.5%	7.9%	8.9%	7.3%
Mean	3.0%	1.0%	13.9%	11.4%	12.7%	12.1%	10.0%	9.8%

Source: Maryland School Performance Report for Baltimore City, 1993

Number of "1" Scores on the Total Reading Test of the Comprehensive Test of Basic Skills

"1" scores for students enrolled before February 1 of the testing year and not Level IV special education

Tesseract Schools	Browne	Monroe	Harlem Pk	Edgewood	S. Roach	Rodman	Graceland	All Tesseract
1994-95	13	5	17	6	9	16	19	85
1993-94	12	6	39	4	21	17	16	115
1992-93	11	8	31	1	8	12	8	63
1991-92	7	7	9	3	0	19	9	60
Group I Schools	Madison S	Pk Heights	Pimlico	M. Brent	Cecil	Liberty	Washingtn	All Group I
1994-95	9	3	24	5	1	19	4	65
1993-94	5	2	11	4	1	12	1	36
1992-93	10	6	5	6	0	19	2	48
1991-92	8	4	14	2	2	20	6	56
Group II Schools	Templeton	Pk Heights	Pimlico	Rosemont	A Hamiltn	Liberty	Washingtn	All Group II
1994-95	19	3	24	12	13	19	4	94
1993-94	29	2	11	19	29	12	1	103
1992-93	14	6	5	8	21	19	2	75
1991-92	17	4	14	7	9	20	6	77

Source: BCPS Pupil Information File, and CTBS Data File for Baltimore City, 1994-95

Comprehensive Test of Basic Skills Scores for All Reported Students
Reading NCE Scores for the Tesseract Schools
Students enrolled before February 1 of the testing year and not Level IV special education and not "1" score

1994-95

	Browne		Monroe		Harlem Pk		Edgewood		S. Roach		Rodman		Graceland		Tesseract	
Grade 1 - Number and NCE	45	27	39	53	76	30	72	49	60	44	99	48	79	41	470	42
Grade 2 - Number and NCE	47	29	37	36	38	35	64	44	56	44	88	41	51	32	381	38
Grade 3 - Number and NCE	31	30	39	55	43	48	61	45	64	38	80	42	50	30	368	41
Grade 4 - Number and NCE	40	35	26	35	61	39	57	50	52	41	86	43	41	38	363	41
Grade 5 - Number and NCE	31	32	20	39	62	36	54	44	54	38	93	39	50	33	364	38
Total Number Reported Tests	194		161		280		308		286		446		271		1946	
Enrollment Grades 1 - 5	258		187		440		345		345		510		342		2427	
Percentage Reported Tests	75%		86%		64%		89%		83%		87%		79%		80%	
Grade 1 - 5 Mean NCE Score	30		45		37		47		41		43		35		40	
Grade 2 - 5 Mean NCE Score	31		42		39		46		40		41		33		40	

1993-94

	Browne		Monroe		Harlem Pk		Edgewood		S. Roach		Rodman		Graceland		Tesseract	
Grade 1 - Number and NCE	59	27	38	60	73	34	73	49	51	37	100	36	59	35	453	39
Grade 2 - Number and NCE	46	40	49	52	79	27	72	44	70	41	85	33	54	33	455	38
Grade 3 - Number and NCE	40	29	29	34	77	34	66	45	59	39	93	40	49	34	413	37
Grade 4 - Number and NCE	37	38	28	43	74	33	64	51	63	44	102	40	67	34	435	40
Grade 5 - Number and NCE	43	33	36	34	73	27	72	42	49	38	103	34	48	35	424	35
Total Number Reported Tests	225		180		376		347		292		483		277		2180	
Enrollment Grades 1 - 5	275		206		493		370		341		535		304		2524	
Percentage Reported Tests	82%		87%		76%		94%		86%		90%		91%		86%	
Grade 1 - 5 Mean NCE Score	33		46		31		46		40		37		34		38	
Grade 2 - 5 Mean NCE Score	35		42		30		45		41		37		34		37	

1992-93

	Browne		Monroe		Harlem Pk		Edgewood		S. Roach		Rodman		Graceland		Tesseract	
Grade 1 - Number and NCE	39	22	45	40	91	28	81	45	79	34	98	39	51	45	474	36
Grade 2 - Number and NCE	43	29	33	35	79	33	70	43	65	41	104	37	45	37	439	37
Grade 3 - Number and NCE	37	30	33	35	82	35	74	46	58	48	98	38	54	37	436	39
Grade 4 - Number and NCE	34	36	35	35	65	34	79	45	54	47	106	38	54	33	427	39
Grade 5 - Number and NCE	31	30	29	36	66	30	55	54	60	39	98	41	42	34	381	39
Total Number Reported Tests	184		175		383		359		316		504		236		2157	
Enrollment Grades 1 - 5	265		209		523		395		372		575		306		2645	
Percentage Reported Tests	69%		84%		73%		91%		85%		88%		77%		82%	
Grade 1 - 5 Mean NCE Score	29		37		32		46		41		38		37		38	
Grade 2 - 5 Mean NCE Score	31		35		33		47		43		38		35		38	

1991-92

	Browne		Monroe		Harlem Pk		Edgewood		S. Roach		Rodman		Graceland		Tesseract	
Grade 1 - Number and NCE	48	30	38	42	105	43	76	53	72	52	111	39	52	37	502	43
Grade 2 - Number and NCE	39	32	26	37	87	35	79	54	65	46	91	37	53	35	440	41
Grade 3 - Number and NCE	29	26	37	39	72	39	76	53	45	67	109	37	48	38	416	44
Grade 4 - Number and NCE	31	40	37	37	76	35	53	57	65	45	108	39	54	39	424	41
Grade 5 - Number and NCE	24	39	26	34	76	33	59	40	63	40	96	35	34	35	378	36
Total Number Reported Tests	171		164		416		343		310		515		241		2160	
Enrollment Grades 1 - 5	221		210		502		379		358		597		314		2581	
Percentage Reported Tests	77%		77%		83%		91%		87%		86%		77%		84%	
Grade 1 - 5 Mean NCE Score	34		39		37		52		49		37		37		41	

Source: Baltimore City Pupil Information File and Comprehensive Test of Basic Skills/4 Data File for Baltimore City, 1991-92, 1992-93, 1993-94 and 1994-95

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Total Reading NCE Scores for the Group I Comparison Schools

Students enrolled before February 1 of the testing year and not Level IV special education and not "1" score

1994-95

	Madison		Pk Heights		Pimlico		M. Brent		Cecil		Liberty		Washingtn		Group I	
Grade 1 - Number and NCE	72	58	47	43	81	48	55	61	98	64	74	54	49	53	476	55
Grade 2 - Number and NCE	85	41	41	42	82	42	56	42	93	61	85	40	66	38	508	45
Grade 3 - Number and NCE	71	37	38	40	86	40	63	42	85	68	52	37	38	51	433	46
Grade 4 - Number and NCE	74	39	32	40	71	38	56	39	80	50	69	37	47	44	429	41
Grade 5 - Number and NCE	76	36	33	36	64	31	44	36	85	46	59	32	67	33	428	36
Total Number Reported Tests	378		191		384		274		441		339		267		2274	
Enrollment Grades 1 - 5	449		236		484		347		497		476		320		2809	
Percentage Reported Tests	84%		81%		79%		79%		89%		71%		83%		81%	
Grade 1 - 5 Mean NCE Score	42		41		40		44		58		41		43		45	
Grade 2 - 5 Mean NCE Score	39		40		38		40		56		37		40		42	

1993-94

	Madison		Pk Heights		Pimlico		M. Brent		Cecil		Liberty		Washingtn		Group I	
Grade 1 - Number and NCE	78	56	51	41	83	53	58	63	92	65	82	42	69	54	513	54
Grade 2 - Number and NCE	77	46	57	41	91	42	59	44	94	22	38	45	49	48	495	46
Grade 3 - Number and NCE	67	40	38	38	81	43	65	47	99	65	83	34	50	56	483	47
Grade 4 - Number and NCE	78	38	38	39	70	40	51	46	89	53	68	37	64	47	461	43
Grade 5 - Number and NCE	60	34	36	37	100	37	47	41	89	43	77	33	40	39	449	38
Total Number Reported Tests	360		220		428		280		463		378		272		2401	
Enrollment Grades 1 - 5	441		252		499		379		520		475		320		2886	
Percentage Reported Tests	82%		87%		86%		74%		89%		80%		85%		83%	
Grade 1 - 5 Mean NCE Score	43		40		43		48		56		38		50		46	
Grade 2 - 5 Mean NCE Score	40		39		40		45		54		37		49		44	

1992-93

	Madison		Pk.Heights		Pimlico		M. Brent		Cecil		Liberty		Washingtn		Group I	
Grade 1 - Number and NCE	77	66	63	35	104	48	72	53	100	56	77	42	55	56	548	51
Grade 2 - Number and NCE	71	40	48	36	82	42	65	38	102	58	72	43	50	45	490	45
Grade 3 - Number and NCE	70	41	57	39	79	38	74	45	403	62	68	38	65	39	516	44
Grade 4 - Number and NCE	55	32	47	38	94	41	53	42	90	47	84	40	48	47	471	42
Grade 5 - Number and NCE	65	37	46	40	81	40	56	42	92	45	84	35	61	40	485	40
Total Number Reported Tests	338		261		440		320		487		385		279		2510	
Enrollment Grades 1 - 5	414		309		519		402		538		514		330		3026	
Percentage Reported Tests	82%		84%		85%		80%		91%		75%		85%		83%	
Grade 1 - 5 Mean NCE Score	44		37		42		45		54		40		45		45	
Grade 2 - 5 Mean NCE Score	38		38		40		42		53		39		43		43	

1991-92

	Madison		Pk Heights		Pimlico		M. Brent		Cecil		Liberty		Washingtn		Group I	
Grade 1 - Number and NCE	75	48	55	41	91	44	76	58	107	62	88	41	59	46	551	49
Grade 2 - Number and NCE	67	35	59	42	76	47	82	48	106	51	90	40	63	34	543	43
Grade 3 - Number and NCE	46	31	47	40	74	38	67	51	96	59	87	37	47	45	464	44
Grade 4 - Number and NCE	71	35	50	41	90	41	53	47	108	47	93	39	66	40	531	37
Grade 5 - Number and NCE	59	32	47	38	97	35	63	44	79	41	113	34	44	36	502	37
Total Number Reported Tests	318		258		428		341		496		471		279		2591	
Enrollment Grades 1 - 5	421		309		512		427		560		565		327		3121	
Percentage Reported Tests	76%		83%		84%		80%		89%		83%		85%		83%	
Grade 1 - 5 Mean NCE Score	37		41		41		50		52		38		40		43	

Source: Baltimore City Pupil Information File and Comprehensive Test of Basic Skills/4 Data File for Baltimore City, 1991-92, 1992-93, 1993-94 and 1994-95

Total Reading NCE Scores for Group II Comparison Schools
Students enrolled before February 1 of the testing year and not Level IV special education and not "1" score

1994-95

	Templeton		Pk Heights		Pimlico		Rosemont		A Hamiltn		Liberty		Washingtn		Group II	
Grade 1 - Number and NCE	55	37	47	43	81	48	49	38	59	38	74	54	49	53	414	45
Grade 2 - Number and NCE	53	43	41	42	82	42	50	41	58	35	85	40	66	38	435	40
Grade 3 - Number and NCE	43	39	38	40	86	40	45	37	54	34	52	37	38	51	356	40
Grade 4 - Number and NCE	34	35	32	40	71	38	45	36	38	38	69	37	47	44	336	38
Grade 5 - Number and NCE	30	30	33	36	64	31	43	31	51	33	59	32	67	33	347	32
Total Number Reported Tests	215		191		384		232		260		339		267		1888	
Enrollment Grades 1 - 5	349		236		484		289		361		476		320		2515	
Percentage Reported Tests	62%		81%		79%		80%		72%		71%		83%		75%	
Grade 1 - 5 Mean NCE Score	38		41		40		37		35		41		43		39	
Grade 2 - 5 Mean NCE Score	38		40		38		36		35		37		40		38	

1993-94

	Templeton		Pk Heights		Pimlico		Rosemont		A Hamiltn		Liberty		Washingtn		Group II	
Grade 1 - Number and NCE	85	32	51	41	83	53	70	37	70	38	82	42	69	54	510	42
Grade 2 - Number and NCE	51	48	57	41	91	42	51	43	63	30	68	45	49	48	430	42
Grade 3 - Number and NCE	53	29	38	38	81	43	56	36	51	37	83	34	50	56	412	39
Grade 4 - Number and NCE	46	33	38	39	73	40	44	36	61	36	68	37	64	49	394	39
Grade 5 - Number and NCE	63	37	36	37	100	37	55	27	63	34	77	33	40	39	434	35
Total Number Reported Tests	298		220		428		276		308		378		272		2180	
Enrollment Grades 1 - 5	418		252		499		328		374		475		320		2674	
Percentage Reported Tests	71%		87%		86%		84%		82%		80%		85%		82%	
Grade 1 - 5 Mean NCE Score	35		40		43		36		35		38		50		40	
Grade 2 - 5 Mean NCE Score	37		39		40		35		34		37		49		39	

1992-93

	Templeton		Pk Heights		Pimlico		Rosemont		A Hamiltn		Liberty		Washingtn		Group II	
Grade 1 - Number and NCE	58	40	63	35	104	48	68	43	76	32	77	42	55	56	501	42
Grade 2 - Number and NCE	49	41	48	36	82	42	60	45	59	36	72	43	50	45	420	41
Grade 3 - Number and NCE	48	30	57	39	79	38	34	42	70	38	68	38	65	39	421	38
Grade 4 - Number and NCE	62	36	47	38	94	41	64	33	63	39	84	40	48	47	462	39
Grade 5 - Number and NCE	57	30	46	40	81	40	52	32	70	39	84	35	61	40	451	37
Total Number Reported Tests	274		261		440		278		338		385		279		2255	
Enrollment Grades 1 - 5	355		309		519		354		417		514		330		2785	
Percentage Reported Tests	77%		84%		85%		79%		81%		75%		85%		81%	
Grade 1 - 5 Mean NCE Score	36		37		42		39		37		40		45		40	
Grade 2 - 5 Mean NCE Score	34		38		40		37		38		39		43		39	

1991-92

	Templeton		Pk Heights		Pimlico		Rosemont		A Hamiltn		Liberty		Washingtn		Group II	
Grade 1 - Number and NCE	52	34	55	41	91	44	77	51	72	39	88	41	59	46	494	43
Grade 2 - Number and NCE	58	30	59	42	76	47	61	39	80	40	90	40	63	34	487	39
Grade 3 - Number and NCE	61	35	47	40	74	38	64	34	75	37	87	37	47	45	455	37
Grade 4 - Number and NCE	57	33	50	41	90	41	48	41	71	41	93	39	66	40	475	40
Grade 5 - Number and NCE	48	35	47	38	97	35	54	36	64	46	113	34	44	36	472	37
Total Number Reported Tests	276		258		428		309		362		471		279		2383	
Enrollment Grades 1 - 5	347		309		512		389		423		565		327		2872	
Percentage Reported Tests	80%		83%		84%		79%		86%		83%		85%		83%	
Grade 1 - 5 Mean NCE Score	33		41		41		41		40		38		40		39	

Source: Baltimore City Pupil Information File and Comprehensive Test of Basic Skills/4 Data File for Baltimore City, 1991-92, 1992-93, 1993-94 and 1994-95

Total Mathematics NCE Scores for the Tesseract Schools

Students enrolled before February 1 of the testing year and not Level IV special education and not "1" score

1994-95

	Browne		Monroe		Harlem Pk		Edgewood		S. Roach		Rodman		Graceland		Tesseract	
Grade 1 - Number and NCE	48	37	37	52	76	38	72	57	59	56	98	56	75	54	465	51
Grade 2 - Number and NCE	47	30	40	45	38	35	66	51	59	54	86	50	57	39	393	45
Grade 3 - Number and NCE	27	30	41	51	44	52	61	47	66	51	75	44	54	35	368	45
Grade 4 - Number and NCE	42	34	25	40	54	34	57	51	54	47	86	46	42	40	360	43
Grade 5 - Number and NCE	34	39	20	48	62	32	55	46	55	40	99	48	52	37	377	42
Total Number Reported Tests	198		163		274		311		293		444		280		1963	
Enrollment Grades 1 - 5	258		187		440		345		345		510		342		2427	
Percentage Reported Tests	77%		87%		62%		90%		85%		87%		82%		81%	
Grade 1 - 5 Mean NCE Score	34		48		38		51		50		49		42		45	
Grade 2 - 5 Mean NCE Score	33		46		37		49		48		47		37		43	

1993-94

	Browne		Monroe		Harlem Pk		Edgewood		S. Roach		Rodman		Graceland		Tesseract	
Grade 1 - Number and NCE	56	31	37	57	73	40	69	62	56	43	99	44	55	44	445	45
Grade 2 - Number and NCE	41	34	49	55	84	43	69	54	67	46	78	38	51	32	439	44
Grade 3 - Number and NCE	35	31	29	37	82	42	61	46	62	37	93	45	48	39	410	41
Grade 4 - Number and NCE	38	37	30	42	71	30	64	49	62	34	101	38	70	31	436	37
Grade 5 - Number and NCE	46	40	36	41	68	32	76	43	49	42	105	40	53	41	433	40
Total Number Reported Tests	216		181		378		338		296		476		277		2163	
Enrollment Grades 1 - 5	275		206		493		370		341		535		304		2524	
Percentage Reported Tests	79%		88%		77%		91%		87%		89%		91%		86%	
Grade 1 - 5 Mean NCE Score	34		48		38		51		40		41		37		41	
Grade 2 - 5 Mean NCE Score	36		45		37		48		40		41		35		40	

1992-93

	Browne		Monroe		Harlem Pk		Edgewood		S. Roach		Rodman		Graceland		Tesseract	
Grade 1 - Number and NCE	34	22	43	53	84	34	81	52	79	32	92	41	41	46	454	40
Grade 2 - Number and NCE	40	29	30	39	77	31	69	44	63	39	102	39	45	34	426	37
Grade 3 - Number and NCE	36	29	33	30	82	34	73	46	58	41	93	35	58	38	433	37
Grade 4 - Number and NCE	34	35	37	35	66	32	80	44	53	40	103	37	53	36	426	38
Grade 5 - Number and NCE	35	36	31	39	72	38	56	66	58	44	99	45	42	36	393	44
Total Number Reported Tests	179		174		381		359		311		489		239		2132	
Enrollment Grades 1 - 5	265		209		523		395		372		575		306		2645	
Percentage Reported Tests	68%		83%		73%		91%		84%		85%		78%		81%	
Grade 1 - 5 Mean NCE Score	30		40		34		50		39		40		38		39	
Grade 2 - 5 Mean NCE Score	32		36		34		49		41		39		36		39	

1991-92

	Browne		Monroe		Harlem Pk		Edgewood		S. Roach		Rodman		Graceland		Tesseract	
Grade 1 - Number and NCE	45	31	36	49	102	57	72	57	72	46	103	45	48	42	478	48
Grade 2 - Number and NCE	40	34	30	45	89	35	80	56	63	46	98	40	54	38	454	42
Grade 3 - Number and NCE	32	43	37	43	69	37	75	53	45	56	106	41	46	44	410	45
Grade 4 - Number and NCE	31	39	36	36	74	39	56	56	65	45	107	40	53	40	422	42
Grade 5 - Number and NCE	24	40	26	46	76	41	60	42	63	49	96	43	35	36	380	43
Total Number Reported Tests	172		165		410		343		308		510		266		2144	
Enrollment Grades 1 - 5	221		210		502		379		358		597		314		2581	
Percentage Reported Tests	78%		79%		82%		91%		84%		86%		85%		83%	
Grade 1 - 5 Mean NCE Score	37		44		43		53		48		42		40		44	

Source: Baltimore City Pupil Information File and Comprehensive Test of Basic Skills/4 Data File for Baltimore City, 1991-92, 1992-93, 1993-94 and 1994-95

Total Mathematics NCE Scores for Group I Comparison Schools
Students enrolled before February 1 of the testing year and not Level IV special education and not "1" score

1994-95

	Madison		Pk Heights		Pimlico		M. Brent		Cecil		Liberty		Washingtn		Group I	
Grade 1 - Number and NCE	72	63	44	43	80	48	52	61	97	72	73	53	48	51	466	57
Grade 2 - Number and NCE	69	50	39	44	82	39	52	41	93	67	83	47	59	41	477	48
Grade 3 - Number and NCE	69	47	37	43	83	37	62	39	84	69	53	39	34	56	422	48
Grade 4 - Number and NCE	66	38	32	38	71	42	50	35	80	59	69	34	44	50	412	43
Grade 5 - Number and NCE	72	47	32	46	67	37	43	44	84	63	67	36	65	42	430	46
Total Number Reported Tests	348		184		383		259		438		345		250		2207	
Enrollment Grades 1 - 5	449		236		484		347		497		476		320		2809	
Percentage Reported Tests	78%		78%		79%		75%		88%		72%		78%		79%	
Grade 1 - 5 Mean NCE Score	49		43		41		44		66		42		47		49	
Grade 2 - 5 Mean NCE Score	46		43		39		40		65		39		46		46	

1993-94

	Madison		Pk Heights		Pimlico		M. Brent		Cecil		Liberty		Washingtn		Group I	
Grade 1 - Number and NCE	77	65	49	44	79	59	57	67	92	65	77	44	69	56	500	58
Grade 2 - Number and NCE	73	52	55	47	88	44	58	43	92	63	67	45	46	58	479	51
Grade 3 - Number and NCE	70	47	37	39	81	41	65	44	99	74	84	34	47	49	483	49
Grade 4 - Number and NCE	75	36	38	42	74	40	50	40	90	53	67	35	61	43	455	42
Grade 5 - Number and NCE	54	43	38	40	100	42	47	42	89	52	79	36	39	43	446	43
Total Number Reported Tests	349		217		422		277		462		374		262		2363	
Enrollment Grades 1 - 5	441		252		499		379		520		475		320		2886	
Percentage Reported Tests	79%		86%		85%		73%		89%		79%		82%		82%	
Grade 1 - 5 Mean NCE Score	49		43		45		48		62		39		50		49	
Grade 2 - 5 Mean NCE Score	45		43		42		42		61		37		48		46	

1992-93

	Madison		Pk Heights		Pimlico		M. Brent		Cecil		Liberty		Washingtn		Group I	
Grade 1 - Number and NCE	77	69	58	31	102	51	67	62	100	58	78	40	53	63	535	53
Grade 2 - Number and NCE	67	42	50	41	79	41	61	36	102	66	72	45	51	52	482	48
Grade 3 - Number and NCE	68	49	57	36	70	38	74	50	103	62	69	41	64	42	505	47
Grade 4 - Number and NCE	56	29	47	37	92	41	52	34	89	61	83	36	47	48	466	42
Grade 5 - Number and NCE	67	46	46	45	84	44	55	41	92	55	87	38	60	41	491	45
Total Number Reported Tests	335		258		427		309		486		389		275		2479	
Enrollment Grades 1 - 5	414		309		519		402		538		514		330		3026	
Percentage Reported Tests	81%		84%		82%		77%		90%		76%		83%		82%	
Grade 1 - 5 Mean NCE Score	48		37		43		46		61		40		49		47	
Grade 2 - 5 Mean NCE Score	42		39		41		41		61		40		45		45	

1991-92

	Madison		Pk Heights		Pimlico		M. Brent		Cecil		Liberty		Washingtn		Group I	
Grade 1 - Number and NCE	74	58	55	37	85	43	75	64	107	52	86	37	56	45	538	48
Grade 2 - Number and NCE	72	38	60	44	77	49	82	48	107	57	86	37	66	46	550	46
Grade 3 - Number and NCE	42	33	47	43	77	37	63	42	96	66	84	34	48	38	457	44
Grade 4 - Number and NCE	66	41	50	41	90	43	52	50	109	55	90	36	68	34	525	43
Grade 5 - Number and NCE	58	43	47	36	93	41	62	48	80	54	111	41	43	45	491	44
Total Number Reported Tests	312		259		422		334		499		457		281		2564	
Enrollment Grades 1 - 5	421		309		512		427		560		565		327		3121	
Percentage Reported Tests	74%		84%		82%		78%		89%		81%		86%		82%	
Grade 1 - 5 Mean NCE Score	43		40		43		51		56		37		41		45	

Source: Baltimore City Pupil Information File and Comprehensive Test of Basic Skills/4 Data File for Baltimore City, 1991-92, 1992-93, 1993-94 and 1994-95

Total Mathematics NCE Scores for Group II Comparison Schools
Students enrolled before February 1 of the testing year and not Level IV special education and not "1" score

1994-95

	Templeton		Pk Heights		Pimlico		Rosemont		A Hamiltn		Liberty		Washingtn		Group II	
Grade 1 - Number and NCE	56	51	44	43	80	48	46	43	52	38	73	53	48	51	399	47
Grade 2 - Number and NCE	59	45	39	44	82	39	50	51	59	36	83	47	59	41	431	43
Grade 3 - Number and NCE	47	48	37	43	83	37	42	38	55	34	53	39	34	56	351	41
Grade 4 - Number and NCE	38	39	32	38	71	42	41	30	40	35	69	34	44	50	335	38
Grade 5 - Number and NCE	37	35	32	46	67	37	44	30	54	37	67	36	65	42	366	38
Total Number Reported Tests	237		184		383		223		260		345		250		1882	
Enrollment Grades 1 - 5	349		236		484		289		361		476		320		2515	
Percentage Reported Tests	68%		78%		79%		77%		72%		72%		78%		75%	
Grade 1 - 5 Mean NCE Score	4 5		4 3		4 1		3 9		3 6		4 2		4 7		4 2	
Grade 2 - 5 Mean NCE Score	43		43		39		38		36		39		46		40	

1993-94

	Templeton		Pk Heights		Pimlico		Rosemont		A Hamiltn		Liberty		Washingtn		Group II	
Grade 1 - Number and NCE	83	42	49	44	79	59	68	35	68	38	77	44	69	56	493	46
Grade 2 - Number and NCE	51	47	55	47	88	44	51	50	64	35	67	45	46	58	422	46
Grade 3 - Number and NCE	57	28	37	39	81	41	55	36	52	36	84	34	47	49	413	37
Grade 4 - Number and NCE	35	34	38	42	74	40	46	33	62	31	67	35	61	43	383	37
Grade 5 - Number and NCE	63	39	38	40	100	42	58	27	70	34	79	36	39	43	447	37
Total Number Reported Tests	289		217		422		278		316		374		262		2158	
Enrollment Grades 1 - 5	406		252		499		328		394		475		320		2674	
Percentage Reported Tests	71%		86%		85%		85%		79%		79%		82%		81%	
Grade 1 - 5 Mean NCE Score	3 9		4 3		4 5		3 6		3 4		3 9		5 0		4 1	
Grade 2 - 5 Mean NCE Score	37		43		42		36		34		37		48		39	

1992-93

	Templeton		Pk Heights		Pimlico		Rosemont		A Hamiltn		Liberty		Washingtn		Group II	
Grade 1 - Number and NCE	59	42	58	31	102	51	65	39	77	33	78	40	53	63	492	43
Grade 2 - Number and NCE	50	49	50	41	79	41	61	48	60	35	72	45	51	52	423	44
Grade 3 - Number and NCE	49	31	57	36	70	38	36	34	74	34	69	41	64	42	419	37
Grade 4 - Number and NCE	59	34	47	37	92	41	61	26	64	31	83	36	47	48	453	36
Grade 5 - Number and NCE	54	38	46	45	84	44	51	38	69	44	87	38	60	41	451	41
Total Number Reported Tests	271		258		427		274		344		389		275		2238	
Enrollment Grades 1 - 5	342		309		519		354		417		514		330		2785	
Percentage Reported Tests	79%		83%		82%		77%		82%		76%		83%		80%	
Grade 1 - 5 Mean NCE Score	3 9		3 7		4 3		3 7		3 5		4 0		4 9		4 0	
Grade 2 - 5 Mean NCE Score	38		39		41		37		36		40		45		39	

1991-92

	Templeton		Pk Heights		Pimlico		Rosemont		A Hamiltn		Liberty		Washingtn		Group II	
Grade 1 - Number and NCE	48	47	55	37	85	43	80	38	66	39	86	37	56	45	476	41
Grade 2 - Number and NCE	54	36	60	44	77	49	68	46	81	51	86	37	66	46	492	45
Grade 3 - Number and NCE	62	40	47	43	77	37	62	34	72	35	84	34	48	38	452	37
Grade 4 - Number and NCE	57	30	50	41	90	43	49	47	69	40	90	36	68	34	473	39
Grade 5 - Number and NCE	47	39	47	36	93	41	58	42	65	54	111	41	43	45	464	43
Total Number Reported Tests	268		259		422		317		353		457		281		2357	
Enrollment Grades 1 - 5	347		309		512		389		423		565		327		2872	
Percentage Reported Tests	77%		84%		82%		81%		83%		81%		86%		82%	
Grade 1 - 5 Mean NCE Score	3 8		4 0		4 3		4 1		4 4		3 7		4 1		4 1	

Source. Baltimore City Pupil Information File and Comprehensive Test of Basic Skills/4 Data File for Baltimore City, 1991-92, 1992-93, 1993-94 and 1994-95

Comprehensive Test of Basic Skills Scores for Students Enrolled Two Years

Reading NCE Scores for Tesseract Schools for Two-Year Students
Two-Year Students - Students enrolled in Grades 1 through 4 on September 1 of preceding school year
and consecutively in school and not Level IV special education and not "1" score
Current Grades 2 - 5 Students - Students enrolled by February 1 of the testing year and not Level IV special education and not "1" score

1994-95

	Browne		Monroe		Harlem Pk		Edgewood		S. Roach		Rodman		Graceland		Tesseract	
Grade 2 - Number and NCE	23	30	16	31	29	36	46	46	34	41	62	43	32	33	242	39
Grade 3 - Number and NCE	17	32	23	65	56	45	41	46	52	38	59	46	33	32	281	43
Grade 4 - Number and NCE	20	39	20	34	41	39	42	50	40	40	65	43	25	40	253	42
Grade 5 - Number and NCE	22	34	16	40	46	37	40	46	42	40	67	38	40	34	273	38
Number of Two-Year Tests	82		75		172		169		168		253		130		1049	
Enrollment Grades 2 - 5	195		147		347		261		259		399		247		1875	
Percentage Two-Year Tests	42%		51%		50%		65%		65%		63%		53%		56%	
Two-Year Students NCE	34		44		40		47		40		42		34		41	
Current Grade 2 - 5 NCE	31		42		39		46		40		41		33		40	

1993-94

	Browne		Monroe		Harlem Pk		Edgewood		S. Roach		Rodman		Graceland		Tesseract	
Grade 2 - Number and NCE	15	34	26	52	50	27	43	46	54	42	60	34	30	32	278	37
Grade 3 - Number and NCE	19	32	20	36	45	35	44	47	45	42	71	40	29	37	273	39
Grade 4 - Number and NCE	18	43	15	43	46	32	43	55	46	46	77	38	46	36	291	41
Grade 5 - Number and NCE	20	33	27	33	43	28	50	41	32	42	78	35	32	36	282	36
Number of Two-Year Tests	72		88		184		180		177		286		137		1124	
Enrollment Grades 2 - 5	201		167		398		295		272		432		239		2004	
Percentage Two-Year Tests	36%		53%		46%		61%		65%		66%		57%		56%	
Two-Year Students NCE	36		41		30		47		43		37		35		38	
Current Grade 2 - 5 NCE	35		42		30		45		41		37		34		37	

1992-93

	Browne		Monroe		Harlem Pk		Edgewood		S. Roach		Rodman		Graceland		Tesseract	
Grade 2 - Number and NCE	21	29	21	40	47	33	47	42	40	43	71	39	36	38	283	38
Grade 3 - Number and NCE	17	34	23	38	52	37	49	47	50	49	73	37	40	38	304	41
Grade 4 - Number and NCE	19	36	26	34	50	33	51	44	40	50	84	38	34	34	304	39
Grade 5 - Number and NCE	10	32	25	36	46	31	37	54	40	42	84	40	28	33	270	40
Number of Two-Year Tests	67		95		195		184		170		312		138		1161	
Enrollment Grades 2 - 5	209		159		398		309		275		471		250		2071	
Percentage Two-Year Tests	32%		60%		49%		60%		62%		66%		55%		56%	
Two-Year Students NCE	33		37		34		47		46		39		36		39	
Current Grade 2 - 5 NCE	31		35		33		47		43		38		35		38	

Source:: Baltimore City Pupil Information File and Comprehensive Test of Basic Skills/4 Data File for Baltimore City. 1991-92, 1992-93, 1993-94 and 1994-95

Reading NCE Scores for Group I Comparison Schools for Two-Year Students
Two-Year Students - Students enrolled in Grades 1 through 4 on September 1 of preceding school year
and consecutively in school and not Level IV special education and not "1" score
Current Grades 2 - 5 Students - Students enrolled by February 1 of the testing year and not Level IV special education and not "1" score

1994-95

	Madison S		Pk Heights		Pimlico		M. Brent		Cecil		Liberty		Washingtn		Group I	
Grade 2 - Number and NCE	43	41	29	43	50	45	34	47	58	63	50	39	45	40	309	46
Grade 3 - Number and NCE	40	39	26	42	60	42	40	43	56	68	48	36	30	56	300	47
Grade 4 - Number and NCE	36	42	25	41	47	39	46	42	67	51	48	39	35	44	304	43
Grade 5 - Number and NCE	47	36	25	38	46	35	35	36	66	47	45	32	47	34	311	37
Number of Two-Year Tests	166		105		203		155		247		191		157		1224	
Enrollment Grades 2 - 5	365		180		388		281		385		389		266		2254	
Percentage Two-Year Tests	45%		58%		52%		55%		64%		49%		59%		54%	
Two-Year Students NCE	40		41		40		42		57		36		42		43	
Current Grade 2 - 5 NCE	39		40		38		40		56		37		40		42	

1993-94

	Madison S		Pk Heights		Pimlico		M. Brent		Cecil		Liberty		Washingtn		Group I	
Grade 2 - Number and NCE	48	48	28	42	65	43	39	46	58	57	47	43	34	52	319	48
Grade 3 - Number and NCE	38	41	31	39	53	43	52	48	74	66	57	36	38	58	343	49
Grade 4 - Number and NCE	49	39	30	39	51	44	47	48	75	55	54	36	51	49	357	45
Grade 5 - Number and NCE	40	36	25	35	60	37	38	42	68	44	60	32	34	39	325	38
Number of Two-Year Tests	175		114		229		176		275		218		157		1344	
Enrollment Grades 2 - 5	350		195		409		304		418		372		245		2293	
Percentage Two-Year Tests	50%		58%		56%		58%		66%		59%		64%		59%	
Two-Year Students NCE	42		39		42		46		56		36		50		45	
Current Grade 2 - 5 NCE	40		39		40		45		54		37		49		44	

1992-93

	Madison S		Pk Heights		Pimlico		M. Brent		Cecil		Liberty		Washingtn		Group I	
Grade 2 - Number and NCE	40	40	33	39	44	45	40	43	76	60	51	45	32	47	316	47
Grade 3 - Number and NCE	53	41	37	42	54	38	44	44	74	64	51	40	50	39	363	45
Grade 4 - Number and NCE	31	35	35	36	54	42	42	42	70	48	59	40	30	47	321	42
Grade 5 - Number and NCE	51	38	30	42	60	41	40	45	77	47	61	34	51	42	370	41
Number of Two-Year Tests	175		135		212		166		297		222		163		1370	
Enrollment Grades 2 - 5	330		235		410		321		423		407		265		2391	
Percentage Two-Year Tests	53%		57%		52%		52%		70%		55%		62%		57%	
Two-Year Students NCE	39		40		41		43		55		39		43		44	
Current Grade 2 - 5 NCE	38		38		40		42		53		39		43		43	

Source:: Baltimore City Pupil Information File and Comprehensive Test of Basic Skills/4 Data File for Baltimore City. 1991-92. 1992-93. 1993-94 and 1994-95

Reading NCE Scores for Group II Comparison Schools for Two Year Students

Two-Year Students - Students enrolled in Grades 1 through 4 on September 1 of preceding school year
and consecutively in school and not Level IV special education and not "1" score
Current Grades 2 - 5 Students - Students enrolled by February 1 of the testing year and not Level IV special education and not "1" score

1994-95

	Templeton		Pk Heights		Pimlico		Rosemont		A. Hamiltn		Liberty		Washingtn		Group II	
Grade 2 - Number and NCE	34	46	29	43	50	45	35	43	39	36	50	39	45	40	282	41
Grade 3 - Number and NCE	24	44	26	42	60	42	29	40	38	34	48	36	30	56	255	41
Grade 4 - Number and NCE	27	34	25	41	47	39	33	32	31	41	48	39	35	44	246	39
Grade 5 - Number and NCE	16	30	25	38	46	35	28	28	36	33	45	32	47	34	243	33
Number of Two-Year Tests	101		105		203		125		144		191		157		1026	
Enrollment Grades 2 - 5	280		180		388		230		293		389		266		2026	
Percentage Two-Year Tests	36%		58%		52%		54%		42%		49%		59%		51%	
Two-Year Students NCE	40		41		40		36		36		36		42		39	
Current Grade 2 - 5 NCE	38		40		38		36		35		37		40		38	

1993-94

	Templeton		Pk Heights		Pimlico		Rosemont		A. Hamiltn		Liberty		Washingtn		Group II	
Grade 2 - Number and NCE	29	50	28	42	65	43	34	45	43	31	47	43	34	52	280	43
Grade 3 - Number and NCE	36	29	31	39	53	43	42	38	34	36	57	36	38	58	291	40
Grade 4 - Number and NCE	27	33	30	39	51	44	32	36	40	35	54	36	51	49	285	40
Grade 5 - Number and NCE	41	39	25	35	60	37	39	28	42	33	60	32	34	39	301	35
Number of Two-Year Tests	133		114		229		147		159		218		157		1157	
Enrollment Grades 2 - 5	307		195		409		249		317		372		245		2094	
Percentage Two-Year Tests	43%		58%		56%		59%		50%		59%		64%		55%	
Two-Year Students NCE	38		39		42		36		33		36		50		39	
Current Grade 2 - 5 NCE	37		39		40		35		34		37		49		39	

1992-93

	Templeton		Pk Heights		Pimlico		Rosemont		A. Hamiltn		Liberty		Washingtn		Group II	
Grade 2 - Number and NCE	30	38	33	39	44	45	48	46	36	40	51	45	32	47	274	43
Grade 3 - Number and NCE	37	29	37	42	54	38	45	36	51	36	51	40	50	39	325	37
Grade 4 - Number and NCE	43	37	35	36	54	42	46	32	45	39	59	40	30	47	312	39
Grade 5 - Number and NCE	41	30	30	42	60	41	31	34	51	39	61	34	51	42	325	37
Number of Two-Year Tests	151		135		212		170		183		222		163		1236	
Enrollment Grades 2 - 5	272		235		410		279		328		407		265		2196	
Percentage Two-Year Tests	56%		57%		52%		61%		56%		55%		62%		56%	
Two-Year Students NCE	33		40		41		37		38		39		43		39	
Current Grade 2 - 5 NCE	34		38		40		37		38		39		43		39	

Source:: Baltimore City Pupil Information File and Comprehensive Test of Basic Skills/4 Data File for Baltimore City, 1991-92, 1992-93, 1993-94 and 1994-95

Mathematics NCE Scores for Tesseract Schools for Two-Year Students

Students enrolled in Grades 1 through 4 on September 1 of preceding school year and consecutively in school and not Level IV special education and not "1" score

1994-95

	Browne		Monroe		Harlem Pk		Edgewood		S. Roach		Rodman		Graceland		Tesseract	
Grade 2 - Number and NCE	24	29	19	44	31	35	47	53	35	50	60	53	35	40	251	46
Grade 3 - Number and NCE	17	28	24	56	53	51	42	47	54	51	56	47	36	35	282	47
Grade 4 - Number and NCE	22	39	19	38	40	35	43	49	41	46	64	47	26	40	255	43
Grade 5 - Number and NCE	23	40	16	51	46	33	40	48	43	41	73	47	42	36	283	42
Number of Two-Year Tests	86		78		170		172		173		253		139		1071	
Enrollment Grades 2 - 5	195		147		347		261		259		399		247		1875	
Percentage Two-Year Tests	44%		53%		49%		66%		67%		63%		56%		57%	
Two-Year Students NCE	34		48		39		50		47		48		37		44	
Current Grade 2 - 5 NCE	33		46		37		49		48		47		37		43	

1993-94

	Browne		Monroe		Harlem Pk		Edgewood		S. Roach		Rodman		Graceland		Tesseract	
Grade 2 - Number and NCE	13	30	27	57	51	43	43	55	51	46	56	38	26	35	267	44
Grade 3 - Number and NCE	17	33	22	39	48	46	40	51	46	39	72	45	28	41	273	43
Grade 4 - Number and NCE	19	43	17	38	44	30	45	52	46	36	76	36	49	32	296	37
Grade 5 - Number and NCE	22	42	27	42	46	30	52	44	31	45	82	41	36	42	295	41
Number of Two-Year Tests	71		93		189		180		174		286		138		1131	
Enrollment Grades 2 - 5	201		167		398		295		272		432		239		2004	
Percentage Two-Year Tests	35%		56%		47%		61%		64%		66%		58%		56%	
Two-Year Students NCE	38		45		38		50		41		40		37		41	
Current Grade 2 - 5 NCE	36		45		37		48		40		41		35		40	

1992-93

	Browne		Monroe		Harlem Pk		Edgewood		S. Roach		Rodman		Graceland		Tesseract	
Grade 2 - Number and NCE	21	27	20	49	45	33	45	44	39	44	67	42	35	36	272	40
Grade 3 - Number and NCE	18	37	22	35	50	36	49	46	50	43	68	33	43	38	300	38
Grade 4 - Number and NCE	19	35	27	34	51	33	53	45	40	42	83	37	33	38	306	38
Grade 5 - Number and NCE	15	33	26	39	48	41	36	67	39	46	86	44	27	39	277	45
Number of Two-Year Tests	73		95		194		183		168		304		138		1155	
Enrollment Grades 2 - 5	209		159		398		309		275		471		250		2071	
Percentage Two-Year Tests	35%		60%		49%		52%		61%		65%		55%		56%	
Two-Year Students NCE	33		39		36		49		44		39		38		40	
Current Grade 2 - 5 NCE	32		36		34		49		41		39		36		39	

Source:: Baltimore City Pupil Information File and Comprehensive Test of Basic Skills/4 Data File for Baltimore City, 1991-92, 1992-93, 1993-94 and 1994-95

Mathematics NCE Scores for Group I Comparison Schools for Two-Year Students

Two-Year Students - Students enrolled in Grades 1 through 4 on September 1 of preceding school year
and consecutively in school and not Level IV special education and not "1" score
Current Grades 2 - 5 Students - Students enrolled by February 1 of the testing year and not Level IV special education and not "1" score

1994-95

	Madison S		Pk Heights		Pimlico		M. Brent		Cecil		Liberty		Washingtn		Group I	
Grade 2 - Number and NCE	33	52	28	50	49	40	31	44	58	68	50	46	41	45	290	50
Grade 3 - Number and NCE	40	48	26	45	59	38	39	39	56	68	51	36	28	60	299	47
Grade 4 - Number and NCE	33	41	25	40	48	42	43	37	67	59	49	36	31	50	296	45
Grade 5 - Number and NCE	42	49	25	48	47	40	33	46	66	63	51	34	46	41	310	47
Number of Two-Year Tests	148		104		203		146		247		201		146		1195	
Enrollment Grades 2 - 5	365		180		388		281		385		389		266		2254	
Percentage Two-Year Tests	41%		58%		52%		52%		64%		52%		55%		53%	
Two-Year Students NCE	48		46		40		41		64		38		48		47	
Current Grade 2 - 5 NCE	46		43		39		40		65		39		46		46	

1993-94

	Madison S		Pk Heights		Pimlico		M. Brent		Cecil		Liberty		Washingtn		Group I	
Grade 2 - Number and NCE	43	52	28	51	61	45	38	44	57	68	43	45	31	60	301	52
Grade 3 - Number and NCE	40	46	31	38	51	44	52	45	74	75	57	35	35	50	340	50
Grade 4 - Number and NCE	46	38	30	43	51	45	46	44	75	54	53	34	49	42	350	44
Grade 5 - Number and NCE	37	43	26	38	60	42	38	41	68	54	61	35	33	42	323	43
Number of Two-Year Tests	166		115		223		174		274		214		148		1314	
Enrollment Grades 2 - 5	350		195		409		304		418		372		245		2293	
Percentage Two-Year Tests	47%		59%		55%		57%		66%		58%		60%		57%	
Two-Year Students NCE	44		43		44		44		63		37		48		47	
Current Grade 2 - 5 NCE	45		43		42		42		61		37		48		46	

1992-93

	Madison S		Pk Heights		Pimlico		M. Brent		Cecil		Liberty		Washingtn		Group I	
Grade 2 - Number and NCE	38	45	35	45	45	42	38	37	76	70	51	46	33	54	316	51
Grade 3 - Number and NCE	52	50	37	38	48	40	44	50	74	63	51	43	49	42	355	48
Grade 4 - Number and NCE	32	33	36	36	53	40	41	35	70	62	58	35	29	45	319	43
Grade 5 - Number and NCE	52	48	30	44	64	46	40	44	77	56	63	37	50	43	376	46
Number of Two-Year Tests	174		138		210		163		297		223		161		1366	
Enrollment Grades 2 - 5	330		235		410		321		423		407		265		2391	
Percentage Two-Year Tests	53%		59%		51%		51%		73%		55%		61%		57%	
Two-Year Students NCE	45		41		42		42		63		40		45		47	
Current Grade 2 - 5 NCE	42		39		41		41		61		40		45		45	

Source:: Baltimore City Pupil Information File and Comprehensive Test of Basic Skills/4 Data File for Baltimore City, 1991-92, 1992-93, 1993-94 and 1994-95

Mathematics NCE Scores for Group II Comparison Schools for Two-Year Students

Two-Year Students - Students enrolled in Grades 1 through 4 on September 1 of preceding school year
and consecutively in school and not Level IV special education and not "1" score
Current Grades 2 - 5 Students - Students enrolled by February 1 of the testing year and not Level IV special education and not "1" score

1994-95

	Templeton		Pk Heights		Pimlico		Rosemont		A. Hamiltn		Liberty		Washingtn		Group II	
Grade 2 - Number and NCE	38	51	28	50	49	40	37	52	38	37	50	46	41	45	281	45
Grade 3 - Number and NCE	27	49	26	45	59	38	28	40	36	36	51	36	28	60	255	42
Grade 4 - Number and NCE	29	38	25	40	48	42	30	29	32	36	49	36	31	50	244	39
Grade 5 - Number and NCE	20	41	25	48	47	40	28	30	35	38	51	28	46	41	252	38
Number of Two-Year Tests	114		104		203		123		141		201		146		1032	
Enrollment Grades 2 - 5	280		180		388		230		293		389		266		2026	
Percentage Two-Year Tests	41%		58%		52%		53%		48%		52%		55%		51%	
Two-Year Students NCE	45		46		40		38		37		38		48		41	
Current Grade 2 - 5 NCE	43		43		39		38		36		39		46		40	

1993-94

	Templeton		Pk Heights		Pimlico		Rosemont		A. Hamiltn		Liberty		Washingtn		Group II	
Grade 2 - Number and NCE	30	48	28	51	61	45	33	53	43	31	43	45	31	60	269	46
Grade 3 - Number and NCE	38	26	31	38	51	44	42	37	33	36	57	35	35	50	287	38
Grade 4 - Number and NCE	23	32	30	43	51	45	33	32	40	30	53	34	49	42	279	37
Grade 5 - Number and NCE	41	40	26	38	60	42	41	28	48	32	61	35	33	42	310	37
Number of Two-Year Tests	132		115		223		149		164		214		148		1145	
Enrollment Grades 2 - 5	307		195		409		249		317		372		245		2094	
Percentage Two-Year Tests	43%		59%		55%		60%		52%		58%		60%		55%	
Two-Year Students NCE	37		43		44		37		32		37		48		39	
Current Grade 2 - 5 NCE	37		43		42		36		34		37		48		39	

1992-93

	Templeton		Pk Heights		Pimlico		Rosemont		A. Hamiltn		Liberty		Washingtn		Group II	
Grade 2 - Number and NCE	29	46	35	45	45	42	48	48	34	37	51	46	33	54	275	46
Grade 3 - Number and NCE	36	30	37	38	48	40	45	32	55	34	51	43	49	42	321	37
Grade 4 - Number and NCE	41	33	36	36	53	40	44	27	45	32	58	35	29	45	306	35
Grade 5 - Number and NCE	39	40	30	44	64	46	31	41	51	43	63	37	50	43	328	42
Number of Two-Year Tests	145		138		210		168		185		223		161		1230	
Enrollment Grades 2 - 5	272		235		410		279		328		407		265		2196	
Percentage Two-Year Tests	53%		59%		51%		60%		56%		55%		61%		56%	
Two-Year Students NCE	37		41		42		37		37		40		45		40	
Current Grade 2 - 5 NCE	38		39		41		37		36		40		45		39	

Source:: Baltimore City Pupil Information File and Comprehensive Test of Basic Skills/4 Data File for Baltimore City, 1991-92, 1992-93, 1993-94 and 1994-95

The Instrument Appendix

Classroom Observation Form

Teacher Climate Survey and Teacher Questionnaire

Grade 5 Student Questionnaire

Parent Telephone Survey

UMBC Elementary School Classroom Observation Form

Grade____ School_____ Date_____ _____ Start time_____ Number of students_____ at start of observation

Teacher_____ Observer_____ Room_____ End time_____ Number of students_____ at end of observation

Time (10 minute intervals)	10	20	30	40	50	60	70	80	90	100
Subject										

Class Organization	10	20	30	40	50	60	70	80	90	100
Teacher talking to whole class; students listening										
Whole-class teacher-led activity										
Most students doing similar seatwork										
Most students doing individualized seatwork										
Teacher with a group and others at seatwork										
Teacher with a group and others in groups										
Teacher and intern teaching simultaneously										
Groups cycling through "centers"										
Groups in "project work"										
Cooperative learning groups										
Other (identify)										

Students at Computers (Tesseract Schools)										

Time Use of Teacher										
Teaching the whole class										
Teaching half the class										
Teaching or working with a small group										
Working with a single student										
Monitoring students or groups										
Interaction with an adult										
Administrative activities										
Organizing materials or preparing for instruction										
Reviewing or grading student written work										
Other (identify)										

Time Use of Intern or Aide										
Teaching the whole class										
Teaching half the class										
Teaching or working with a small group										
Working with a single student										
Monitoring students or groups										
Interaction with an adult										
Administrative activities										
Organizing materials or preparing for instruction										
Reviewing or grading student written work										
Other (identify)										

Interruptions										
Student(s) in or out of classroom										
Adult(s) in or out of classroom										
Loud speaker										
Other external noise										
Disruptive student(s)										
Other (identify)										
Other (identify)										

Student "Engagement"										
Student A										
Student B										
Student C										

Check = engaged and apparently on task; No check = apparently off task

Conditions for Teaching	
Self-contained (S) or Open space (O) classroom	

Schedule for the Day

Homework

Classroom Computer Use (Describe)

Computer Room (Time and Day)	
Teacher present with class	
Teacher working with students	
Intern present with class	
Intern working with students	
Students engaged	
Students "flitting" or not on task	

Rate the following:

1 - Not seen
2 - Some evidence
3 - Prominent

Student work posted in halls	1 2 3
Student writings posted in room	1 2 3
Charts and graphs of real-life data posted	1 2 3
Student-created diagrams posted	1 2 3
Math manipulatives available	1 2 3
Writing supplies available	1 2 3
Art supplies available	1 2 3
Sets of literature books evident	1 2 3
Evidence of student projects	1 2 3

Did you see?

1 - Yes
0 - No

Worksheets or workbooks in reading?	1 0
Worksheets or workbooks in language arts?	1 0
Worksheets or workbooks in mathematics?	1 0
Hands-on activities in mathematics?	1 0
Hands-on activities in science?	1 0
"Round-Robin" reading	1 0
Interpretive questioning	1 0
Students writing in journals	1 0
Students writing in mathematics	1 0
Students writing in science or social studies	1 0

Rate the following:

1 - Poor
2 - Fair to Good
3 - Excellent

Condition of the grounds	1 2 3
Condition of the office and halls	1 2 3
Welcoming procedures for observers	1 2 3
Cleanliness of the classroom	1 2 3

Use the back of the page to describe any features of the school, the classroom, or the teaching that seem special.

EVALUATION OF THE TESSERACT PROGRAM IN THE
BALTIMORE CITY PUBLIC SCHOOLS
School Climate Survey
1994-95

Directions. You are participating in an independent evaluation of the Tesseract Program. Your school has been selected by Superintendent Walter Amprey for participation in this study. *All responses to this Climate Survey are confidential.* You will use a General Purpose NCS Answer Sheet to record your responses.

1. Please turn your General Purpose NCS Answer Sheet to side 2 for important directions about marking your responses.

2. Please turn your General Purpose NCS Answer Sheet to side 1 to record important demographic data for this survey.

3. <u>SEX.</u> Identify your gender (sex) in the box marked SEX.

4. <u>GRADE or EDUC.</u> Indicate your highest level of educational preparation in the GRADE or EDUC Box using the following levels of preparation.

    Your Educational Preparation
	High school diploma	Fill Circle # 11
•	Associate Degree	Fill Circle # 12
•	Bachelor Degree	Fill Circle # 13
•	Master's Degree	Fill Circle # 14
•	Advanced Graduate Specialist Certificate	Fill Circle # 15
•	Doctorate Degree	Fill Circle # 16

5. <u>SPECIAL CODES.</u> Please find the section of the General Purpose NCS Answer Sheet (Side 1) marked Special Codes.

Please use **Column K** to identify the occupational title which best describes your primary work assignment in this school building using the following format:

•	Administrator	Fill Circle # 1
•	Teacher	Fill Circle # 2
•	Instructional Support	Fill Circle # 3
•	Tesseract Intern	Fill Circle # 4
•	Paraprofessional	Fill Circle # 5
•	Clerical, Custodian, or Food Service	Fill Circle # 6

Please use **Column L** to identify the number of years you have work in this school building using the following format:

- 0-3 years   Fill Circle # 1
- 4-6 years   Fill Circle # 2
- 7-12 years   Fill Circle # 3
- 13-19 years   Fill Circle # 4
- 20+ years   Fill Circle # 5

Please use **Column M** to identify the number of years you have served with the Baltimore City Public School system:

- 0-3 years   Fill Circle # 1
- 4-6 years   Fill Circle # 2
- 7-12 years   Fill Circle # 3
- 13-19 years   Fill Circle # 4
- 20+ years   Fill Circle # 5

Please use **Column N** to identify the total number of years you been employed in education using the following format:

- 0-3 years   Fill Circle # 1
- 4-6 years   Fill Circle # 2
- 7-12 years   Fill Circle # 3
- 13-19 years   Fill Circle # 4
- 20+ years   Fill Circle # 5

6. <u>Climate Survey Responses.</u> The Climate Survey contains statements about your school. **There are no right or wrong answers.** Please indicate the extent to which each statement characterizes your perception about your school by filling in the appropriate circle on the General Purpose NCS Answer Sheet using the following format. **Your response is confidential.** *Fill in only one response per statement.*

Fill Circle A for RARELY OCCURS
Fill Circle B for SOMETIMES OCCURS
Fill Circle C for OFTEN OCCURS
Fill Circle D for VERY FREQUENTLY OCCURS

Please turn page

DIRECTIONS. The following are statements about your school. **There are no right or wrong answers.** Please indicate the extent to which each statement characterizes your perception about your school by filling in the appropriate circle on the General Purpose NCS Answer Sheet using the following format. **Your response is confidential.** *Fill in only one response per statement.*

> Fill Circle A for RARELY OCCURS
> Fill Circle B for SOMETIMES OCCURS
> Fill Circle C for OFTEN OCCURS
> Fill Circle D for VERY FREQUENTLY OCCURS

1. The principal explores all sides of topics and admits that other opinions exist.
2. The principal gets what he or she asks for from superiors.
3. The principal discusses classroom issues with teachers.
4. The principal accepts questions without appearing to snub or quash the teacher.
5. Extra materials are available if requested.
6. Students neglect to complete homework.
7. Students are cooperative during classroom instruction.
8. The school is vulnerable to outside pressures.
9. The principal is able to influence the actions of his or her superiors.
10. The principal treats all faculty members as his or her equal.
11. The principal goes out of his or her way to show appreciation to teachers.
12. Teachers are provided with adequate materials for their classrooms.
13. Teachers in this school like each other.
14. Community demands are accepted even when they are not consistent with the educational program.
15. The principal lets faculty know what is expected of them.
16. Teachers receive necessary classroom supplies.
17. The principal conducts meaningful evaluations.
18. Students respect others who get good grades.
19. Teachers feel pressure from the community.
20. The principal's recommendations are given serious consideration by his or her superiors.
21. The principal maintains definite standards of performance.
22. Supplementary materials are available for classroom use.
23. Teachers exhibit friendliness to each other.
24. Students seek extra work so they can get good grades.

Please turn page

Fill Circle A for RARELY OCCURS
Fill Circle B for SOMETIMES OCCURS
Fill Circle C for OFTEN OCCURS
Fill Circle D for VERY FREQUENTLY OCCURS

25. Select citizen groups are influential with the Board of School Commissioners. ¯

26. The principal looks out for the personal welfare of faculty members.

27. Teachers express pride in their school.

28. Teachers identify with the school.

29. The school is open to the whims of the public.

30. A few vocal parents can change school policy.

31. Students try hard to improve on previous work.

32. Teachers accomplish their jobs with enthusiasm.

33. The learning environment is orderly and serious.

34. The principal is friendly and approachable.

35. There is a feeling of trust and confidence among the staff.

36. Teachers show commitment to their students.

37. Teachers are indifferent to each other.

38. Teachers provide input for selecting staff development topics.

39. Teachers view most staff development programs offered at the school as being important.

40. Teachers receive support to develop ideas presented at staff development programs.

41. Teachers view most staff development programs offered at the school as being relevant.

42. Staff development programs offered at the school are designed to enhance the professional skills of teachers.

43. Staff development programs offered at the school are scheduled so they do not intrude on the instructional planning time of teachers.

44. Staff development is taken seriously by teachers in this school.

45. Teachers view most staff development programs offered at the school as being practical.

46. The principal implements a school-wide philosophy which encourages teacher improvement through reflection.

Please turn page

47. Staff development programs offered at the school are designed to improve student achievement.
48. Students are engaged in learning.
49. The reading program works well with our students.
50. Students take responsibility for their own learning.
51. Teachers support the instructional philosophy of the school.
52. The school is clean.
53. Computer use is well integrated with the instructional program.
54. Visitors coming into the school building find it depressing.
55. Teachers feel like they are putting on a show for visitors.
56. The school building has a fresh and inviting interior.
57. Computer use supplements the instructional program well.
58. Teachers and students are safe at the school.
59. Mathematics instructional techniques work well with our students.
60. Students take pride in the school.
61. Teachers think there are too many changes in the school.
62. Students are enthusiastic about learning.

STOP • Thank you!

School_____

Grade 5 Student Questionnaire

Directions: Read each statement and make a check on the line with your opinion.

1. Students take pride in our school.
   ___No
   ___Sometimes
   ___Yes

2. Our school is clean.
   ___No
   ___Sometimes
   ___Yes

3. I think the inside of our school is bright and cheerful.
   ___No
   ___Somewhat
   ___Yes

4. I feel safe at school
   ___No
   ___Somewhat
   ___Yes

5. The learning environment in our school is orderly and serious.
   ___No
   ___Sometimes
   ___Yes

6. My classmates cooperate during group instruction.
   ___No
   ___Somewhat
   ___Yes

7. My class has enough books so we can learn well.
   ___No
   ___Somewhat
   ___Yes

8. My class has plenty of writing materials and other supplies.
   ___No
   ___Somewhat
   ___Yes

9. I think that I am learning to be a good reader.
   ___No
   ___Somewhat
   ___Yes

10. I think that I am learning to do well at mathematics.
   ___No
   ___Somewhat
   ___Yes

11. I feel like I experience success in school every day.
   ___No
   ___Somewhat
   ___Yes

12. I usually have homework.
   ___No
   ___Sometimes
   ___Yes

13. I usually do my homework.
   ___No
   ___Sometimes
   ___Yes

14. I sometimes have homework that requires talking about something with a family member.
   ___No
   ___Yes

15. I feel that I take responsibility for my own learning.
   ___No
   ___Sometimes
   ___Yes

16. I feel like I am enthusiastic about learning.
   ___No
   ___Sometimes
   ___Yes

17. I think the adults at this school make a special effort to make every student feel important.
   ___No
   ___Somewhat
   ___Yes

18. Overall, I think that this school is run very well.
   ___No
   ___Somewhat
   ___Yes

What do you like most about the way teachers teach at this school?

_____

_____

_____

_____

_____

_____

What ideas do you have about how teachers at this school could teach so all students will learn more?

_____

_____

_____

_____

_____

Parent Telephone Questionnaire
UMBC Evaluation of the Tesseract Program in Baltimore City

Hello. My name is ____. I'm calling some of the parents of fourth-grade students at _____ Elementary School. Are you the parent or guardian of _____(child's name)? I'm working with the UMBC evaluation of the Tesseract program in Baltimore City. _____ Elementary School is one of the [Tesseract schools / comparison schools], and we are calling the parents of some fourth-graders. I'd like to ask you some questions about your child's school.

1. How long has your fourth-grade son or daughter been a student at _____ Elementary School?
    ___ years

2. Does your child like going to school?
    ___No   ___Sometimes   ___Yes

3. Does your child take pride in his or her school?
    ___No   ___Somewhat   ___Yes

4. Do you think that the school is clean?
    ___No   ___Sometimes   ___Yes

5. Do you think that the inside of the school is bright and cheerful?
    ___No   ___Somewhat   ___Yes

6. Does your child feel safe at school?
    ___No   ___Sometimes   ___Yes

7. As far as you know, is the learning environment in the school orderly and serious?
    ___No   ___Sometimes   ___Yes   ___Don't know

8. As far as you know, is your child's class cooperative during group instruction?
    ___No   ___Sometimes   ___Yes   ___Don't know

9. As far as you know, does your child's class have the books needed so that students learn well?
    ___No   ___Somewhat   ___Yes   ___Don't know

10. As far as you know, does your child's class have plenty of writing materials and other supplies?
___No   ___Somewhat   ___Yes   ___Don't know

11. Do you feel that your child is learning to be a good reader?
___No   ___Somewhat   ___Yes

12. Do you feel that your child is learning to do well at mathematics?
___No   ___Somewhat   ___Yes

13. Does your child experience success in school every day?
___No   ___Sometimes   ___Yes

14. Does your child have homework assignments?
___No   ___Sometimes   ___Yes

15. Does your child complete his or her homework?
___No   ___Sometimes   ___Yes

16. Does your child occasionally have homework assignments that require talking about something with a family member?
___No   ___Yes

17. In your opinion, does your child take responsibility for his own learning?
___No   ___Sometimes   ___Yes   ___Don't know

18. In your opinion, is your child enthusiastic about learning?
___No   ___Sometimes   ___Yes   ___Don't know

19. Do you feel informed about what your child is learning and doing at school?
___No   ___Somewhat   ___Yes

20. Do you feel that the adults of ___ Elementary School make a special effort to make every student feel important?

     ___No   ___Sometimes   ___Yes

21. Overall, do you feel that ___ Elementary School is run very well?

     ___No   ___Sometimes   ___Yes   ___Don't know

Note - The following questions will only be asked of parents with children at Tesseract schools.

22. Have you met with your child's teacher to talk about his or her Personal Education Plan this year?

     ___No   ___Yes

24. Have you signed your child's Personal Education Plan this year?

     ___No   ___Yes

23. Do you know what your child's PEP Goal is?

     ___No   ___Yes

24. Did you meet with a teacher to talk about a Personal Education Plan last year or the year before?

     ___No   ___Yes

25. Do you think that using computers at school is helping your child with learning to read?

     ___No   ___Somewhat   ___Yes

26. Do you think that using computers at school is helping your child with learning mathematics

     ___No   ___Somewhat   ___Yes

27. Would you recommend a Tesseract school to another parent?

     ___No   ___Yes