

A Comparison of the Cost Analysis of Three Years of Special  
Education Costs in Danville, Virginia

by

Angela J. Pringle

Dissertation submitted to the Faculty at the Virginia Polytechnic Institute and  
State University in partial fulfillment of the requirement for the degree of

DOCTOR OF EDUCATION

in

Educational Administration

---

Richard G. Salmon, Co-Chairman

---

Diane N. Gillespie, Co-Chairman

---

Patrick Carlton

---

Joanne S. Moche

---

Glenn Earthman

October, 1997

Blacksburg, Virginia

## Abstract

Since the enactment in 1975 of the Education for All Handicapped Children Act (P.L. 94-142), now renamed the Individuals with Disabilities Education Act (IDEA), the cost of special education services has grown substantially in both absolute and relative terms (Duenas 1993). As a result, the issues such as the actual cost of special education services and the relationship of special education financing to regular education funding have become increasingly important to local, state and federal policymakers.

The need for cost analysis in special education has become more important as the competition with other governmental agencies for available funds becomes more acute. As a social service, education in general and special education in particular must compete for dollars with highways, sanitation, and other services (Ysseldyke 1992). This study contributes to the need for in depth analysis of special education costs.

The cost analysis method replicated in this study, called the Moche Cost Analysis of Public Education or CAPE Model, provided greater accuracy and flexibility than prior methods. The CAPE Model was used to examine and compare costs of regular elementary education, regular secondary education, elementary special education, and secondary special education. Special education costs also were compared across disability categories and service delivery environments.

CAPE can be adapted easily to identify expenditures by building level and programs other than special education. CAPE calculations were completed using the LOTUS spreadsheet program.

## ACKNOWLEDGMENTS

I wish to express my sincere appreciation to those many people who provided encouragement, support, and/or assistance throughout the completion of my doctoral program, including:

My committee chairpersons, Dr. Richard Salmon and Dr. Diane Gillespie. Their expertise, support, and guidance made this project possible. Special thanks to Dr. Salmon for nurturing the doctoral program for candidates living in South-Central Virginia.

My dissertation committee members, Dr. Glen Earthman, Dr. Patrick Carlton, and Dr. Joanne Moche (with special gratitude for her willingness to provide technical assistance in developing a foundation for my research).

The Superintendent, Dr. N. Andrew Overstreet, Special Education Director, and staffs of the Danville Public School System for the wealth of support in obtaining data for purposes of this study.

My two children, Timothy and Courtney, who provided me the inspiration and strength. *And most of all*, my wonderful husband, Charles Pringle, who has supported and encouraged me since the beginning of this project. Without him, I could not have succeeded.

## TABLE OF CONTENTS

ABSTRACT .....	ii
ACKNOWLEDGMENTS .....	iii
TABLE OF CONTENTS .....	iv
LIST OF FIGURES .....	vii
LIST OF TABLES .....	viii
LIST OF APPENDIXES .....	x
CHAPTER	
1 INTRODUCTION .....	1
Statement of the Problem .....	4
Purpose of the Study .....	5
Research Questions .....	5
Limitations of the Study .....	6
2 REVIEW OF THE LITERATURE .....	8
Case Law .....	9
Legislative History .....	14
Virginia .....	14
State .....	18
Federal .....	20
The Education of All Handicapped Children Act .....	25
Funding Methods .....	32
Federal .....	32
State .....	34
Virginia .....	42
Comparison of Cost Analysis Studies .....	47

TABLE OF CONTENTS continued

CHAPTER

3	DESCRIPTION OF THE STUDY	
	Statement of Methodology . . . . .	65
	Factors in Educational Analysis . . . . .	66
	Selection of Sample . . . . .	67
	Data Collection . . . . .	68
	CAPE Study Design . . . . .	69
	Calculation Procedure . . . . .	70
	Cost Categories and Components . . . . .	71
	Transportation Input Center . . . . .	73
	Supplemental Expenses Input Center . . . . .	74
	Service Cost Component . . . . .	80
	Maintenance and Operations Input Center . . . . .	81
	Supplemental Expenses Input Center . . . . .	81
	Administrative Cost Component . . . . .	82
	General Central Administration Input Center . . . . .	83
	Level-specific Administration Input Center . . . . .	84
	Site-based Administration Input Center . . . . .	84
	Support Cost Component . . . . .	85
	Assessment Input Center . . . . .	86
	Direct Support Services Input Center . . . . .	86
	Related Services Input Center . . . . .	86
	Supplemental Expenses Input Center . . . . .	87
	Instruction Cost Component . . . . .	87
	Special Education Input Center . . . . .	87
	Regular Education Input Center . . . . .	88
	Supplemental Expenses Input Center . . . . .	89
	Summary of Educational Expenditures . . . . .	89
4	RESULTS	
	Dissertation Research Study . . . . .	91
	Research Question One . . . . .	94
	Research Question Two . . . . .	111
	Research Question Three . . . . .	115
	Research Question Four . . . . .	121
	Research Question Five . . . . .	128

TABLE OF CONTENTS continued

CHAPTER

5	CONCLUSIONS AND RECOMMENDATION	
	Discussion .....	131
	Conclusions .....	133
	Recommendations .....	135
	APPENDIX .....	139
	GLOSSARY .....	174
	REFERENCES .....	177
	VITA .....	183

## LIST OF FIGURES

### FIGURES

1	Special Education Funding Formulas: Elements and Mechanisms . . . . .	41
2	Cost Calculations . . . . .	43

## LIST OF TABLES

### TABLES

1	Factors in Educational Evaluation .....	67
2	CAPE Total Annual Expenditures for Regular and Special Education in Current Dollars, School Year 1991-92 .....	96
3	CAPE Total Annual Expenditures for Regular and Special Education in Current Dollars, School Year 1992-93 .....	98
4	CAPE Total Annual Expenditures for Regular and Special Education in Current Dollars, School Year 1993-94 .....	100
5	CAPE Total Annual Expenditures for Regular and Special Education in 1993 Constant Dollars, School Year 1991-92 .....	103
6	CAPE Total Annual Expenditures for Regular and Special Education in 1993 Constant Dollars, School Year 1992-93 .....	105
7	CAPE Total Annual Expenditures for Regular and Special Education in 1993 Constant Dollars, School Year 1993-94 .....	107
8	Comparison of Summary of Per Pupil Expenditures for Regular and Special Education Cost Information in 1993 Constant Dollars, School Years 1991-92, 1992-93, and 1993-94 .....	110
9	Average Per Pupil Education Expenditures by Program Type and Intensity of Service Delivery in 1993 Constant Dollars, School Years 1991-92, 1992-93, and 1993-94 .....	114
10	CAPE Per Pupil Elementary Special Education Expenditures by Disability Category and Major Program Types in 1993 Constant Dollars, School Years 1991-92, 1992-93, and 1993-94 .....	119
11	CAPE Per Pupil Secondary Special Education Expenditures by Disability Category and Major Program Types in 1993 Constant Dollars, School Years 1991-92, 1992-93, 1993-94 .....	120



Tables Continued

12	Comparison of State and Federal Reported Data and CAPE Data in Current Dollars, School Year 1991-92 . . . . .	125
13	Comparison of State and Federal Reported Data and CAPE Data in Current Dollars, School Year 1992-93 . . . . .	126
14	Comparison of State and Federal Reported Data and CAPE Data in Current Dollars, School Year 1993-94 . . . . .	127
15	Comparison of Excess Cost Calculations in Current Dollars, School Years 1991-92, 1992-93, and 1993-94 . . . . .	130
16	Comparison of Summary of Special Education Cost in 1993 Constant Dollars, School Years 1993-94, 1992-93, 1991-92, 1985-86, 1977-78, and 1968-69 . . . . .	136

## Chapter 1

### Introduction

Since the enactment in 1975 of the Education for All Handicapped Children Act (P.L. 94-142), now renamed the Individuals with Disabilities Education Act (IDEA),<sup>1</sup> the cost of special education services has grown substantially in both absolute and relative terms.<sup>2</sup> As a result, the issues such as the actual cost of special education services and the relationship of special education financing to regular education funding have become increasingly important to local, state and federal policymakers. In 1993, the U.S. Department of Education's Office of Special Education Programs (OSEP) initiated funding for a national Center for Special Education Finance (CSEF) which currently resides at the American Institutes for Research (AIR) in Palo Alto, California. During a five-year agreement, CSEF has availed the opportunity to examine issues relating to

---

<sup>1</sup> Note: this study was completed prior to the reauthorization of IDEA which went into effect June 4, 1997.

<sup>2</sup> Ixtlac E. Duenas, "Narrative Review of the Literature," American Institute for Research in the Behavioral Sciences: the Center for Special Education Finance (October 1993): 1

special education costs and funding policy over time (see Mission).<sup>3</sup>

The Education for All Handicapped Children Act, heretofore referred to as EAHCA, of 1975 (P.L. 94-142) mandates free, appropriate public

education for all disabled children from ages three to twenty-

one.<sup>4</sup> Although many federal programs in existence before

the enactment of P.L. 94-142 provided financial assistance,

this act represented the largest single fiscal commitment of

federal money to assist state and local agencies in educating

disabled children.<sup>5</sup> At the time P.L. 94-142 became law,

forty-eight states had laws requiring that provisions be made for the education of disabled

children; however, almost half of the students were receiving inappropriate education and

as many as one million disabled children in the United States were entirely excluded from

public school education. Testimony at the United States Congressional Hearings in 1975

pointed to financial constraints as the major reason for failure to provide adequate service

to many disabled students.<sup>6</sup> Gillespie explained in her study on excess special education

**MISSION OF CSEF:**  
To provide information needed by policymakers to make informed decisions regarding the provision of services to children with disabilities and to provide opportunities for information sharing regarding current fiscal policy issues.

---

<sup>3</sup>Thomas B. Parrish, "Special Education Finance: Past, Present, Future: Policy Paper Number 8," American Institute for Research in the Behavioral Sciences: the Center for Special Education Finance (May 1996):

<sup>4</sup>See the Education of All Handicapped Children's Act, Public Law 94-142, (reauthorized IDEA 1990), 20 U.S.C. 1400 et seq. (1975).

<sup>5</sup>M.D. Alexander and K. Alexander, American Public School Law, 3rd Edition (St. Paul Minn: West Publishing Co.).

<sup>6</sup>United States Department of Education, Fourth Annual Report to Congress on the Implementation of Public Law 94-142: the Education of All Handicapped Children Act, (Washington D.C.: Office of Special Education Programs, Office of Special

cost, that it was the responsibility of the state education agency to establish policies and procedures which assured that funds paid under P.L. 94-142 were expended according to provisions of the Act (see Management Accounting Procedures).<sup>7</sup>

Although P.L. 94-142 implied that the federal government would eventually assume up to 40 percent of the excess cost of special education programs, the federal funding share had never risen above an average of eight percent. Therefore, the vast majority of the burdens for financing special education programs and related services have been borne by state and local education agencies.<sup>8</sup>

Management Accounting Procedures for LEAs as required by P.L. 94-142:

1. Establish the base per pupil expenditure for the average student;
2. Establish a per pupil expenditure for disabled students;
3. Account for the expenditure of local, state, and federal dollars in educating the disabled.

In 1990, the EAHCA was amended and renamed the Individuals with Disabilities Education Act (IDEA), Public Law 101-476. The Fifteenth Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act (1993) contained statistics which showed that during the 1991-92 school year, 4,994,169 children and youth (birth through age twenty-one) with disabilities were served under the IDEA'S Part B and Chapter 1 of the Elementary and Secondary Education Act of 1965 programs. This represents a 3.9 percent increase from the

---

Education and Rehabilitative Services, 1982), 116.

<sup>7</sup>Diane Gillespie, "A Study of Compliance With the Education for All Handicapped Children Act Excess Cost Requirements in Selected Local Education Agencies in Florida," (Doctoral Dissertation, Virginia Polytechnic Institute and State University, 1980).

<sup>8</sup>Patricia Anthony, "Financing Special Education In An Era of Fiscal Restraint," School Business Affairs, (September 1991): 23.

previous year, and the largest increase since the first year of implementation of P.L. 94-142 in 1976-77.<sup>9</sup> Duenas attributed the increase in the disabled student population served to a variety of factors, including (1) the addition of new disability categories; (2) increasing numbers of young children being identified as a result of Preschool Grants Programs and the Infants and Toddlers with Disabilities Program; (3) increasing numbers of young children with learning and behavioral difficulties exposed to alcohol and/or drugs in utero; (4) increasing referrals by regular education teachers, of difficult to teach children for assessment and placement in special education. There is every indication that the special education population will continue to grow during the 1990s as the federal government mandates that the states implement more components of IDEA targeted at programs for infants, toddlers, and preschoolers with disabilities<sup>10</sup>.

### **Statement of the Problem**

The analysis of special education costs reflect a variety of choices and constraints addressed by the state and local policymakers. Local Education Agencies need detailed cost analyses to assist in making decisions regarding allocation of dwindling resources; the monitoring of expenditure levels; the design, planning, and evaluation of educational programs; and the incentives for inappropriate classification and programs for children

---

<sup>9</sup>United States Department of Education, Fifteenth Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, (Washington D.C.: Office of Special Education Programs, Office of Special Education and Rehabilitative Services, 1993).

<sup>10</sup>Duenas, "Narrative Review of Literature," 47.

with disabilities.<sup>11</sup>

Also, due to the inability to accurately identify special education costs due to limitations and differences in interpretation of terminology and procedures, a trend analysis will provide the Danville Public School system information necessary in projecting future costs of educating regular and special education elementary and secondary students.

### **Purpose of the Study**

The purpose of this study was to complete a trend analysis of three years of special education costs as compared to regular education cost using data from the 1991-92, 1992-93, and 1993-94 school years. The study will also serve as an impartial field-test of the Moche Cost Analysis of Public Education Model, heretofore referred to as the CAPE Model. The CAPE Model will be used to assess the annual cost of educating elementary and secondary regular education and special education students.

### **Research Questions**

The primary research questions to be addressed in this study area follow:

- 1) What were the total mean annual per pupil expenditures in constant dollars of elementary regular education, secondary regular education, elementary special education, and secondary special education services, and how does each compare?
- 2) What were the total mean annual per pupil expenditures in constant dollars of special

---

<sup>11</sup>Henry Levin, Cost-Effectiveness: A Primer. (Beverly Hills, CA:Sage Publications, 1983).

education by service delivery options (intensity and location of services across the continuum of services), and how does each compare?

3) What were the total mean annual per pupil expenditures in constant dollars of special education by disability category, and how does each compare?

4) What were the differences between state reported data and CAPE cost analysis data results?

5) What were the differences in methodology and conclusions derived from excess cost computation formulas presented in the federal regulations, the Virginia state regulations, and the CAPE formula?

### **Limitations of the Study**

The cost analysis used in this study was completed using data from the Danville Public School System. The writer of this paper was employed in this Local Education Agency (LEA) and had access to necessary data. The study offers limited generalization due to the use of data from one LEA not necessarily characteristic or representative of all other LEAs. Data collected within a state are often not comparable because: first, there are systematic variations in the costs of resources; second, the costs of education differ in varying geographic areas; third, costs are affected by economies of scale; and finally, district wealth may influence the types of services provided; therefore, increasing or decreasing the total cost of the educational program.<sup>12</sup>

---

<sup>12</sup>United States Department of Education, Sixth Annual Report to Congress on the Implementation of Public Law 94-142: the Education of All Handicapped Children Act, (Washington D.C.: Office of Special Education Programs, Office of Special Education and

Intrastate differences are compounded when cost comparisons are made because of different formulae used by different states; various purposes for which data are collected by state; differing State definitions and interpretations of special education and related services.<sup>13</sup> This study is limited to data collected from records of the 1991-92, 1992-93, and 1993-94 school years. This study is also limited to public elementary and secondary students. Under provisions of both the original P.L. 94-142 and the reauthorized act, IDEA, students under the age of 5 are included in the plan for educating disabled students. This study does not contain a cost analysis of preschool, early childhood intervention, and nonpublic special education costs.

---

Rehabilitative Services, 1984), 224.

<sup>13</sup>*Ibid.*



## Chapter 2

### Review of Literature

The history and growth of special education in the United States have often been sporadic. The development of programs and services for disabled persons is a result of state and federal legislation, litigation, parent involvement and social conscience. The development reached a pinnacle with the adoption of Public Law 94-142 in 1975. A national commitment of this scope and magnitude did not come into being overnight. The adoption of the act culminated more than one hundred fifty years of advocacy and effort.<sup>1</sup> Research information relevant to the financing of special education services is divided into four categories: case law, legislation, funding methods and cost analysis studies. Each of these categories was reviewed in order to develop a comprehensive and analytical perspective through which the financing of special education would be viewed.

---

<sup>1</sup>Emmet Brown, "A Time and Cost Analysis of the Principal's Role in the Administration of Special Education Problems," (Doctoral Dissertation, University of Nebraska, 1982), 29.

## Case Law

Between the mid-1960s and 1975, state legislatures, the federal courts, and the United States Congress spelled out strong educational rights for children with disabilities. Specifically, the federal courts, interpreting the equal protection and due process guarantees of the Fifth and Fourteenth Amendment to the U.S. Constitution, ruled that schools could not discriminate on the basis of disability and that parents had due process rights related to their children's schooling.<sup>2</sup> Two precedent setting cases involving the disabled have been Pennsylvania Association of Retarded Citizens (PARC) v. Pennsylvania (1971) and Mills v. the Board of Education (1972). In both cases, the courts applied the equal protection and due process guarantees of the Fifth and Fourteenth Amendments to furnish important rights to disabled students.<sup>3</sup>

In PARC, the plaintiffs contested a state law that specifically allowed public schools to deny services to children who had not attained a mental age of five years at the time they would ordinarily enroll in first grade. The court held that the state, under a consent decree, would provide full access to a free public education to children with mental retardation up to age twenty-one. The case established the standard of appropriateness, that is, that all children are offered an education appropriate to their other learning capacities and established a clear preference for their least restrictive placement.<sup>4</sup>

---

<sup>2</sup>Edwin Martin, and R. Martin, and D. Terman, "The Legislative and Litigation History of Special Education," The Future of Children, Vol. 6, (Spring 1996): 25.

<sup>3</sup>Rudd Turnbull, Free Appropriate Public Education: the Law and Children With Disabilities, (Denver, CO: Love Publishing Company), 30.

<sup>4</sup>Martin, "The Legislative and Litigation," 28.

In the Mills case, seven children between the ages of eight and sixteen with a variety of mental and behavioral disabilities brought suit against the District of Columbia Public Schools. The LEA had refused to enroll some students due to the lack of funding to support programming and expelled others solely on the basis of their disability.<sup>5</sup> In Mills, the court pointed out that there were... “22,000 retarded, emotionally disturbed, blind, deaf, and speech, or learning disabled children, and perhaps as many as 18,000 of these children were not being furnished with programs of specialized education”.<sup>6</sup> The ruling against the Board of Education in Mills was pivotal and far reaching. The court established the doctrine that children with disabilities had an equal right to public education offered in a form that was meaningful for them, and when the school considered a change in their status, the children were entitled to full procedural protections including notice of proposed changes, access to school records, a right to be heard and to be represented by legal counsel at hearings to determine changes in individual programs. Also they were entitled to a regularly scheduled status review. Furthermore, the court stated that absence of funds is no defense of a failure to provide constitutional rights guaranteed disabled students, and that the burden of inadequate funds may not fall more heavily on disabled pupils than on nondisabled ones.<sup>7</sup> All these protections were eventually incorporated into Public Law 94-142 by Congress. By 1973, more than thirty

---

<sup>5</sup>*Ibid.*

<sup>6</sup>M.D. Alexander and K. Alexander, American Public School Law, 3rd Edition, (St. Paul Minn.: West Publishing Co., 1992), 361.

<sup>7</sup>Turnbull, Free Appropriate Public Education, 208.

federal court decisions had upheld the principles of PARC and Mills.<sup>8</sup>

Other pivotal cases in the history of the progression of special education litigation involved private placement. In a review of Larson's work, Slobojan found that between 1977 and 1981, forty-five percent of all special education litigation involved the issue of private placement.<sup>9</sup> The issue in most of the litigation revolves around whether the public agency or the parent is responsible for payment. In Burlington School Committee v. Department of Education, the Supreme Court determined that parents who place a child in a private facility without the approval of local school officials during a dispute regarding the appropriateness of the public school program, are financially responsible for costs incurred. However, if a court determines that the public school program is not appropriate, then the parents may be reimbursed for the private school costs. The Burlington case remains significant for two reasons. First, the case provides an incentive for public school officials to provide an appropriate program for each disabled student. Second, the case notifies parents of the financial risk contribution to the total funds made available for public education.<sup>10</sup>

In Greer v. Rome City School District (1991), the Eleventh Circuit Court of Appeals found that a child's placement in a segregated special education class did not satisfy the IDEA's LRE requirement. The court reasoned that the LEA had not given

---

<sup>8</sup>Martin, "The Legislative and Litigation,"28.

<sup>9</sup>A. Slobojan, "A Study of Educational Program Costs for Handicapped Students: Fredrick County, Maryland, Public Schools," (Doctoral Dissertation, Virginia Polytechnic Institute and State University, 1986), 19.

<sup>10</sup>*Ibid.*, 28.

sufficient consideration to placing a child who had Down's Syndrome and a speech and language impairment, in the regular classroom with supplemental aids and services. Since the child had made progress during the two years she had spent in a regular kindergarten and had posed no disruption to the class, the court reasoned that for the present the child's needs could be met in the regular classroom with support services.<sup>11</sup>

In Greer, the court elaborated on four criteria to use in determining whether supplemental aids and services would allow an appropriate education to be provided for a child with disabilities in the regular classroom setting. First, the expected educational benefits of the alternative placements must be compared. Second, the nonacademic, e.g., social and behavioral benefits must be considered. Third, the effect of educating the child with disabilities may have on the education of other students in the regular classroom. If the child's regular education placement could "significantly impact" other children's education, a more restrictive environment might be considered appropriate. Fourth, the relevant factor is cost of the supplemental aids and services necessary for the child to receive an appropriate education in the regular classroom. Finally, the cost difference must be significant to influence the placement decision. The court declared:

The school district must balance the needs of each handicapped child against the needs of other children in the district. If the cost of educating a handicapped child in a regular classroom is so great that it would significantly impact upon the education of other children in the district, then education in a regular classroom is not appropriate.<sup>12</sup>

---

<sup>11</sup>Martha McCarthy, "Can Costs Be Considered In Special Education Placements?" Journal of Law and Education, Vol. 22, No. 3, (Summer 1993): 269.

<sup>12</sup>*Ibid.*

Kienas notes that since courts have ruled that LEAs may not base appropriate placement for special education solely on the cost of the program, in making placement decisions, cost may be considered (see Clevenger v. Oak Ridge School Board 1984).<sup>13</sup> Also, in Roncker v. Walters, the District Court ruled cost as a proper factor to consider since excessive spending on one disabled child deprives other children. Cost is not a defense unless the LEA has failed to use its funds to provide a proper continuum of alternative placements for disabled children.<sup>14</sup>

Without question, the provision of appropriate services for children with disabilities is expensive. On the whole, Slobojan found special education costs to be about 2.3 times as much as regular education.<sup>15</sup> He also found that lack of financial resources was among the reasons generally cited by local school systems for failure to develop programs prior to P.L. 94-142 as well as a lack of trained personnel, and proper facilities. Other findings by Slobojan included a frustration by the failure of local school systems to implement state mandates as well as the failure of state officials to enforce the regulations to be the impetus for parents and advocacy groups advancing to the federal courts and the federal government for assistance.<sup>16</sup>

As a result, special education litigation began increasing at a phenomenal rate, and

---

<sup>13</sup>K.L. Kienas, "A Comparison of the Efficiency and Effectiveness of Two Models for Determining the Cost of Special Education Programs," (Doctoral Dissertation, Virginia Polytechnic Institute and State University, 1986), 2.

<sup>14</sup>*Ibid.*

<sup>15</sup>Slobojan, "A Study of Educational Program Costs for Handicapped," 14.

<sup>16</sup>*Ibid.*

most cases have focused primarily around fiscal issues. Although courts have been unsympathetic when LEAs have claimed lack of funds as a rationale for failing to provide appropriate services for children with disabilities, the issue of who should pay for particular programs is becoming increasingly controversial in special education cases. State and local education agencies are questioning the justification of placing additional stress on education budgets to support certain related services, i.e., psychotherapy and residential placements that they assert are not primarily for educational reasons.<sup>17</sup>

However, the courts continue to put the equal protection doctrine to many uses in preventing the following: (1) the total exclusion of all or some disabled children in schools, (2) the total exclusion of some disabled children when others with the same disability are included, and (3) the total exclusion of all persons with one kind of disability when persons with different types of disabilities were included.<sup>18</sup>

## **Legislative History**

### **Virginia**

The first schools in Virginia designed to serve children with disabilities included the schools for the deaf and the blind in Staunton in 1839 and extended to Newport News in 1906 as a facility for the “colored handicapped.” As early as 1900, LEAs began to offer

---

<sup>17</sup>McCarthy, “Can Costs Be Considered,” 265.

<sup>18</sup>Turnbull, Free Appropriate Public Education, 32.

classes for the physically disabled and, to a limited degree, for the mentally retarded.<sup>19</sup>

Although the residential programs for the deaf and the blind were funded by direct appropriation from the state, Joswiak found no evidence of specific fiscal allocations to LEAs for the programs which they maintained for the physically disabled or mentally retarded.<sup>20</sup>

In 1934, Superintendent of Public Instruction, Sidney B. Hall, directed Mr. R.N. Anderson, Superintendent of the Division of Rehabilitation, to form a committee to locate, identify, and determine the numbers of disabled children in the state. Based on this information, the task was to determine, by the numbers and categories, the children not being served and to make recommendations “as to how the problem might be solved whereby educational opportunities might be offered these children.” The response to the request came not only from the committee in the form of recommendations but also from the legislature in the form of financial support of disabled children.<sup>21</sup>

To begin the process, in 1937, a census of disabled children in Virginia was taken with sixty-one percent of the LEAs reporting 32,719 disabled children. However, it was projected that there were at least 50,606 children residing in the Commonwealth in need

---

<sup>19</sup>Leonard Joswiak, “Financing Special Education in Virginia: Equitable Services and Adequate Funding Through a Categorical Program Cost Analysis,” (Doctoral Dissertation, School of Education at Indiana University, 1975), 5.

<sup>20</sup>*Ibid.*

<sup>21</sup>*Ibid.*



of special education services.<sup>22</sup> During the same period, the United States Office of Education estimated the disabled population in Virginia to be in excess of 90,000 children.<sup>23</sup> Following the identification of the population, the statement of needed services and the opinion on the right to educational opportunity for children, the General Assembly made an initial appropriation. In 1938, \$50,000 was allotted for the employment of two state special education supervisors and for the development of special education services in the public schools. The state reimbursement to local boards was on the per capita basis of excess cost of children in special education classes, or on the matching basis of fifty percent of the authorized cost of such classes, not to exceed \$500 per class.<sup>24</sup> The appropriation represents the official beginning of special education in the Commonwealth. Other significant milestones in the development of educational programs for the disabled in Virginia is presented in the table in Appendix A. By 1972, the General Assembly mandated that:

the Board of Education shall prepare and place in operation a program of special education designed to educate and train handicapped children between the ages of two and twenty-one years and may prepare and place in operation such programs for such individuals of other ages. Additionally, the development of such programs, the Board of Education shall assist and cooperate with local school boards in several school divisions. The Board of Education shall adopt such rules and regulations

---

<sup>22</sup>S.M. Vaugh and R. DeFord and L.M. Nelson and S.F. Thomas, Special Education in Virginia, A Report from the Virginia Board of Education to the Office of the Governor of Virginia, (1988): 8.

<sup>23</sup>Joswiak, "Financing Special Education in Virginia," 6.

<sup>24</sup>*Ibid.*, 7.

as education for handicapped children.<sup>25</sup>

In compliance with this mandate, the State Board of Education and the Division of Special Education required LEAs to submit Five-Year Plans for comprehensive and adequate programming for disabled children. According to Vaughn et. al, this legislation made Virginia a national leader in the education of children with special educational needs.<sup>26</sup>

During the same period, Virginia's legislature adopted an amendment to the Constitution mandating the implementation of Standards of Quality for Virginia's public schools. One of the standards required that disabled children be provided special education. The Standard further demonstrated the commitment of the Commonwealth to meeting the special education needs of students. It remains an important requirement in the Commonwealth's Standard of Quality.<sup>27</sup>

Following the Virginia special education mandate in 1972, Joswiak reported a substantial increase in identified disabled students. He found that the increase, coupled with minimal in-state appropriations, decreased the per pupil rate of reimbursement from \$227.16 in 1972-73 to \$217.02 per pupil in 1973-74. As a result, in 1972, to enable the Division of Special Education to reimburse LEAs at an increased level of entitlement commensurate with program increases, Governor Mills E. Godwin Jr. authorized deficit

---

<sup>25</sup>*Ibid.*, 11.

<sup>26</sup>Vaughn, Special Education in Virginia, 6.

<sup>27</sup>*Ibid.*

spending for special education students to increase the funds that were spent per pupil.<sup>28</sup>

By 1981, Vaugh, et. al, reported that ten percent of all students enrolled in Virginia

Schools was identified as disabled.<sup>29</sup>

## **State**

Programs for disabled children developed slowly and sporadically in public schools. Meager financial resources and public apathy combined to prevent significant efforts to extend an equal educational opportunity to the disabled until relatively recently.<sup>30</sup> Prior to the turn of the century, organized and informed parent groups established both day and residential private schools in an attempt to fill the void when public schools refused to start programs.<sup>31</sup> Religious groups paralleled the efforts of parent groups in establishing both sectarian and nonsectarian residential and day programs for disabled pupils. By the turn of the century, most education of the disabled was performed by the private sector at parent expense.<sup>32</sup> Alexander and Alexander delineate the significant development of schools for the disabled during the nineteenth century as presented in table in Appendix B.

---

<sup>28</sup>Joswiak, "Financing Special Education in Virginia," 14.

<sup>29</sup>Vaugh, Special Education in Virginia, 11.

<sup>30</sup>M.D. Alexander and K. Alexander, American Public School Law, 3rd Edition, (St. Paul Minn.: West Publishing Co., 1992), 359.

<sup>31</sup>Rudd Turnbull, Free Appropriate Public Education: the Law and Children with Disabilities, (Denver, CO: Love Publishing Co.), 223.

<sup>32</sup>Jeffrey Larson, "Framework for Descriptive and Comparative Cost Analysis of Public and Nonpublic Special Programs," (Doctoral Dissertation, Virginia Polytechnic and State University, 1985), 10.

By the early twentieth century, disabled children had gained entry into the public schools in several states.<sup>33</sup> Larson and Jones found that public school classes for physically disabled gradually expanded due to an increase in legislative mandates in several states. However, according to school officials, deficiencies in special programming also were pervasive due to a lack of trained personnel, inadequate facilities, and insufficient funds at the LEA level. Therefore, parents often were forced to continue to pay the price...in tuition, relocation or separation of the family from the disabled child. Finally, the authors indicate that no state served all its children with disabilities until after the passage of EAHCA in 1975.<sup>34</sup>

Prior to the passage of EAHCA, LEAs throughout the United States turned disabled children away. In many instances disabled children were placed in inappropriate programs. By 1973, some forty-five states had passed some form of legislation for educating a number of children with disabilities. However, the state laws and judicial decisions varied from state to state.<sup>35</sup> By the time of the passage of EAHCA, the majority of all states were providing some educational services to school-age disabled children. In fact, the states laid the groundwork for federal legislation by demonstrating both that the education of the most severely disabled student was possible and that new federal funds

---

<sup>33</sup>Alexander, American Public School Law, 359.

<sup>34</sup>Phillip Jones, "Historical Perspectives on Education of the Handicapped," A Practical Guide to Federal Special Education Law: Understanding the Implementation of P.L. 94-142, (1982): 11.

<sup>35</sup>Martin, "The Legislative and Litigation," 28.

were needed to help serve all of the additional disabled children entering public schools.<sup>36</sup> Despite efforts by legislators, parents, and educators, testimony presented at a series of Congressional Hearings indicated that many disabled children were being underserved or failed to be served at all prior to EAHCA.<sup>37</sup> In 1975, Congress found that although forty-eight states had laws requiring that provisions be made for the education of eight million disabled children in the United States, less than fifty percent of the disabled children were receiving appropriate educational services.<sup>38</sup>

## **Federal**

Although cases and legislation at the state level represented significant statements to the rights of disabled people, their effects were often viewed as a local problem. The lack of federal legislation prior to 1975 meant that each case had to be fought on its own merits and that the direct influence of the decisions did not extend beyond the jurisdiction of the complaint.<sup>39</sup>

The Federal government historically has exhibited an active interest in education via

---

<sup>36</sup>Austin Murphy, The Report on the Commission on the Financing of A Free and Appropriate Education for Special Needs Children, (Washington D.C.: Congress of the United States House of Representatives Committee on Education and Labor Subcommittee on Select Education, March 1983), 5.

<sup>37</sup>B. Boston, "Education Policy and the Education of All Handicapped Children Act (P.L. 94-142)," (Washington, D.C.: Institute for Educational Leadership, 1977), 23.

<sup>38</sup>Slobojan, "A Study of Educational Program Costs for Handicapped," 3.

<sup>39</sup>Roberta Weiner, P.L. 94-142: Impact on the Schools, (Arlington, VA: Capital Publications, 1985), 15.

legislation or fiscal support.<sup>40</sup> Ysseldyke found that the role of the federal government in financing education has changed throughout the history of our public education system. Furthermore, legislation specific to special education has been a result of commitment by the federal government to the concerns for all disabled children, not as a matter of charity, but public policy. The establishment of schools to prepare the young to assume society's responsibilities is a function of state government; however, the federal government has on several occasions intervened.<sup>41</sup> Specifically, the federal government has intervened in special education for the following two basic reasons:

1. Governments intervene to protect minors because they are unable to stand up for their own rights, and parents and society will not necessarily do either.
2. Government agencies intervene because the benefits of education to society are large and therefore must be protected. Such benefits include the establishment of a strong national defense, the provision of an educated citizenry, the inculcation of common values, the belief in a practice of democracy, social cost reductions, and equality of opportunity.<sup>42</sup>

Boston described the historical development of special education legislation as a story of gathering momentum marked by notable milestones (See Table in Appendix C). The first federal laws designed to assist individuals with disabilities focused on veterans with service connected disabilities and date back to the early years of the Republic, prior to

---

<sup>40</sup>James Ysseldyke and Bob Algozzine and Martha Thurlow, Critical Issues in Special Education, 2nd Edition, (Houghton Mifflin, 1992), 341.

<sup>41</sup>*Ibid.*

<sup>42</sup>*Ibid.*, 341-342.

World War II.<sup>43</sup> During the same period of time, Verstegen found few enforceable laws supporting the education of disabled students and schools which enforced adopted compulsory attendance laws often excluded the children and youth with disabilities from exercising the right to a public education.<sup>44</sup>

Slowly, throughout the twentieth century, advocacy groups for disabled children and the civil rights movement became the impetus for the upgrade in education services offered to children with disabilities.<sup>45</sup> Moreover, the federal special education policy for all children and youth with disabilities was enacted in the context of America's civil rights movement and was preceded by court ruling in a majority of states which held that all disabled children and youth had the right to a free and appropriate education that could not be diluted or excused because of fiscal restraints.<sup>46</sup>

Probably the most significant civil rights legislation which became the basis for much of the federal special education legislation was Brown v. Board of Education (1954). In Brown v. Board of Education (1954), the Court concluded that:

.....it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education. Such an opportunity, where the state has undertaken to provide it, is a right which must be

---

<sup>43</sup>Deborah Verstegen, "Historical Overview of Fiscal Provisions of the Individuals with Disabilities Act: Policy Paper Number 2," American Institute for Research in the Behavioral Sciences: the Center for Special Education Finance, (June 1994): 13.

<sup>44</sup>*Ibid.*

<sup>45</sup>Joanne Moche, "Cost Analysis of Three Southwest Virginia Special Education Programs," (Doctoral Dissertation, Virginia Polytechnic Institute and State University, 1995).

<sup>46</sup>Verstegen, "School Finance at a Glance," 37.

made available to all on equal terms.<sup>47</sup>

Brown identified some important points of reference in federal legislative history. First, there was a movement toward more comprehensiveness. The later legislative work did not address itself to particular disabling conditions, but instead addressed the needs of children across disabling conditions. Second, special educators achieved a level of success that brought the disabled out of the closet and into the schools, while the federal government supported the inclusion of disabled children in general education.<sup>48</sup>

The federal presence in elementary and secondary education in general and special education remained sparse until mid-century. At that time, President Lyndon Johnson's Great Society legislation spurred major federal assistance programs to promote educational equity and protect citizens against discrimination through such legislation as the Civil Rights Act of 1964, the Voting Rights Act of 1965, and the Elementary and Secondary Education Act, heretofore referred to as ESEA of 1965.<sup>49</sup> The funds allocated under Chapter I of ESEA were for the purpose of improving and expanding the educational program by various means (including preschool programs) for the educationally deprived children.<sup>50</sup>

Although there was congressional jostling to open schools to disabled children beginning in 1966, in general, they remained minimal, fractioned, uncoordinated and were

---

<sup>47</sup>Weiner, P.L. 94-142, 27.

<sup>48</sup>Brown, "A Time and Cost Analysis," 30.

<sup>49</sup>Verstegen, "Historical Overview," 14.

<sup>50</sup>*Ibid.*



frequently given low priority. As a result, Congress launched Title VI, a grant program to help states educate disabled children and created in the Office of Education, a Bureau of Education of Disabled (BEH).<sup>51</sup> Title VI was added after congressional hearings in 1966 revealed incidents of disabled children who were excluded from school or sitting idly in regular classrooms biding their time until they were old enough to drop out.<sup>52</sup> Under this new authority, a two-year program of project grants to the states was established to assist in the education of children and youth with disabilities. Allotments were based on the population of special education children ages three and twenty-one in the state.<sup>53</sup>

In 1970, the ESEA was amended creating a separate Act, P.L. 91-230, entitled the Education of the Handicapped Act. Congress replaced Title VI with The Education of the Handicapped Act (EHA) which kept BEH and state grant programs and added funds to help schools buy equipment and build needed facilities. The EHA consolidated a number of previously separated federal grant authorities relating to children with disabilities in one statute. This law added regional resource centers, centers for deaf-blind children, experimental early education programs, and personnel training; established research and demonstration projects.<sup>54</sup>

The amendment to the ESEA, Part B of the EHA, was created to provide a state grant

---

<sup>51</sup>*Ibid.*

<sup>52</sup>Weiner, P.L. 94-142, 24.

<sup>53</sup>Verstegen, "School Finance at a Glance," 14.

<sup>54</sup>Weiner, P.L. 94-142, 25.

program to fund programs and activities to address specific needs of disabled children.<sup>55</sup>

Turnbull described this as a remarkable beginning; one of the most important federal education laws ever enacted. Specifically, he explained that the EHA was founded on case law, set forth rights and techniques for securing their specified rights, committed the federal government to the education of disabled children, moved them into the mainstream of schools, and gave them a means of joining the mainstream society. Although there existed many objections to EHA as presented in the table in Appendix D, the new authority had become the precursor of the EAHCA of 1975. The responses from legislators to the objections articulated by critics is also included in Appendix D. Many of which continue to be the criticisms and responses to current legislation for disabled students.<sup>56</sup>

In 1975, the passage of EAHCA marked a significant milestone in the nation's efforts for disabled children and expanded the federal monetary commitment to assisting state and local education agencies in providing appropriate educational services for children with disabilities.<sup>57</sup>

### **The Education of all Handicapped Children Act**

The EAHCA, Public Law 94-142, did not spring from a vacuum, it incorporated many provisions of earlier litigation and legislation. Many states provided such services for

---

<sup>55</sup>Slobojan, "A Study of Educational Program Costs for Handicapped," 16.

<sup>56</sup>Turnbull, Free Appropriate Public Education, 240-250.

<sup>57</sup>Fran O'Reilly, "State Special Education Finance Systems, 1988-89," National Association of State Directors of Special Education, (Washington, D.C., 1989): 17.

decades prior to the passage of P.L. 94-142. Special classes for the physically disabled and mentally retarded expanded in the 1960's and early 1970's.<sup>58</sup> The legal protections guaranteed under P.L. 94-142 were designed to assure equal access of disabled children to the special education and related services that they need.<sup>59</sup>

The EAHCA of 1975 required states to provide a free and appropriate education to all its disabled children between the ages of three and eighteen by September 1, 1978 and between the ages of eighteen and twenty-one by September 1, 1980.<sup>60</sup> The Ford Administration opposed the EAHCA on the grounds that the education of children and youth with disabilities was primarily a state responsibility and that authorized funding levels were too high. However, President Ford signed the bill into law due to the overwhelming support from Congress.<sup>61</sup>

Federal funding provided by the EAHCA to aid state and local education agencies in providing the prescribed additional services necessary for disabled children. The funds were to be used to subsidize expenditures in excess of the general per pupil cost in order to conform with the federal mandates. Those excess costs were defined as special education programs, and any related services necessary to bring the disabled child's education congruent to that of the nondisabled child. A state grant-in-aid program was

---

<sup>58</sup>Murphy, The Report of the Commission, 5.

<sup>59</sup>*Ibid.*

<sup>60</sup>Verstegen, "Historical Overview," 23.

<sup>61</sup>*Ibid.*, 31.

incorporated in EAHCA to accommodate funding.<sup>62</sup>

The Second Annual Report to Congress on the Implementation of EAHCA, reiterated that states may only participate in the state grant-in-aid program by furnishing all children with disabilities a free, appropriate public education in the least restrictive environment.<sup>63</sup> In providing for the education of children with disabilities, the IDEA authorized two state formula grant programs and several discretionary grant programs. The largest commitment of support through EAHCA, Part B funds, was allocated among the states based on their number of children with disabilities, between the ages of three and twenty-one. Each state was eligible for funds in an amount equal to the number of disabled children they were serving, multiplied by the percentage of the national per pupil expenditure. States were then charged with distributing the funds to the local education agencies for use.<sup>64</sup>

Passage of EAHCA amended provisions for state assistance under Part B of the EHA by expanding the Part B program into a multi-billion dollar federal commitment to assist state and local education agencies in providing appropriate education services for children

---

<sup>62</sup>Brown, "A Time and Cost Analysis," 50.

<sup>63</sup>United States Department of Education, Second Annual Report to Congress on the Implementation of Public Law 94-142: the Education of All Handicapped Children Act, (Washington D.C.: Office of Special Education Programs, Office of Special Education and Rehabilitative Services, 1980), 15.

<sup>64</sup>Thomas B. Parrish, "State Funding Provisions and Least Restrictive Environment: Implications for Federal Policy: Brief Number 2," American Institute for Research in the Behavioral Sciences: the Center for Special Education Finance, (Fall 1993): 1.

with disabilities.<sup>65</sup> Under the initial funding plan for P.L. 94-142, first priority for spending was to provide services for those disabled children not previously receiving appropriate services. The second priority was to provide services for those severely disabled children who were receiving some services, but not all the services they were in need of receiving.<sup>66</sup>

Under the General Education Provisions Act, states wishing to qualify for formula grants must submit Annual Program Plans. Such plans must be approved by the Secretary of Education of the Department of Education. They must describe the policies and procedures they have undertaken to comply with the provisions of the law and obtain public review of the plan before funds can be allocated.<sup>67</sup>

Since its enactment in 1975, the EAHCA has been amended numerous times and each time, Congress reaffirmed the original intent. The 1978 amendment stressed the importance of applied research and related activities to improve the educational opportunities of the disabled and reiterated the state's responsibility to refine and improve existing programs.<sup>68</sup>

In 1983, the EAHCA was amended to clarify the term "special education" as services

---

<sup>65</sup>*Ibid.*

<sup>66</sup>Brown, "A Time and Cost Analysis," 50.

<sup>67</sup>United States Department of Education, Third Annual Report to Congress on the Implementation of Public Law 94-142: the Education of All Handicapped Children Act, (Washington D.C.: Office of Special Education Programs, Office of Special Education and Rehabilitative Services, 1981).

<sup>68</sup>Alexander, American Public School Law, 367.

designated “to meet the unique” educational needs of the disabled child and specifically expanded services for deaf-blind children. The committee report supporting the legislation emphasized the need to improve education for the severely disabled. This legislation further reinforced the need for research, innovation, training, dissemination, and activities in connection with centers and services for the disabled.<sup>69</sup>

The 1986 amendments extended the age groups covered, and mandated that all preschool disabled children between the ages of three and five were entitled to public education, and established a new federal education program for disabled children from birth through age two. The 1986 amendments focused in particular on the needs of the deaf-blind and multiple-disabled children, extending provisions for specialized, intensive professional and allied services, methods, and aids that were found to be most effective. In addition, the 1986 amendments, called the Handicapped Children Protection Act (HCPA), enabled disabled children, parents or guardians to receive attorney’s fees if they were successful in litigation against either or both state or local education agencies.<sup>70</sup>

Finally, in 1990, P.L. 94-142 underwent a major reauthorization wherein the EAHCA was renamed the Individuals with Disabilities Education Act. The IDEA was the comprehensive law articulating federal policy concerning the education and early intervention of infants, toddlers, children, and youth with disabilities. The IDEA included such well known legislation of P.L. 94-142; EHA of 1975; P.L. 99-457; the 1986

---

<sup>69</sup>*Ibid.*

<sup>70</sup>*Ibid.*

Amendments to the EAHCA that supported early intervention services.<sup>71</sup> Later amendments enacted in 1991 to IDEA allowed states to include developmental delay as an eligibility category for preschoolers and provided for flexible use of Part B and Part H funds during the transition. However, the chief purpose of the 1991 Amendments of IDEA, Public Law 102-119, was to reauthorize Part H programs.<sup>72</sup>

IDEA, Part H, authorized formula grants to participating states to assist them in the establishment and operation of early intervention systems for infants and toddlers with disabilities who are under age three. In 1992, about 138,000 infants and toddlers with disabilities were served.<sup>73</sup> Currently IDEA requires that the other federal, state, local, and private sources be used first to pay for services and that Part H be used to

#### **Discretionary Grants of IDEA**

**Part C:** Authorized the federal and regional resource centers that provide technical assistance and training to state education agencies; grants and contracts in education of children with severe disabilities who were deaf and blind and had severe emotional disturbance; and grants and contracts in the areas of early childhood education, secondary and transition services

**Part D:** Authorized grants designed to improve the quality and supply of special education personnel.

**Part E:** Authorized research and related activities for advancing and improving the knowledge base and improving the practice of professionals and others providing early intervention, special education, and related services.

**Part F:** Supported the development and distribution of instructional media and captioned films.

**Part G:** Authorized grants to public and nonprofit agencies to advance the use of new technologies.

Verstegen, Deborah. "Historical Overview of Fiscal Provisions of the Individuals with Disabilities Act: Policy Paper Number 2," American Institute in the Behavioral Sciences: the CSEF, June 1994, pp. 1-37.

---

<sup>71</sup>Fran O'Reilly, "State Special Education Funding Formulas and the Use of Separate Placements for Students with Disabilities: Policy Paper Number 7," American Institute for Research in the Behavioral Sciences: the Center for Special Education Finance, (December 1995): 5.

<sup>72</sup>Verstegen, "School Finance at a Glance," 36.

<sup>73</sup>Steven Aleman, "Individuals with Disabilities Education Act: Reauthorization Overview," Congressional Research Service Report, Library of Congress, (November 1994):2.

pay for services only as a last resort. The Federal-State Medicaid Program was a major source of funding. Options varied from developing a single source of funding to enhancing access to the range of existing sources, including the possibility of automatically granting eligibility for Medicaid to Part H eligible infants and toddlers.<sup>74</sup> A 1994 report to Congress on IDEA indicated that funds are allocated to participating states based on the number of children in the general population who were under age three.<sup>75</sup>

The 1992 IDEA legislation further authorized an array of discretionary grant programs aimed at stimulating improvements in educational services for children with disabilities in Part C through Part G. Discretionary Grant Programs of the IDEA authorized a variety of programs to support special education and early intervention research, demonstrations, technical assistance, and personnel training<sup>76</sup> These programs were collectively referred to as the discretionary grants or special purpose programs. Special purpose programs included those for the deaf-blind, emotionally disturbed, early childhood, secondary and transitional services, post-secondary education, innovation and development, media, captioning services, technology applications, special studies, personnel development, parent training, clearinghouses, and regional resource centers. In general, funds were

---

<sup>74</sup>*Ibid.*, 5.

<sup>75</sup>Note: this study was completed prior to the reauthorization of IDEA which went into effect June 4, 1997.

<sup>76</sup>Steven Aleman, "Individuals with Disabilities Education Act: Reauthorizaiton Overview," Congressional Research Service Report, Library of Congress, (November 1994): 2.



awarded on a competitive basis and were permanently authorized.<sup>77</sup>

Since the enactment of P.L. 94-142, the number of school age students with disabilities receiving special education services increased by over forty percent, with over five million children, or about ten percent of the school-age population receiving special education services during the 1993-94 school year.<sup>78</sup>

### **Funding Methods**

Fiscal support for public education has evolved into shared governmental responsibility. In all localities (except Hawaii and Washington, D.C.), federal, state, and local revenues are combined for the provision of elementary and secondary education programs. Over the past decade the share of elementary and secondary education costs funded by local governments has generally increased with concomitant decreases in the federal and state shares.<sup>79</sup>

### **Federal**

A key component of IDEA is a state grant-in-aid program which requires participating states to furnish all children with disabilities a free, appropriate public education in the

---

<sup>77</sup>Aleman, "Individuals with Disabilities Education Act," 2.

<sup>78</sup>O'Reilly, "State Special Education Funding Formulas," 1.

<sup>79</sup>Ibid.

least restrictive environment to receive funds under Part B of the Act.<sup>80</sup> Prior to the EAHCA, grant-in-aid program funds from the federal government were distributed to states based on the total population of all students served in a locality, i.e., the total number of regular education and disabled students served.<sup>81</sup>

When federal special education funding shifted from a population based system to a special education pupil count system in 1975, it was estimated that large segments of the special education population were being underserved. However, a number of policymakers argued that the residuals of the funding system developed for special education services were incentives to over-identify students and this, rather than under-identification is now the major concern.<sup>82</sup> EAHCA, Part B, provided for a new finance formula replacing the previous population based grant. At least seventy-five percent of the funds a state receives under EAHCA Part B State Grant Programs were to be distributed to local education agencies and intermediate education units (IEU) to assist in the education of students with disabilities. The LEA's and IEU's were required to assure that these funds do not supplant state and local expenditures but instead pay for excess costs of providing special education to students with disabilities. The state education agencies were allowed to set aside twenty-five percent of the IDEA Part B State Grant

---

<sup>80</sup>Thomas B. Parrish, "Federal Policy Options for Funding Special Education, American Institute for Research in the Behavioral Sciences: the Center for Special Education Finance, (November 1993): 13.

<sup>81</sup>*Ibid.*, 2.

<sup>82</sup>*Ibid.*

award for the use by the states for administrative costs and support services.<sup>83</sup>

As the Second Annual Report to Congress indicated, the enactment of EAHCA marked the beginning of federal funds earmarked based on the population of disabled students served under a categorical grant.<sup>84</sup> Currently, the total federal Part B allocation is divided by the number of students identified for special education services across the nation and results in a single average national allocation per identified pupil. The total allocation for a state is based upon the number of special education students multiplied by the allocation for the year up to the federal funding limit of twelve percent of the state's student population.<sup>85</sup>

## **State**

States began setting standards for public school's in the early 1900's. Although schools were locally funded, they quickly found that not all LEAs could afford to maintain a school system commensurate with state standards. Consequently, state aid to enable LEAs

---

<sup>83</sup>United States Department of Education, Fifteenth Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, (Washington D.C.: Office of Special Education Programs, Office of Special Education and Rehabilitative Services, 1993), 145.

<sup>84</sup>United States Department of Education, Second Annual Report to Congress on the Implementation of Public Law 94-142: the Education of All Handicapped Children Act, (Washington D.C.: Office of Special Education Programs, Office of Special Education and Rehabilitative Services, 1981), 20.

<sup>85</sup>Thomas Parrish, "Special Education Finance: Past, Present, Future: Policy Paper Number 8," American Institute for Research in the Behavioral Sciences: the Center for Special Education Finance, (May 1996):4.

with limited fiscal capacity to meet standards was provided. During the period prior to the 1950s, general education finance systems evolved as well.<sup>86</sup>

The distribution of state aid was the impetus for the development of a system or formula to determine who had need of state funds and how much they should receive. In 1905, Ellwood P. Cubberly, a former student of Columbia University Teacher's College and a professor at Stanford, was the first to advocate equalization of educational opportunity by the process of equalizing financial support.<sup>87</sup> He promoted state funding to equalize inequalities in certain LEAs with a reward for LEAs that exceeded the minimum.<sup>88</sup>

Harlan Updegraff, although not as well known as Cubberly, also made important contributions to school finance systems. Updegraff promoted a sliding scale for state aid to LEAs based on the true valuation per teacher unit. His model finance formula, the percentage equalizing formula, introduced state support at variable levels of minimum programs, depending upon the amount of local tax effort. His formula rewarded local tax effort while simultaneously providing proportionally more aid to LEAs with lower fiscal capacities. Updegraff's goal was to incorporate equalization of educational opportunity and reward for effort in the same formula. A strong advocate of local support for schools,

---

<sup>86</sup>Stephen McQuain, "An Analysis of State Special Education Finance Formulas," (Doctoral Dissertation, Virginia Polytechnic Institute and State University, 1984), 23.

<sup>87</sup>Roe Johns and Edgar Morphet and Kern Alexander, The Economics and Financing of Education, (Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1983), 205-208.

<sup>88</sup>*Ibid.*

Updegraff also believed in equal educational opportunity for all students regardless of where they lived.<sup>89</sup>

Although the concept of equal educational opportunity and objective measures of need has existed for some time, George D. Strayer, a former classmate of Cubberly, and Robert M. Haig at Columbia University were credited with operationalizing these concepts in school finance formulas. In a 1923 study of school finance in New York, they theorized that both tax burden and educational opportunity should be equalized by requiring the same tax effort of all LEAs and by using state funds to alleviate deficiencies in the poorer LEAs. Thus both the state and districts provide on an equitable basis the funds needed to support the foundation program level of educational opportunity financed throughout the state. Beyond this program, districts would use additional funds to finance a higher quality of educational programming for their specific LEA.<sup>90</sup>

Using the minimum program, the state determines a minimum amount of money to be spent per pupil throughout the state. Next, the tax rate required to provide the minimum in the wealthiest LEAs is calculated. All LEAs are required to tax at that rate. Finally, the state commits itself to make up the differences between the dollars raised locally through mandated tax and the dollars required by the state minimum foundation program.<sup>91</sup> A limitation of the Strayer-Haig proposed system of financing public education was a lack of

---

<sup>89</sup>*Ibid.*, 206-209.

<sup>90</sup>*Ibid.*

<sup>91</sup>McQuain, "An Analysis of State Special Education Finance Formulas," 24.

suggestions on measurement.<sup>92</sup>

In 1924, Paul R. Mort assumed the responsibility of defining a satisfactory minimum program in his doctoral dissertation, The Measurement of Educational Need. Mort sought objective, equitable measures of educational need that could be used by state legislators in determining the amount of state appropriation for equalization.<sup>93</sup> He found in his research that substituting the average daily attendance in the appropriate regression equation, one could estimate of the number of teachers needed, allowing teacher units to be converted into weighted-pupil units. The work of Strayer, Haig, and Mort resulted in the adoption of continued use of the minimum foundation program in a number of states.<sup>94</sup>

In 1930, Henry C. Morrison proposed full state funding based on the principle that education is a state function. Since LEAs, in his view, had been unsuccessful in achieving equal educational opportunity, a state system supported by income taxes would be more appropriate.<sup>95</sup>

Due to lack of necessity, the financing of special education gained little attention during this period. A United States Bureau of Education survey taken in the 1920's, indicated there were 133 special education programs for the mentally retarded. At this stage, the role of the state was that of a benefactor since special education programs were considered charity rather than the responsibility or even the legitimate mission of the

---

<sup>92</sup>Johns, The Economics and Financing of Education, 209.

<sup>93</sup>*Ibid.*

<sup>94</sup>McQuain, "An Analysis of State Special Education Finance Formulas," 24.

<sup>95</sup>Johns, The Economics and Financing of Education, 211-212.

schools.<sup>96</sup> As salary differentials grew for special education teachers and the gap between the cost of regular education and special education grew, states began to provide variable dollar amounts for some special education programs.<sup>97</sup> In general terms, financing for the education of disabled children was the step-child of public school financing. Many disabled children were without programs because funds had not been appropriated. Further, the use of labels by special educators and others involved in serving disabled children put them into categories. This proved a convenient practice for serving children and receiving appropriations for them, but of no use to the disabled children who were not labeled and categorized.<sup>98</sup>

Currently, each of the states has a different set of policies and procedures for determining allocations of special education aid to LEAs.<sup>99</sup> The revenues provided to LEAs are distributed into basic support aid and categorical aid. O'Reilly further explained that basic support aid typically serves to compensate for the differences in the abilities of the local governing bodies to financially support public education. Funds distributed through categorical aid formulas are targeted and limited to specific educational programs such as special education, vocational education, transportation, compensatory education,

---

<sup>96</sup>McQuain, "An Analysis of State Special Education Finance Formulas," 22.

<sup>97</sup>*Ibid.*

<sup>98</sup>Turnbull, Free Appropriate Public Education, 222.

<sup>99</sup>Parrish, "Special Education Finance," 4.

and bilingual education.<sup>100</sup>

State finance policymakers are more likely to concern themselves with the “macro” level of analysis, or how the distribution of funds affects LEAs in the state as a whole. They are concerned with whether the system of distribution serves all LEAs objectively and whether the total amount of available funds is allocated in a way that meets the LEA’s needs in and formulas used by states to distribute basic support aid and categorical aid differ from state to state for historical reasons. Some states adopt formulas based on varying local contexts and policy objectives, and others adopt formulas because of the particular formula approach most in fashion or most used by neighboring states at the time of adoption.

Over the past twenty years, a number of studies has classified special education funding approaches into various frameworks that group formulas based on their common characteristics.<sup>101</sup> The literature mentions the following general types of special education funding formulas: (1) unit, (2) personnel, (3) weighted, (4) straight sum or flat grant, (5) percentage, and (6) excess cost.<sup>102</sup> Three types of funding elements that have been defined in the literature are resources, students, and costs that can be manipulated in order to

---

<sup>100</sup>O’Reilly, “Special Education Finance Systems, 1992-93,” American Institute for Research in the Behavioral Sciences: the Center for Special Education Finance, (December 1993): 1.

<sup>101</sup>*Ibid.*, 16.

<sup>102</sup>*Ibid.*



allocate state special education aid as described in Figure 1.<sup>103</sup>

Theoretically, each of the formula types could be manipulated to result in equal allocations to LEAs with similar populations of children with disabilities. As such, the formulas used to allocate special education resources have been described as merely mechanisms for transferring funds from one governmental level to another. State special education funding programs have the capacity inadvertently to influence programs at the local level. Funding formulas can affect the number and type of children served, the type of programs and services provided by LEAs, the duration of time students spend in special education, the placement of students, class size, and caseloads. Furthermore, funding mechanisms can be used to support state priorities and initiatives by earmarking funds for specific activities, establishing service priorities, providing incentives to develop specific programs, or initiating disincentives to discourage agencies from serving students in particular placements. The extent to which a formula may affect the practices of an must be evaluated by state policymakers.<sup>104</sup>

---

<sup>103</sup>Ixtlac Duenas, "Narrative Review of the Literature," American Institute for Research in the Behavioral Sciences: the Center for Special Education Finance, (October 1993): 32-35.

<sup>104</sup>O'Reilly, "Special Education Finance Systems, 1992-93,"29.

**BASIC ELEMENTS**

**Students:** Formulas are based on the actual, or estimates, or the number and type of children with disabilities served, with regulations on the cost and use of resources.

\*\*\*\*\*

**Resources:** Formulas are based on the payment for resources with regulations that are allowable and on the resources used per student with disabilities served.

\*\*\*\*\*

**Costs:** These formulas are based on district expenditures for special education programs and services and generally contain regulations on the number of students who can be served and the use of resources.

**FUNDING MECHANISM**

1. **Flat Grant:** distributes a fixed amount of state aid to local school districts for each child with a disability receiving special education.
2. **Percentage:** distributes state aid for a partial or full percentage of the approved costs incurred by local school districts for the provision of special education services.
3. **Weighted:** distributes state aid for each child with disabilities based on the per pupil allocation for regular education multiplied by a factor or weight.

**FUNDING MECHANISM**

1. **Flat Grant/Classroom or Teacher Unit:** distributes a fixed amount of money for each qualified unit of classroom instruction, administration, and transportation. Funds are provided for the cost of the resources to operate the unit.
2. **Percentage of Personnel Salaries:** distributes state aid to cover all or a portion of the salaries for special education personnel.

**FUNDING MECHANISM**

1. **Excess Cost:** distributes state aid based on the total per pupil cost of educating a child in special education minus the total per pupil cost of educating a child in general education.
2. **Percentage Cost:** aid to cover a percentage of costs.

Duenas, I.E. (1993) . "Narrative Review of the Literature". American Institutes for Research in the Behavioral Sciences: the Center for Special Education Finance. (October): 1-63.

**Figure 1**  
**Special Education Funding Formulas: Elements and Mechanisms**

## Virginia

Mechanisms, or formulas for the distribution of basic support aid vary from state to state, but include five general approaches: foundation programs, percentage equalization programs, guaranteed tax base/yield programs, flat grant programs, and full state funding. The minimum foundation program is used in Virginia to distribute state funds for kindergarten through twelfth grade education to support the Standards of Quality (SOQ).<sup>105</sup>

The estimated cost of the programs required by the Standards of Quality, the minimum educational requirements by the state, are calculated for each LEA.<sup>106</sup> The calculated cost of these programs are shared between the state and the LEAs and calculated as follows as shown in Figure 2.

---

<sup>105</sup>J.B. Rickman, "Public School Finance Programs of the United States and Canada," American Education Finance Association and Center for the Study of States, Vol. 2, (1992):531.

<sup>106</sup>*Ibid.*, 532.

- 1) A per-pupil amount is calculated for each LEA. This per-pupil amount includes costs for instructional positions and support. The required number of instructional positions is calculated for each LEA based on the actual enrollment on September 30th and the SOQ staff requirements.
- 2) The per-pupil amount is multiplied by the March 31 ADM to determine total cost for each LEA. The March 31 ADM is equal to the total daily enrollment for the preceding 7 months divided by the number of school days.
- 3) The LEA's share of the sales tax revenue is subtracted from the total cost.
- 4) The remaining cost is multiplied by the local composite index to determine the local share of the cost. The balance of the remaining cost is the state share of the calculated SOQ cost.

Rickman, J.B. (1992). "Public school finance programs of the United States and Canada." American Education Finance Association and Center for the Study of States, Volume Two: 531-540.

Figure 2  
Costs Calculations

Aid to LEAs under a foundation program can be calculated using the following formula.<sup>107</sup>

$$\text{AID} = (\text{ENROLLMENT} \times \text{FOUNDATION EXPENDITURE PER PUPIL}) - (\text{LOCAL TAX RATE} \times \text{STATE EQUALIZED VALUATION})$$

Virginia's current public finance program consists of a fiscal equalization program entitled Basic State Aid which is used to distribute money to LEAs. It is an equalization

---

<sup>107</sup>National Education Association, Understanding State School Finance Formulas, (West Haven, Conn.: Professional and Organizational Development/Research Division, 1987), 13.

program which measures the fiscal capacity of LEAs through true valuation of property, adjusted gross income, and taxable retail receipts.<sup>108</sup> State funds are distributed to inverse proportion to an LEA's ability to finance education.<sup>109</sup>

In addition to the basic state aid, the Commonwealth of Virginia administers a funding program to distribute special education aid to LEAs. The amount of special education aid to which an LEA is entitled is calculated based on the number of special education instructional positions required using the Board of Education adopted pupil-teacher ratios by disability.<sup>110</sup>

In Virginia, a resource-based funding formula based on classroom units is used by counting the number of required instructional positions and multiplying this number by a linear weighted average of statewide teacher salaries. The state's share of the special education costs is determined for each LEA based on the locality's ability to pay, and is disbursed as a per pupil amount based on the average daily membership (ADM ) of all students in the LEA.<sup>111</sup>

Special education costs are reimbursed through Special Education SOQ payments or Special Education categorical payments. Rickman cites the following guidelines in

---

<sup>108</sup>K.L. Kienas, "A Comparison of the Efficiency and Effectiveness of Two Models for Determining the Cost of Special Education Programs," (Doctoral Dissertation, Virginia Polytechnic Institute and State University, 1986), 29.

<sup>109</sup>O'Reilly, "Special Education Finance Systems, 1992-93," 1.

<sup>110</sup>*Ibid.*, 70.

<sup>111</sup>Rickman, "Public School Finance Programs," 533.

reimbursement for special education costs.

- 1) Special Education SOQ payments are for the purpose of providing assistance to LEAs for the salary cost of required special education instructional positions.
- 2) Special Education categorical payments provide assistance for the following program areas: homebound instruction, private and regional program tuition costs, inservice, vocational education for handicapped students, and educational programs located in hospitals and detention homes.
- 3) Funds (Interagency Assistance Funds) are provided to support the direct instructional cost of handicapped children who have been placed in special education facilities, residential or day schools by public agencies authorized to do so.<sup>112</sup>

O'Reilly further elaborates that support costs for pupils with disabilities not served in regular day schools are calculated using prevailing per pupil statewide costs. The state then reimburses each LEA for such costs based on the locality's ability to pay. Also, categorical funds can be provided either in addition to or instead of resources distributed through basic support program. As with basic support, categorical funds can be distributed in a way that equalizes fiscal capacity as well as educational needs. This could be accomplished through a pupil weighting system in which students are assigned additional weights according to educational needs and the weighted pupil counts are incorporated into the basic support formula.<sup>113</sup>

In an attempt to balance the diverse education needs of all students against limited financial resources, many schools have found themselves in the difficult position of having

---

<sup>112</sup>*Ibid.*

<sup>113</sup>O'Reilly, "Special Education Finance Systems," 71.

to satisfy one group's needs at the partial expense of another. IDEA requires that LEA's provide education services to children with disabilities without regard to an LEA's ability to pay for them. In fact, cost cannot be used as a defense in failing to comply with a student's IEP, nor may cost be used as the single factor in determining appropriate placement for a student.<sup>114</sup>

Meanwhile, Terman et. al. cited recent survey results which indicated that state education officers found a common theme of fiscal stress. As governmental and school budgets tighten, concerns about the expense of special education have grown. Furthermore, at the same time that special education's cost was under scrutiny, complaints were expressed about the perceived inadequacy of current special education services and about the restrictions placed on funding.<sup>115</sup>

States continue to struggle with the balance between the rights of students with disabilities, limited public resources, and growing demands for competing social services. Many states are hoping at least partly to ameliorate some of these difficulties by making changes in the allocation system used to distribute state special education funds.<sup>116</sup>

---

<sup>114</sup>Janet Beales, "Special Education, Expenditures and Obligations: Policy Study Number 161," Reason Foundation, (July 1993): 5.

<sup>115</sup>Donna Terman and R. Behrman and M. Lerner and C Stephenson, "Special Education for Students with Disabilities: Analysis and Recommendations," The Future of Children, Vol. 6, (1996): 13.

<sup>116</sup>Thomas B. Parrish, "Policy Issues and Alternatives, Fiscal Provisions of the IDEA: Policy Paper Number 3," American Institute for Research in the Behavioral Sciences: the Center for Special Education Finance, (June 1994): 21.

## Comparison of Cost Analysis Studies

The need for cost analysis in special education has become more important as the competition with other governmental agencies for available funds becomes more acute. As a social service, education in general and special education in particular must compete for dollars with highways, sanitation, and other services.<sup>117</sup> The term “cost of special education” generally refers to the dollars used to support a particular special education program. Most researchers use expenditure data to describe these costs. However, certain costs (such as the value of volunteer time) are not reflected in expenditure data. Also, some costs (such as the effect of special education on the regular classroom teacher) are non-monetary.<sup>118</sup> It is consistently reported that students with disabilities are at least twice as costly to educate as students without disabilities.<sup>119</sup>

Since 1968, special education cost analysis studies have been undertaken at the national, state, and individual research levels. First, cost data help to determine the amount of funding needed to provide disabled students with an appropriate education. Second, data on the costs of different service and educational placements aid in setting policies, thereby, encouraging more cost-effective service practices and clarifying

---

<sup>117</sup>James Ysseldyke and Bob Algozzine and Martha Thurlow, Critical Issues in Special Education, 2nd Edition, (Houghton Mifflin), 342.

<sup>118</sup>United States Department of Education, Sixth Annual Report to Congress on the Implementation of Public Law 94-142: the Education of All Handicapped Children Act, (Washington D.C.: Office of Special Education Programs, Office of Special Education and Rehabilitative Services, 1984), 225.

<sup>119</sup>Lawrence Picus and Caryl Miller, “Cost and Service Delivery Trade-offs in Providing Educational Services for Students with Severe Disabilities, Educational Administration Quarterly, Vol. 31 (May 1995):269.



interagency obligations to pay for required special education and related services. Third, information on cost of education help federal and state policymakers adjust funding formulae to match local needs and reduce fiscal incentives for inappropriate classification and placement of students.<sup>120</sup>

Ysseldyke indicates that special education cost analysis studies have only gained importance during the past few years. A focus on cost studies has been in response to the need to determine accurate special education costs as a basis for program funding and local school reimbursements.<sup>121</sup> In 1981, Kakalik et. al. found that formal special education cost analysis and comparison studies had been macro in nature.<sup>122</sup> Additionally, Secretary Bell in the Sixth Annual Report to Congress found that most studies of special education costs have centered around determining current expenditures for special education, and developing models for estimating future costs of special education.<sup>123</sup>

Two approaches to cost analysis are detailed in the Sixth Annual Report on the Implementation of EAHCA. One approach to a cost analysis is to build costs from the bottom up by collecting detailed data from the LEAs and documenting the resources that comprise each data item. State and national costs are then estimated from these data. A second approach is to build from the top down by focusing on state level data and

---

<sup>120</sup>United States Department of Education, Sixth Annual Report, 223.

<sup>121</sup>Ysseldyke, Critical Issues in Special Education, 340.

<sup>122</sup>James Kakalik and M. Carney and W. Furry and M. Thomas, The Cost of Special Education. (Santa Monica, CA: the Rand Corporation, 1981), 34.

<sup>123</sup>United States Department of Education, Sixth Annual Report, 51.

documenting how states collect data from their LEAs. Since education is a state function, the state exerts considerable influence on what cost data are collected and how costs are reported. In both approaches, the precision of the study is important.<sup>124</sup>

Review of previous studies by Larson indicates that there are several factors which must be addressed in order to approach precision in cost analysis and comparison. First, appropriate equivalences in cost and enrollment data must be determined. Second, practical cost units which provide for a comparable base must be ascertained. Third, effective and practical cost centers must be developed. Fourth, appropriate cost elements and categories must be devised which enable effective allocation and interpretation. Fifth, appropriate means of allocating elements to units in relation to cost centers must be obtained. Sixth, it is necessary to obtain an effective way of approaching equipment costs. Seventh, there needs to be an effective means of approaching start-up costs.<sup>125</sup>

In 1982, Brown suggested that perhaps the best multi-state empirical study to date was completed by Richard Rossmiller and others under the National Education Finance Project in 1970. The study involved the collection and the analysis of cost data in five states from twenty-four selected LEAs with “exemplary” special education programs.<sup>126</sup>

The United States Office of Education allocated two million dollars for the National Educational Finance Project, in June 1968, a portion of which was used to determine the

---

<sup>124</sup>*Ibid.*

<sup>125</sup>Larson, “Framework for Descriptive”.

<sup>126</sup>Brown, “A Time and Cost Analysis,” 63.

costs of special education programs relative to the regular education programs in LEAs judged to have high quality special education programs and to use the data to project future costs of special education.<sup>127</sup> The project was the first comprehensive national study of school finance since 1933 and was conducted to satisfy the following purposes:

1. Identify the dimensions of educational need in the nation;
2. Identify target populations with special educational needs;
3. Measure cost differentials among different educational programs;
4. Relate the variations in educational needs and costs to the ability of school districts, states, and the federal government to support education;
5. Analyze economic factors affecting the financing of education;
6. Evaluate present state and federal programs for the financing of education;
7. Construct alternative school finance models, both state and federal and analyze the consequences of each.<sup>128</sup>

Rossmiller et. al. developed cost differentials for special education programs with reference to the costs of a regular school program. The sample for the study consisted of twenty-four LEAs in five states, California, Florida, New York, Texas, and Wisconsin, which were representative of metropolitan, suburban, and rural programs offering “exemplary” services to disabled children. Based on the admitted small sample, Rossmiller, Hale, and Frohreich identified the cost indices as indicative of differential program costs associated with the offering of “exemplary” services to children in each area disability category.<sup>129</sup>

---

<sup>127</sup>United States Department of Education, Sixth Annual Report, 16.

<sup>128</sup>*Ibid.*

<sup>129</sup>Kienas, “A Comparison of the Efficiency,” 41.

Rossmiller et. al. also presented the median special education program expenditures and the resulting differential costs for each area of disability relative to the costs for regular school programs. The authors not only emphasized that special education services are more costly than regular education, but they also substantiated specific categorical indices reflecting those differences.<sup>130</sup>

Joswiak cited a limitation of the Rossmiller study to be the lack of randomly selected LEAs. In defense of Rossmiller, however, the purpose of his analysis was to determine special education costs incurred by LEAs that provided “exemplary programs.” Therefore, random selection of LEAs **would have been inappropriate**. Also, Rossmiller et. al. indicated that financing and expenditure information, on a categorical basis, was very difficult to obtain. The authors had to glean this information from the general LEA records in a number of instances.<sup>131</sup>

Rossmiller used six broad categories in determining current costs. In addition to calculating current operation cost, costs of transportation per pupil transported, capital outlay per ADM, and debt service per ADM were reported in the Rossmiller study. These costs, however, were not included in per pupil cost figures for the various programs but were reported as accounting memoranda.<sup>132</sup>

In a presentation to the National Conference on School Finance, Rossmiller and Moran

---

<sup>130</sup>Joswiak, “Financing Special Education in Virginia,” 26-27.

<sup>131</sup>*Ibid.*, 27.

<sup>132</sup>Larson, “Framework for Descriptive,” 22.

reported that program structure, systems of delivery, nature of the LEA, and educational program costs were all influential factors in determining state and local special education expenditure levels. In examining the costs of special education programs relative to regular education programs in LEAs of five states, Rossmiller et. al. found that when all disabling conditions were aggregated, an average composite index of slightly over two was obtained indicating that programs for the the disabled were about twice the cost of a regular education program.<sup>133</sup> Rossmiller advocated using the median cost index because it was found that extremely high cost LEAs were developing new programs or serving small numbers of children within a specific category of disability.<sup>134</sup>

Two criticisms in referring to the Rossmiller study are as follow: first, the study was completed over twenty-six years ago before changes in the law, especially the passage of P.L. 94-142 mandating certain services to disabled children; and second, the study failed to account different programming arrangements within each category of disability making the assumption that the category of disability could adequately describe the service.<sup>135</sup>

After the EHA was amended by P.L. 94-142, The Office of Special Education Programs (OSEP) supported another national study of public special education program costs conducted by the Rand Corporation.<sup>136</sup> The study carried out by Kakalik et. al. presented the estimated costs of these services based on national averages of salaries and

---

<sup>133</sup>United States Department of Education, Sixth Annual Report, 51.

<sup>134</sup>Kienas, "A Comparison of the Efficiency," 40.

<sup>135</sup>*Ibid.*

<sup>136</sup>Kakalik, The Cost of Special Education, 2.

other prices of services.<sup>137</sup> The study, including data collected through personal interviews conducted among a nationally representative sample of localities in 1977-78 and projected to 1980-81 estimates, addressed the following:

1. What are the total costs of special education and related services by various age levels, handicapping conditions, educational placements and sizes of school districts?
2. What are the total costs of assessment and placement, instructional services, related services, and administrative services?
3. What are the added costs of special education and related services above the cost of general education services for handicapped students?<sup>138</sup>

Larson evaluates the Kakalik cost analysis process to be a more accurate method than Rossmiller of determining special education and related services costs. However, the Kakalik procedures were very complex and required the use of an expert in cost accounting to perform the functions necessary to obtain an accurate analysis. There were many problems encountered in data collection and any attempt to replicate this study would have proven cost prohibitive. Further, the process was designed to obtain only public cost of special education with an emphasis on determining the added cost of special education over general education.<sup>139</sup> Kakalik et. al. gathered data from fourteen states, forty-six separate local school systems and interviews with nearly 900 teachers from the sample systems. Kakalik attempted to conduct a comprehensive national study that would

---

<sup>137</sup>United States Department of Education, Sixth Annual Report, 51.

<sup>138</sup>Kienas, "A Comparison of the Efficiency," 3.

<sup>139</sup>Larson, "Framework for Descriptive," 26.

yield information necessary for improvements in special education policies and programs. Also, he estimated the total cost of special education and related services by analyzing each type of service individually.<sup>140</sup>

Data were collected and analyzed for kindergarten, elementary, and secondary age levels and for the following categories of disabling condition: learning disability, educable mental retardation, trainable mental retardation, serious emotional disturbance, severe and profound, and other health impaired.<sup>141</sup> All education agency costs were included in the analysis except for the costs of summer and adult evening school and the added cost of other target population programs such as those for disadvantaged and bilingual children. No costs were counted more than once; for example any duplicate costs of new building construction and debt retirement were not double counted.<sup>142</sup>

Kakalik determined total costs by estimating the contact minutes of each type of service per student in ADM in each LEA, for each type of personnel, age level, disabling condition, and educational placement. Next sample weights for salaries and fringe benefits per full time equivalent staff (FTE) member were used to estimate the national average cost for that particular service by type of personnel.<sup>143</sup> Finally, support services and nonpersonnel costs were estimated by age, level, disabling condition and type of educational placement. Added costs, those above the cost of regular education for non-

---

<sup>140</sup>Slobojan, "A Study of Educational Program Costs for Handicapped," 34.

<sup>141</sup>*Ibid.*

<sup>142</sup>*Ibid.*

<sup>143</sup>*Ibid.*

disabled students, were calculated by estimating the total cost of regular education per non-disabled student and subtracting that amount from the total cost of special education and related services per disabled student.<sup>144</sup>

A cost index was also calculated by comparing the cost of educating disabled children to the cost of educating nondisabled children. In general, the researchers in the Rand study found that the cost of direct instructional services was proportionate to the severity of the disability. The study also concluded that the more restrictive the environment, the more costly the instructional service. The additional costs have greatly increased the financial requirements of states and LEAs. It was estimated that the total cost of special education and related services per disabled child was 2.17 times the cost of regular education.<sup>145</sup>

While providing an alternative method of cost analysis, the Kakalik procedures exhibit several weaknesses. Kienas found that although the process is more accurate in determining special education and related services costs than previous procedures, these procedures are complex and require a thorough knowledge of cost accounting. The magnitude of the data collected and the cost involved may prohibit its replication by small school systems. Hence, the application of this study to state and local school systems may

---

<sup>144</sup>*Ibid.*

<sup>145</sup>United States Department of Education, Fifth Annual Report to Congress on the Implementation of Public Law 94-142: the Education of All Handicapped Children Act, (Washington D.C.: Office of Special Education Programs, Office of Special Education and Rehabilitative Services, 1983), 67.



be limited but it does provide a model for future comparative studies.<sup>146</sup>

Kienas noted that much of the information provided in the Rand Study was an estimation of the total costs. This is a particular problem since much of the exact information needed was simply not available. Kienas also explains that in calculating comparisons, Kakalik, et al., also computed national averages which tend to mask the true picture. This can especially be a problem when calculating a cost index since national average cost of educating nondisabled children was used in the denominator. Another macro study at the national level was the Hartman study.<sup>147</sup>

Hartman used his resource-cost model to calculate estimates of the total cost of providing appropriate special education to all school-aged disabled children in the United States from 1976-77 to 1980-81. While the study produced the most likely cost estimates, it also produced alternative low and high projections based upon the low and high alternative values of the model variable.<sup>148</sup> Hartman, et al. developed the Special Education Planning Model (SEPM) for estimating current and future costs of special education and related services. Larson found the SEPM to be a rather simple approach to estimating special education costs on a macro level. However, the estimate does not represent the total cost of special education as the direct and indirect cost of general education received by special education pupils. The SEPM, a resource-cost model, consisted of decision variables and programmatic variables. Decision variables consisted

---

<sup>146</sup>Kienas, "A Comparison of the Efficiency," 7.

<sup>147</sup>*Ibid.*, 46.

<sup>148</sup>Slobojan, "A Study of Educational Program Costs for Handicapped," 32.

of disabling conditions, programs and services provided, use of resources within each program and service, allocation of pupils to programs and the number of pupils per-unit of instructional program. Programmatic variables in the SEPM were total school-aged enrollment and the inflation rate. For each of the variables, values were inserted to determine the most likely cost estimated as well as low and high alternatives.<sup>149</sup>

Hartman's SEPM was designed to estimate state and national costs for public special education and related services by program and disability. Incidence rates, not actual enrollments were utilized to determine the number of pupils to receive special education by type of disability. Percentages of these incidence rates were used to calculate the number of pupils enrolled in each program. Larson further asserts that the Hartman SEPM is not an excess cost model because the equivalent cost of general education is not deducted from the cost estimate of self-contained special education programs. However, the SEPM may be used to estimate the level of funding necessary for special education programming apart from general education.<sup>150</sup>

Utilizing financial data from twenty-six states, Hartman estimated the national cost of school-aged special education and related services by program and disability over the five year period from 1976 through 1981. Hartman's "most likely" estimate of the total cost of special education and related services for the 1980-1981 school year was 7.926 billion dollars. "High" and "Low" alternatives were calculated for the same school year by

---

<sup>149</sup>Larson, "Framework for Descriptive," 23-24.

<sup>150</sup>*Ibid.*

increasing and decreasing estimated disabled pupil incidence rate, disabled pupils per unit of instruction and school-aged population. The high alternatives were estimated to be 20.488 billion dollars while the low alternatives were calculated to be 3.89 billion.<sup>151</sup>

A more recent national study was mandated by Congress in 1988. Congress mandated an expenditures study conducted by Decision Resources under contract with the OSEP in the United States Department of Education, referred to as the Expenditures Survey or by its principal author, Moore.<sup>152</sup>

This study included detailed analysis by disabling condition, type of placement, and funding source for costs of special education, as well as information on expenditures for related services and costs paid by noneducational agencies. The study departed from other recent studies in its use of a case study approach and its emphasis on actual expenditures data.<sup>153</sup>

The Expenditures Survey collected information for both special and regular education services and costs for the 1985-86 school year from a sample of sixty LEAs in eighteen states. The sample was drawn from a multistage, stratified design, with states and LEAs selected with a probability proportionate to enrollment. States were stratified by geographic region and type of funding formula; LEAs were selected in a process that took

---

<sup>151</sup>Slobojan, "A Study of Educational Program Costs for Handicapped," 32.

<sup>152</sup>Stephen Chaikind and Louis Danielson and Marsha Brauen, "What Do We Know About the Costs of Special Education?" The Journal of Special Education, Volume 26, (1993): 348.

<sup>153</sup>United States Department of Education, Sixth Annual Report, 53.

metropolitan states, family income, and percentage of nonwhite enrollment into account.<sup>154</sup>

The Expenditures Survey selected fourteen states with two LEAs from each and four states with eight LEAs from each. Researchers visited each of these LEAs, obtaining data from LEA records while working in close collaboration with staff and administrators. One set of data provided details on the range of programs, placements, and services provided to children with disabilities. Other data gathered enabled estimation of per pupil costs for both special education and regular education.<sup>155</sup> Chaikind found that the researcher usually obtained these data from LEA managers most directly involved with the provision of each resource. They were then evaluated at market price appropriate for each specific resource. Chaikind also notes, as with other studies regarding education cost, the largest expenditures were for teachers and other school personnel. Throughout the study, the authors used the Consumer Price Index for Urban Wage and Clerical Workers (CPI-W) issued by the Labor Department's Bureau of Labor Statistics to adjust for inflation.<sup>156</sup>

Moore concludes that the Expenditure Survey assessed the variability of expenditures by LEA size, wealth, and urbanization. No single demographic characteristic in one type of LEA demonstrates definite differences in average per pupil expenditures to state that one type of LEA generates more significant differences in per-pupil expenditures for special education than another. There are some observable relationships between average per-pupil expenditures and LEA characteristics for specific programs and services. Moore

---

<sup>154</sup>Chairkind, "What Do We Know," 348

<sup>155</sup>*Ibid.*, 348-350.

<sup>156</sup>*Ibid.*, 350.

et. al. found that the total cost for educating a child in special education to be \$6,355 in the 1985-86 school year, or \$7,400 in 1989-90 constant dollars, approximately 2.3 times the cost of educating a regular education student.<sup>157</sup>

National studies do not always serve as good indicators for either state or local education agencies. Local studies have the potential to provide better cost estimates and projections for individual LEAs. The first effort to formally analyze and compare costs of public and nonpublic special education programs on a micro level was performed by Salmon and Larson, as a part of a larger study conducted by Jones and Salmon of public and nonpublic special education programs utilized by Montgomery County, Maryland Public Schools.<sup>158</sup> The initial models developed by Salmon and Larson for cost analysis and comparison addressed the many factors of noncomparability costs. To complete the study, three models were developed to analyze and compare the costs and characteristics of the public and nonpublic special education programs provided to school-aged students who were in Level V and VI, as defined by the Maryland Bylaw Continuum of Services. The evaluation was conducted to determine whether the mix of public and nonpublic programs was cost effective and to determine whether alternative configurations should be explored by Montgomery County administrators.<sup>159</sup>

Larson serving as a Research Associate in 1985 during the Jones and Salmon study, determined that while the initial models served to analyze and compare costs for a

---

<sup>157</sup>*Ibid.*

<sup>158</sup>Larson, "Framework for Descriptive," 5.

<sup>159</sup>Slobojan, "A Study of Educational Program Costs for Handicapped," 36.

particular study, revisions were necessary to produce a framework which could provide a common means to analyze and compare the costs of LEAs for educating disabled students in public and nonpublic day and residential facilities.<sup>160</sup>

The Larson Model was developed through a research and development process. The purpose of Larson's study was to develop a framework or model for descriptive and comparative cost analysis of public and nonpublic special education programs. Furthermore, the model was designed to assist educators in formulating, implementing, and analyzing special education policy. In order to design the product, the developer tested the model in a limited number of sites and under limited circumstances. The model was tested in six sets of LEAs and private schools using one particular disabling condition and environment in each set.<sup>161</sup>

Larson used the Rossmiller model for comparison. Effectiveness was appraised by comparing each model's ability to produce comprehensive and accurate special education program cost for the sample LEA. Findings indicated that the Larson model had several advantages over the Rossmiller Model. The Larson Model was more efficient as less information from the regular budget was needed to compute indirect cost calculations. Kienas also found the Larson Model to be more efficient in dealing with shared costs as they could be prorated through the use of a multiplier. Finally, the Larson Model appeared to be more comprehensive in including commingled and indirect costs into

---

<sup>160</sup>*Ibid.*

<sup>161</sup>*Ibid.*,37.

determining the total costs for special education. Fixed costs are included as a cost component in the Larson Model. Also, the Rossmiller model did not include capital outlay and debt service.<sup>162</sup>

The Larson model did not analyze two cost components which affected special education programs and limited the precision of the cost comparisons. Related services costs may have been a large factor in the overall cost of public and/or nonpublic special education programs. As related services cost were partially subsumed in special education overhead costs and general education overhead costs, the nonpublic program costs were artificially inflated.<sup>163</sup>

As a result of his work, Larson recommended that future models contain the following: (1) A cost component for related services; (2) A cost component for fixed assets; (3) Identical discrete cost categories and a method for determining discrete administrative costs; (4) A category within the transportation component for payment in lieu of providing transportation; and (5) Cost models for public special education residential programs.<sup>164</sup>

Estimating the cost of providing special education services is difficult. In nearly all instances, the largest component for educating students with disabilities is personnel costs. This cost of providing services varies as a function of the nature of the disabling condition.

---

<sup>162</sup>Kienas, "A Comparison of the Efficiency," 2.

<sup>163</sup>Larson, "Framework for Descriptive," 36.

<sup>164</sup>*Ibid.*, 39.

A tenuous balance exists between society's willingness to provide special education and related services to students who are disabled and society's ability to pay for these services.<sup>165</sup> Studies show in aggregate, over the past twenty years, total costs for those receiving special education have remained approximately two times the cost of regular education, although the need for improved data makes more detailed analysis of such comparisons over time difficult.<sup>166</sup>

Many cost studies have been completed at the local level. These studies are perhaps best reflective of the actual costs of educating disabled children since the LEA is the level at which decisions, responsibilities, and the ultimate price of educating disabled children rests.<sup>167</sup>

A recent cost analysis completed at the local level was the Moche Cost Analysis Study or CAPE. Moche developed and field tested a cost analysis model refined from an earlier studies completed by Larson, Kienas, and Slobojan to correct for limitations, in particular the lack of sensitivity to changing delivery options. The CAPE Model was piloted using 1991-92 fiscal data from one local education agency. It was then applied to the fiscal data in three southwest Virginia public school districts. Total mean annual per pupil expenditures were calculated for regular and special education students at the elementary

---

<sup>165</sup>Ysseldyke, Critical Issues in Special Education, 343.

<sup>166</sup>Chaikind, "What Do We Know," 344-345.

<sup>167</sup>Kienas, "A Comparison of Efficiency," 38.



and secondary level in each of the LEAs.<sup>168</sup>

Moche yielded her model through use of a spreadsheet format and identified discrete costs which were involved in the provision of regular and special education services.<sup>169</sup>

The primary strength of Moche's work involved the development of a more user -friendly format. However, a limitation of the Moche study was the lack of an impartial field-test in order to adequately assess the accuracy and efficiency of her model.

---

<sup>168</sup>Joanne Moche, "Cost Analysis of Three Southwest Virginia Special Education Programs," (Doctoral Dissertation, Virginia Polytechnic Institute and State University, 1995).

*Ibid.*

## Chapter 3

### Description of the Study

#### **Statement of Methodology**

The cost analysis model used in for this study was the Moche Cost Analysis of Public Education model (CAPE). Permission was obtained to replicate the methodology of the Moche Cost Analysis of Three Southwest Virginia Special Education Programs for purposes of field-testing the CAPE Model and completing a cost analysis for expenditures for the Danville Public School System (see Appendix N).

Total mean annual per pupil expenditures (PPEs) were calculated for regular and special education students in the Danville Public School System. Costs were allocated by academic level (elementary and secondary) and by program (regular and special education). Special education costs were also calculated by student disability category and by service delivery model.

Finally, CAPE results were compared to state- and federal-reported data and excess costs of special education were computed from both data sets to compare costs identified through state, federal, and CAPE Model Formulas.

### **Factors in Educational Analysis**

The CAPE model met the current need to assess educational costs in a changing school environment. That changing environment encompasses new school organization structures, new disability categories for program eligibility, and new service delivery models.

Significant organization factors are (A) class assignment, (B) instructional scheduling, and (C) academic level assignments. Class assignment may be organized through traditional classroom placement based upon student grade assignment or continuous progress (achievement-based class assignments). Instructional blocks may be comprised of six to eight daily class periods for the school year or semester block scheduling. Academic level assignment reflect grade placement, grade equivalency, and course content of classes.

The study uses the Commonwealth of Virginia Department of Education's designation grades K-7 as elementary and grades 8-12 as secondary for purposes of program fiscal reporting and funding. Currently, there is no separate designation for middle school. However, the CAPE Model can be modified to separate costs by middle and junior high school. Special education factors encompass disability categories and service delivery

models. Disability categories are defined by federal regulations on implementation of IDEA (34 CFR 300.7). Service delivery models are defined by an individualized education program (IEP) and listed in terms of location and intensity of services - resource, self-contained, pullout or inclusion (34 CFR 300.551). Organizational and special education factors in educational evaluation are listed in table 3.1.

### **Selection of Sample**

Danville, Virginia is an independent city located in south-central Virginia on the North Carolina border. According to the U.S. Bureau of Census, Danville maintains a population of approximately 55,000 persons composed of approximately 3% Asian, 2 % Hispanic, 37 % African American, and 58% Caucasian with English, German, and Irish decent representing the majority. Danville is surrounded on all sides by agricultural communities, the largest being Pittsylvania County with a population of 56,000.<sup>1</sup>

According to the Commissioner of Revenue, the median adjusted gross income of the 21,664 households receiving an income was \$16,432 during the 1995 fiscal year. Slightly less than 16% of the families in Danville live below the poverty level.<sup>2</sup> The source of income for sixty-four percent of the 21,664 households receiving an income are social security benefits, public assistance, or retirement benefits according to the 1990 census

---

<sup>1</sup>United States Department of Commerce, 1990 Census of Population General Characteristics, Virginia, (Washington, D.C.: U.S. Government Printing Office, 1996), 3-8.

<sup>2</sup>Danville Chamber of Commerce, Statistical Information for the City of Danville, (Danville, VA: Danville Chamber of Commerce, 1996).

Table 3.1  
Factors in Educational Evaluation

- I. ORGANIZATIONAL FACTORS
  - A. Class Assignment
    - 1. Traditional class assignment
    - 2. Continuous progress
  - B. Instructional Arrangements
    - 1. Traditional periods
    - 2. Semester block scheduling
  - C. Academic Level
    - 1. Preschool
    - 2. Primary
    - 3. Elementary
    - 4. Middle
    - 5. Junior high school
    - 6. High/secondary
    - 7. Alternative
- II. SPECIAL EDUCATION FACTORS
  - A. Disability Categories (34 CFR 300.7[a][1])
    - 1. Preschool/developmental delay
    - 2. Developmental delay ages 3-5
    - 3. Mental retardation
    - 4. Hearing impairment
    - 5. Speech or language impairment
    - 6. Visual impairment
    - 7. Serious emotional disturbance
    - 8. Orthopedic impairment
    - 9. Autism
    - 10. Traumatic brain injury
    - 11. Other health impaired
    - 12. Specific learning disability
    - 13. Deaf-blindness
    - 14. Multiple impairments
  - B. Service Delivery Models (34 CFR 300.551[b][1])
    - 1. Regular classes
    - 2. Special classes (resource, self-contained, etc.)
    - 3. Special schools
    - 4. Home instruction (homebound, home-based)
    - 5. Hospital/institution

Moche, J. S.(1995). "Cost analysis of three Southwest Virginia Special Education Programs."  
Unpublished Doctoral Dissertation, Virginia Polytechnic Institute and State University.

report.<sup>3</sup>

The Danville Public Schools support 8 kindergarten programs, 9 elementary programs, 3 middle school programs, 1 high school, 1 vocational center, and 1 alternative center. The community also supports 5 private and parochial schools. The 1990 U.S. Bureau of Census indicates the education level of the majority of all residents 25 and older is a high school diploma. A small percentage, 12%, of the population over 25 hold a bachelor's degree or higher.<sup>4</sup>

The Outcome Accountability Project Report composed by the State Department of Education indicates that the high school drop-out rate in Danville has ranged from 5-7 percent per annum since 1990. While the minority dropout rate has ranged from 6-8 percent during the same period of time. The report further indicates that the dropout rate for special education students in Danville has ranged from 9-14 percent, nearly twice that of the general population.<sup>5</sup>

## **Data Collection**

Moche cites Yin in recommending the use of several sources of information for

---

<sup>3</sup>United States Department of Commerce, 1990 Census.

<sup>4</sup>*Ibid.*

<sup>5</sup>Virginia Department of Education, Outcomes Accountability Project Report. (Richmond, VA: Department of Education, 1996).

corroboration and development of converging lines of inquiry.<sup>6</sup> When highly precise cost data are unavailable, as is frequently the case, use of reasonably accurate indicators is permissible.<sup>7</sup>

Information analyzed for this study came from the 1991-92, 1992-93, and the 1993-94 receipts and records. The following types of data were collected for the LEA Annual School Reports, annual budgets, state reported data, and internal documents:

- 1) Federal Support
  - a. IDEA Part B funds
  - b. IDEA Part H funds
  - c. Chapter 1, ESEA funds
  - d. Applicable special grants
  - e. Other federal fund
- 2) State Support
  - a. Basic School Aid
  - b. Standards of Quality Support
  - c. Categorical Funds
  - d. Special Education
  - e. Applicable Special Grants
  - f. Other State Funds
- 3) Local Support
  - a. Local Funds for Education
  - b. Applicable Special Grants

---

<sup>6</sup>Joanne Moche, "Cost Analysis of Three Southwest Virginia Special Education Programs," (Doctoral Dissertation, Virginia Polytechnic Institute and State University, 1995), 68.

<sup>7</sup>Philip Coombs and Jacques Hallak, Cost Analysis in Education: A Tool for Policy and Planning, (Baltimore, MD: Johns Hopkins University Press, 1987).

## **CAPE Study Design**

### **Calculation Procedure**

Data were documented on data collection worksheets. As suggested in the Moche study, interview worksheets provided an avenue for verification of bookkeeping conventions when bookkeeping was not verbatim or position classification by function was unclear. They also provided a format for teacher report of instructional hours in full-time equivalencies (FTEs) in various service delivery environments.

The CAPE Computer program was constructed in such a way that it easily could be modified to calculate costs by building level, by a variety of special programs, and/or by more discrete grade level divisions.

### **Cost Categories and Components**

The four CAPE Model cost categories were Regular Elementary Costs, Regular Secondary Costs, Elementary Special Education Costs, and Secondary Special Education Costs as defined earlier in Chapter One. Special education costs were those costs which could be attributed to the education of disabled students at all grade levels.

Each cost category was sub-divided into five components. Those components were: (1) Comprehensive Cost Component, (2) Service Cost Component, (3) Administrative Cost Component, (4) Support Cost Component, and (5) Instruction Cost Component. Each component was calculated by appropriate input centers, cost centers, and their ingredients.



Moche embedded mathematics checks throughout the CAPE computer program to guard against data entry error. Decision points were available within the final summary of costs formula whereby the user could choose to exclude certain items, such as those from self-supporting programs, from per pupil cost calculations. LEA customization of data also was possible for assignment of level-specific and site-specific administrative costs to the instruction Cost Component if preferred for agreement with local or state bookkeeping conventions.

The CAPE Model was designed as follows:

**COST ANALYSIS OF PUBLIC EDUCATION**  
(Cost Analysis of General and Special  
Elementary and Secondary Education)

- A. Comprehensive Cost Component
  - 1. Transportation Input Center
  - 2. Supplemental Expenses Input Center
- B. Service Cost Component
  - 1. Maintenance/Operations Input Center
  - 2. Supplemental Expenses Input Center
- C. Administrative Cost Component
  - 1. General Central Administrative Input Center
  - 2. Level-specific Administrative Input Center
  - 3. Site-based Administrative Input Center
- D. Support Cost Component
  - 1. Assessment Input Center
  - 2. Direct Services Input Center
  - 3. Related Services Input Center
- E. Instruction Cost Component
  - 1. Regular Education Input Center
  - 2. Special Education Input Center
  - 3. Supplemental Expenses Input Center

Costs were assigned to program categories on a per pupil basis. Regular education student numbers reflected average daily membership (ADM) for the three study years.

Special education student numbers reflected the number of students served based upon December 1 special education child count during the each of the study years. Personnel numbers were based upon data reflected in Annual School Reports to the Commonwealth of Virginia and the management information contract reports through the Personnel Office.

Both student and personnel numbers were expressed as full-time equivalencies (FTEs). Rossmiller recommended use of an FTE approach rather than one based on enrollment or membership. Rossmiller maintained that the FTE approach, which bases cost calculations on hours or minutes of involvement in a program, provided a more accurate portrayal of student access of services.<sup>8</sup>

### **Comprehensive Cost Component**

The COMPREHENSIVE COST COMPONENT contained costs attributable to all levels of school operation which could not be directly allocated to one particular academic program or program level. It included (1) pupil transportation and (2) supplemental expenses.

(1) Transportation Input Center. The first input center in the Comprehensive Cost Component was Transportation. Transportation costs were analyzed as follows:

### COMPREHENSIVE COST COMPONENT

---

<sup>8</sup>Moche, "Cost Analysis," 76.

- A. Transportation Input Center
  - 1. General Transportation Cost Center
    - a. Administrative Ingredient Center  
Ingredient Variables: salary, benefits,  
Materials, equipment, professional development  
And other miscellaneous costs
    - b. Non-administrative Ingredient Center  
Ingredient Variables: salary, benefits  
Materials, equipment, professional  
Development, and other miscellaneous  
Costs of general public transportation  
Services
    - c. Contract Ingredient Center
  - 2. Non-general Transportation Cost Center
    - a. Composite Ingredient Center  
Ingredient Variables: aggregate costs  
Of special public, special arrangement,  
Non-general contract, and other non-  
general transportation costs.
- B. Supplemental Expenses Input Center

The General Transportation Cost Center included those costs of transporting students to and from public day schools within the LEA. These included general public LEA-owned and -operated services. The model allowed for the input for costs associated with contracted services for general transportation to and from public day schools.

The Non-general Transportation Cost Center contained those costs of transporting special education students to and from within-district and out-of-district educational facilities when general transportation services were not feasible or appropriate. These included costs for special public, special arrangement, non-general contract, and other non-general transportation expenses.

Special public transportation costs were those costs associated with student

transportation provided by the LEA instead of general transportation services. Special arrangement transportation costs involved payments to parents in lieu of LEA-provided transportation when other transportation arrangements were not feasible or appropriate. This addressed a shortcoming noted in earlier cost models. Non-general contract transportation costs were those costs for transportation of special education pupils provided by a non-LEA service provider hired by the LEA on a fee or contract basis. Transportation arrangements not covered in the above descriptions fell under the heading of other non-general transportation services.

Expenditures allocated to transportation administrative costs were those costs attributable to the administration and supervision of general and non-general transportation services for all public school students. Non-administrative costs included other costs attributable to the operation of transportation services.

A twenty-step process was employed to calculate costs of transportation for general and special education programs. While all students may not choose to take advantage of transportation services, the costs of these services when made available by an LEA are attributable to all eligible students. The numbers of eligible K-12 general transportation students were obtained from school records. The numbers of eligible general transportation students were obtained by subtracting the number of eligible K-12 non-general transportation students from the number of all K-12 students in average daily membership (ADM). Preschool transportation costs were also calculated.

First, total administrative costs of transportation were calculated and divided by the number of eligible general transportation students to obtain a mean per pupil cost of

transportation administration. Total non-administrative costs of general transportation were then calculated and divided by the number of students eligible to receive general transportation services to obtain a mean per pupil cost of transportation non-administrative services for general transportation. The aggregate amount of general contract service costs were divided by the number of eligible general transportation students to obtain a mean per pupil cost of transportation contract services.

Likewise, aggregate costs of non-general transportation services were summed and divided by the number of students eligible to receive non-general transportation for a mean per-pupil cost of non-general transportation.

These mean per pupil expenditure (PPE) figures were summed within appropriate categories. The total was then multiplied by the number of students eligible for services within cost centers to obtain aggregate costs of general and non-general transportation for preschool regular education (nondisabled), preschool disabled, elementary regular education, secondary regular education, elementary special education, and secondary special education pupils. Special education costs were further subdivided and analyzed by disability category and service delivery environment based upon number of students enrolled in each categorical program and service delivery environment.

(2) Supplemental Expenses Input Center. The second input center contained those costs associated with the Comprehensive Cost Component but which were not included in computation of current per pupil expenditures. The Supplemental Expenses costs were analyzed through a sixteen-step process as follows.

## COMPREHENSIVE COST COMPONENT

- A. Transportation Input Center
- B. Supplemental Expenses Input Center
  - 1. Depreciation Cost Center
    - a. Facilities Ingredient Center  
Ingredient Variables: annualization  
Factor, assets anticipated lifetime
    - b. Vehicles Ingredient Center  
Ingredient Variables: annualization  
Factor, assets anticipated lifetime
  - 2. Initiation (start-up) Cost Center  
Ingredient Variables: materials,  
equipment, other miscellaneous costs  
of adult education and transportation
  - 3. Adult Education Cost Center  
Ingredient Variables: administration and  
non-administration costs of salaries, benefits,  
materials, equipment, professional development,  
and other miscellaneous costs.

The **Depreciation Cost Center** assessed depreciation costs resulting from use of buildings and vehicles. Larson (1985) defined depreciation as “the amount of devaluation from the current appraised value of all the buildings [and vehicles] in the local education agency over the course of one year due to normal usage, decay, and/or decline in price”. Depreciation costs were allocated equally among all K-12 students in ADM. Depreciation costs were not allocated to the preschool program given the diversity of individualized service delivery models such as home-based instruction and staggered classroom instruction schedules.

The two ingredient centers within the depreciation cost center were facilities and vehicles. Based on a review of Levin’s work, Larson recommended a generally accepted depreciation rate of 1/30, or lifetime of 30 years, for facilities. Larson also recommended

a rate of 1/12, or lifetime of 12 years, on vehicles.<sup>9</sup>

Levin suggested a five-stop process for determining the annual value of fixed assets:

- (1) Determine the replacement value;
- (2) Determine life of asset;
- (3) Determine annual cost of depreciation by dividing replacement value by life;
- (4) Determine opportunity cost by multiplying the underpreciated value by an appropriate interest rate;
- (5) Obtain an annual cost by adding the annual cost of depreciation to the annual interest forgone on the remaining investment.

Levin further simplified the process through production of a table of annualization factors for determining annual cost of facilities and equipment by anticipated lifetimes of assets and interest rates. His annualization formula is:

$$a(r,n) = \frac{[r(1 + r) \text{ to the } n\text{th power}]}{[(1 + r) \text{ to the } n\text{th power} - 1]},$$

where r= interest rate and n = lifetime of asset of deprecation.

An annualization factor is located on Levin's table by locating the intersection of the lifetime of assets (n) and the selected interest (r). Levin suggested employment of a ten percent interest rate, which represented average rates across time.<sup>10</sup>

The annual depreciation cost could be assigned per pupil based on proportion of the facility used for each purpose. For purposes of this study, annual depreciation costs were

---

<sup>9</sup>Jeffrey Larson, "Framework for Descriptive and Comparative Cost Analysis of Public and Nonpublic Special Education Programs," (Doctoral Dissertation, Virginia Polytechnic Institute and State University, 1985), 81.

<sup>10</sup>Henry Levin, Cost-Effectiveness: A Primer, (Beverly Hills, CA: Sage Publications, 1983), 99-100.

assigned on a per pupil basis.

The first ingredient center, facilities, included all buildings within and owned by the school system. Lifetime of building was set at 30 years as recommended by Larson in 1985. Interest rate was set at 10%. The annualization factor of .1061, obtained from Levin's table, was multiplied by the replacement cost of the facilities for a total cost of building depreciation.<sup>11</sup>

The second ingredient center, vehicles, included all buses, automobiles, and trucks within and owned by the school system. Lifetime of vehicles was set at 12 years. Interest rate was set at 10%. The annualization factor of .1468, obtained from Levin's table, was multiplied by the replacement cost of the vehicles to obtain a total cost of vehicle depreciation.<sup>12</sup>

The last step of depreciation calculation involve the addition of building depreciation and vehicle depreciation to yield total costs of depreciation. This sum was divided by the total number of K-12 students in ADM to obtain a mean annual per pupil cost of vehicle depreciation, which was then multiplied by the number of regular elementary, regular secondary, elementary special education, and secondary special education students to yield aggregate depreciation costs per category and program. Special education costs were further subdivided across disability categorical programs and service delivery environments.

---

<sup>11</sup>Larson, "Framework for Descriptive", 12.

<sup>12</sup>Moche, "Cost Analysis".



The second cost center within the Supplemental Expenses Input Center was the **Initiation (Start-up) Cost Center**. Start-up costs were those costs associated with the first year of program implementation for adult education and transportation. Start-up costs should not recur after the first year. They included materials and supplies, equipment, professional development, and other costs attributable to program initiation. They did not include costs of salaries and benefits which recur each year, nor did they include annual costs of materials and supplies, equipment, and professional development.

The last cost center within supplemental costs was the **Adult Education Cost Center**. While not directly attributable to the public education of kindergarten through twelfth grade students, the costs of adult education were included in local school budgets. Administrative and non-administrative costs of adult education services were considered.

The table in Appendix E displays the computation formula for the Transportation Input Center and the table in Appendix F displays the computation formula for the Supplemental Expenses Input Center of the CAPE Comprehensive Cost Component.

### **Service Cost Component**

The Service Cost Component was the second CAPE cost component. It contained building operations costs which could be attributed to all levels of school operation and which could not be directly allocated to a particular program or academic level. It was calculated in 14 steps. The Service Cost Component included those costs associated with two input centers: (1) maintenance and operations, and (2) supplemental expenses. The

Service Cost Component was subdivided as follows:

SERVICE COST COMPONENT

- A. Maintenance and Operations Input Center
  - 1. Personnel Cost Center  
Ingredient Variables: salaries, benefits, material, equipment, professional development, other
  - 2. Other Operations Expenses Cost Center  
Ingredient variables: utilities, communications, insurance, leases, rentals, etc.
- B. Supplemental Expenses Input Center
  - 1. Food Services Cost Center  
Ingredient Variables: salaries, benefits, materials, equipment, professional development, other
  - 2. Facilities/Capital Outlay Cost Center  
Ingredient variables: site acquisition, site improvement, architecture, specifications, building acquisition, building improvements
  - 3. Debt Service and Fund Transfers Cost Center

(1) Maintenance and Operations Input Center. Maintenance operations costs were computed through a six-step process. Maintenance and operations personnel were grounds-keepers, gardeners, custodians, and other personnel responsible for repair and maintenance of school properties. Other operations expenses included but were not limited to utilities, communications, insurance, leases, and rentals. Total costs attributable to those positions plus other operations expenses were summed and allocated equally among all students per ADM.

(2) Supplemental Expenses Input Center. Supplemental Expenses were computed through an eight-step process. The three cost centers within the Supplemental Expenses

Input Center were Food Services, Facilities/Capital Outlay, and Debt Service and Fund Transfers.

The **Food Services Cost Center** included all costs attributable to food preparation and service positions and supplies.

The **Facilities and Capital Outlay Cost Center** contained those costs attributable to repair of, replacement of, or addition to public school facilities. These included costs allocated to site acquisition, site improvement, architecture, specifications, building acquisition, and building improvements.

The final cost center within supplemental costs was the **Debt Service and Fund Transfers Cost Center**. These costs were listed as line-item expenditures. Supplemental cost centers were summed to complete Supplemental Expenses Input Center total.

The CAPE Service Cost Component formula appears in the table in Appendix G.

### **Administrative Cost Component**

The Administrative Cost Component contained those costs attributable the administration of schools. Input centers were (1) general central administration, (2) level-specific administration including middle management special education administration, and (3) site-based administration. The Administrative Cost Component was calculated in twenty-three steps by these subdivisions:

- ADMINISTRATIVE COST COMPONENT
- A. General Central Administration Input Center
  - 1. Central Administrative Cost Center

Ingredient Variables: salaries, benefits, materials, equipment, professional development, other

2. Central Clerical and Technical Staff Cost Center

Ingredient variables: salaries, benefits, Materials, equipment, professional development, other

B. Level Specific Administration Input Center

1. Elementary Administration Cost Center

2. Secondary Administration Cost Center

3. Special Education Cost Center

C. Site-Based Administration Input Center

1. Principal's Office

Ingredient Variables: salaries, benefits, materials, equipment, professional development, other

(1) General Central Administration Input Center. General Central Administration

included costs associated with the positions of Superintendent, Assistant Superintendent(s), general directors, and general supervisors. It also included school board services as well as clerical and technical positions associated with central office, system-wide school administration. It did not include costs associated with positions which were level-specific (such as Elementary Supervisor, Director of Secondary Instruction, and so on), nor did it include administrative costs attributable to transportation, adult education, or middle level special education personnel. Where one individual fulfilled responsibilities of several positions, costs were prorated according to estimated time per position.

The sum of all General Central Administrative costs was divided by the total number of principals and assistant principals by the LEAs to render a mean per principal cost of General Central Administration. The mean per principal cost was then multiplied by the

number of principals and assistant principals assigned to schools by elementary and secondary levels to obtain an aggregate cost of General Central Administration for elementary and secondary education.

(2) Level-specific Administration Input Center. The Level-specific Administration input center contained costs associated with elementary and secondary level supervisors, directors, and coordinators. Costs were assigned by proportion of time to position as previously described for individuals holding more than one position. Costs were summed to obtain aggregate elementary and secondary costs of Level-specific Central Administration. Costs were allocated equally among students in ADM by level and program.

Costs attributable to special education middle-level administrators (supervisors and coordinators who did not have primary administrative responsibility for the system-wide special education program) also were calculated within this input center and allocated equally among special education students.

(3) Site-based Administration Input Center. The Site-based Administration Input Center contained those costs associated with the principal's office. It included costs attributable to the positions of principal, assistant principal, clerical and other office staff. Costs were calculated and totaled to obtain an aggregate cost of Site-based Administration for elementary and secondary programs.

Final administrative computations required the totaling of all three input centers, the sum of which represented the composite cost of administration for Elementary Education and Secondary Education, subdivided by regular education and special education services.

That sum was divided by the number of students in ADM per level and program to obtain mean annual current per pupil expenditures. See the table in Appendix H for the CAPE Administrative Cost Component formula.

### **Support Cost Component**

The Support Cost Component included those costs associated with activities which were primarily non-instructional and were available to all students in a given program. Support costs were calculated through a fifteen-step process analyzing the following subdivisions:

#### **SUPPORT COST COMPONENT**

- A. Assessment Input Center
  - 1. Regular Education Cost Center  
Ingredient Variables: salaries, benefits, Materials, equipment, professional Development, other
  - 2. Special Education Cost Center  
Ingredient variables: as above
- B. Direct Support Services Input Center
  - 1. Regular Education Cost Center
  - 2. Special Education Cost Center
- C. Related Services Input Center
  - 1. K-12 Special Education Cost Center
- D. Supplemental Expenses Input Center
  - 1. Preschool Disabled Cost Center  
(Related Services provided to Preschool disabled students)

(1) Assessment Input Center. The Assessment Input Center, calculated through a seven-step process, analyzed costs attributable to positions engaged in assessment and

evaluation activities within general and special education. These positions included psychology, audiology, medical and health, and educational assessment services. Assessment costs were added together to yield a total cost of assessment. These costs were then multiplied by the proportion of assessment activities conducted as a part of annual and triennial review of student progress for students already eligible for special education services. The product was prorated across all special education students.

The remaining proportion of assessment activities involved school-wide screening activities and initial diagnostic referral activities. Those activities were considered of benefit to all students and were prorated across all K-12 students in ADM.

(2) Direct Support Services Input Center. The Direct Services Input Center analyzed costs attributable to positions engaged in instructional support. A four-step process was applied to calculate costs. Direct Support Services personnel included guidance, library, attendance, work study, social work, visiting teacher, athletic activities, and other support personnel. While some duties encompassed classroom instruction, all costs were allocated to the Direct Services Input Center rather than to the Instruction Cost Component. Direct services benefitted all K-12 students in ADM and were allocated equally among all regular and special education students.

(3) Related Services Input Center. The Related Services Input Center, which involved a four-step computational process, included cost of services provided to disabled students in addition to special education services which were necessary for them to participate in and benefit from educational services. These positions included but were not limited to social worker, occupational therapist, physical therapist, special recreational and physical

education, and consultants. Those costs benefitted special education students only and were equally allocated across all special education students.

(4) Supplemental Expenses Input Center. Costs of related services for preschool students appeared as a supplemental expense and were not included in K-12 PPE calculations. See the table in Appendix I for the CAPE Support Cost Component formula.

### **Instruction Cost Component**

The Instruction Cost Component included costs associated with classroom instructional activities. These costs could be attributed to teachers, teacher aides and assistants, and substitute teachers across ingredient centers, and were analyzed as follows:

#### INSTRUCTION COST COMPONENT

- A. Special Education Input Center
  - 1. Elementary Special Education Cost Center
  - 2. Secondary Special Education Cost Center
- B. Regular Education Input Center
  - 1. Elementary Regular Education Cost Center
    - a. General Education Ingredient Center
    - b. Special Education Ingredient Center
  - 2. Secondary Regular Education Cost Center
    - a. General Education Ingredient Center
    - b. Special Education Ingredient Center
    - c. Supplemental Expenses Input Center

(1) Special Education Input Center. Special education instructional costs were those costs associated with direct instructional personnel in all special education service delivery environments. Costs were assigned by level (preschool, elementary, and secondary), by disability category, and by service delivery environment.



The salary ingredient center was a composite of salary costs of teachers, teacher aides, teaching assistants, and substitute teachers. The benefits center also was a composite of benefit costs associated with those positions. The third and fourth ingredient centers contained aggregate costs allocated for materials and equipment associated with instruction. Professional development, the fifth ingredient center, was comprised of those aggregate costs attributable to teacher travel, tuition reimbursements, in service-training, convention attendance, conference attendance, and other costs related to professional development of instructional staff. The final ingredient variable, other costs, contained any costs attributed to instruction not captured in preceding definitions.

Mean special education instructional costs were calculated separately from aggregate costs and divided by total personnel FTEs per program. The number of personnel FTEs for instructional environment (inclusion or segregated special education classroom) was then multiplied by the mean instructional cost for a total instructional cost per category, level, and environment. FTE-based costs also were delineated by intensity of student services (resource and self-contained). Instructional costs were equally assigned to students based upon student FTEs to derive current per pupil expenditures.

(2) Regular Education Input Center. Regular education instructional costs were those costs associated with regular homeroom or classroom teachers, including but not limited to regular instructional personnel, regular instructional aides and assistants, itinerant art, music, and physical education personnel, vocational personnel, and Chapter 1 remedial personnel. These costs did not include costs of special education instruction, although a portion of regular education instructional costs were assigned to special education

students based upon student FTEs in mainstream and inclusive settings. The same procedures applied to calculation of special education costs were applied to regular education costs.

(3) Supplemental Expenses Input Center. Supplemental Expenses included costs allocated to: (1) purchase of textbooks, (2) homebound instruction, (3) summer school instruction, (4) non-LEA/tuition programs, and (5) start-up costs.

The tables in Appendices J and K contain formulas for computation of Special Education Instructional Costs. For Regular Education Instructional Costs formulas, see tables in Appendices L and M.

### **Summary of Educational Expenditures**

Costs from each component were totaled and analyzed by program levels, program categories, and service delivery models (service delivery environment and intensity of services). The CAPE computer spreadsheet program performed calculations and also allowed the user to make decisions as to which input centers would be included in final calculations. For example, if a user resided in a state which did not include school food services in its per pupil calculations, that input cost could be excluded from the final calculations.

Prior year data could be adjusted to constant prices by entering an inflator. The program allowed the user to enter an inflator such as the Consumer Price Index (CPI) for the year or years under consideration. A recalculation of data from the original study year

to the year under current consideration could then be performed.

This study focuses on actual expenditure data. Only the data available were used, and as a consequence, no additional data collection efforts were necessary. Research information relevant to the financing special education services in Danville, Virginia was divided into three categories: disabling condition, type of placement, and funding source was also collected in addition to information on the expenditures for the related services and costs paid to non-educational agencies. The excess-cost was obtained for each fiscal year.

The cost analysis model used for this study is the Moche Cost Analysis of Public Education model. Total mean annual per pupil expenditures in constant dollars has been calculated for regular and special education students in Danville, Virginia. Costs have been analyzed by level (elementary and secondary) and by program (regular and special education). Special education costs are also be calculated by student disability category and by service delivery model.

## Chapter 4

### Results

Special education programs and services are provided to disabled students in all elementary, middle and high schools in Danville, Virginia. In addition, the city operates an alternative school for students with behavioral problems which does not serve special education students. The Danville Public School System served an average of 713 special education students each year during the 1991-1994 period at a cost of approximately \$8,574,879 annually or an average of \$12,013 per pupil per year. In addition, the school system served an average of 7,603 regular education students each year during the 1991-1994 period at a cost of approximately \$37,723,994 annually or an average of \$4,964 per pupil per year.

While a limited budget analysis occurs each year in an attempt to prepare, modify and/or adjust the various budget categories, an in-depth cost analysis rarely occurs. According to CAPE results, special education programs and services represented a significant portion of the LEA's operating budget. Over this three year study special

education students made up nine percent of the enrollment and consumed eighteen percent of the \$43.8 million operating budget during the 1991-92 school year; twenty-one percent of the \$46.6 million operating budget for 1992-93 school year; and seventeen percent of the \$48.5 million operating budget for 1993-94 school year.

Collection and analysis of data for this study occurred over a nine month period. The data collection methods used in this study were on-site inspection of LEA records and in-person interviews. Because of the age of the data collected, the information was cross-checked with other sources whenever possible to ensure reliability.

The inspection of records created the least burden on school personnel and was the primary source of data collection. Much of the information used in completing this study was extracted from LEA records, e.g., personnel, student enrollment, budget and line item expenditures, as follows:

(1) Personnel records were useful in collecting information on FTE staff, salaries, benefits, and placement (e.g., elementary or secondary). Records were cross-checked with data in the Annual School Report and LEA directories. The data on special education personnel was cross-checked with the Virginia State Department of Education's supplemental schedule for reporting federal, state, and local funds expended for special education and related services.

(2) Student enrollment data was extracted from the Annual School Report in determining ADM. Information on special education enrollment and percentage of contact time the student received special education services for each fiscal year was extracted from the Special Education Student Information System for reporting December 1 child count. The

examination of I.E.P.s and teacher rosters were necessary in determining actual program placement (e.g., mainstream, inclusion, or classroom services). This also served to corroborate information obtained from the student information system reports.

(3) Reports completed for the Virginia Department of Education from the Director of Transportation were used for the purposes of extracting data on salaries, benefits, materials, equipment, and capital outlay. Federal reports from the Director of Food Services were used to obtain expenditures as they relate to food services.

(4) Insurance documents from Johns and Higgins Insurance Company were used in determining actual purchase price and current value of buildings, land, furniture and equipment, vehicles, and buses.

(5) The Annual School Report, budget, and computerized line item expenditure documents were used for much of this study to extract and compare data.

(6) Chapter I and other compensatory program data was obtained from a separate budget provided by the Director of Remedial Education. The budget contained information on personnel salaries, benefits, materials, equipment, transportation, food services, and capital outlay. This information was cross-checked with records from the department of personnel, food services, and transportation.

Interviews placed a greater burden on the school board personnel but were necessary for interpretation and clarification of information. Interviews were crucial in obtaining information that was not officially recorded in standard LEA documents, e.g., the average

related services personnel time needed to serve disabled children. Interview sheets were used to document and cross-check information when appropriate.

Data were checked for inconsistencies and missing data and, whenever essential, an additional on-site inspection or interview was conducted. Upon completion, the data were entered into the CAPE models. A series of mathematics checks are embedded in each CAPE model to assure that all values entered were accurate and that different data were consistent. Upon completion of all data entry, a summary from each model was transferred to the final summation model. This model provided all reporting data in completing the comparison and analysis of this study.

## **RESEARCH FINDINGS**

Research Question 1: WHAT WERE THE TOTAL MEAN ANNUAL PER PUPIL EXPENDITURES IN CONSTANT DOLLARS OF ELEMENTARY REGULAR EDUCATION, SECONDARY EDUCATION, ELEMENTARY SPECIAL EDUCATION, AND SECONDARY SPECIAL EDUCATION SERVICES AND HOW DOES EACH COMPARE?

Although the finance office personnel provided information upon request, the disaggregation of records and cross-reference checks required the largest amount of time. Also, records were not maintained in one office setting. The central office records which pertain to LEA expenditures are housed in five facilities and maintained by separate staff.

The CAPE Model yielded calculations that determined the per pupil cost of regular

education and special education students per school year. As explained in Chapter III, the CAPE Model includes five cost components: comprehensive, service, administrative, support, and instruction. A summary of the cost were calculated using the CAPE model as presented in Table 4.1 for the 1991-92 school year costs, Table 4.2 for the 1992-93 school year costs, and Table 4.3 for the 1993-94 school year costs.



Table 4.1

CAPE Total Annual Expenditures for Regular and Special Education in Current Dollars, School Year 1991-92

<b>Expenditure Category</b>	<b>Elementary Regular Education</b>	<b>Elementary Special Education</b>	<b>Secondary Regular Education</b>	<b>Secondary Special Education</b>	<b>Total All Regular Education</b>	<b>Total All Special Education</b>
<b><u>Comprehensive</u></b>	<b>\$409,439</b>	<b>\$138,985</b>	<b>\$226,590</b>	<b>\$102,524</b>	<b>\$636,029</b>	<b>\$241,509</b>
<b>Transport</b>	<b>409,439</b>	<b>138,985</b>	<b>226,590</b>	<b>102,524</b>	<b>636,029</b>	<b>241,509</b>
<b><u>Service</u></b>	<b>1,603,225</b>	<b>125,125</b>	<b>887,250</b>	<b>92,300</b>	<b>2,490,475</b>	<b>217,425</b>
<b>Maint.</b>	<b>1,603,225</b>	<b>125,125</b>	<b>887,250</b>	<b>92,300</b>	<b>2,490,475</b>	<b>217,425</b>
<b><u>Admin.</u></b>	<b>3,610,956</b>	<b>374,220</b>	<b>2,107,560</b>	<b>287,408</b>	<b>5,718,516</b>	<b>661,628</b>
<b>Gen. Central</b>	<b>952,069</b>	<b>74,305</b>	<b>464,100</b>	<b>48,280</b>	<b>1,416,169</b>	<b>122,585</b>
<b>Level-specific</b>	<b>1,292,446</b>	<b>193,270</b>	<b>775,320</b>	<b>148,816</b>	<b>2,067,766</b>	<b>342,086</b>
<b>Site-based</b>	<b>1,366,441</b>	<b>106,645</b>	<b>868,140</b>	<b>90,312</b>	<b>2,234,581</b>	<b>196,957</b>
<b><u>Instruction</u></b>	<b>9,870,933</b>	<b>2,083,620</b>	<b>5,247,060</b>	<b>3,195,000</b>	<b>15,117,993</b>	<b>5,278,620</b>
<b>Regular</b>	<b>9,870,933</b>	<b>1,078,770</b>	<b>5,247,060</b>	<b>2,499,768</b>	<b>15,117,993</b>	<b>3,578,538</b>
<b>Special</b>	<b>N/A</b>	<b>1,004,850</b>	<b>N/A</b>	<b>695,232</b>	<b>N/A</b>	<b>1,700,082</b>
<b>TOTALS:</b>	<b>\$15,494,553</b>	<b>\$2,721,950</b>	<b>\$8,468,460</b>	<b>\$3,677,232</b>	<b>\$23,963,013</b>	<b>\$6,399,182</b> (Table Continued)

Table 4.1 Continued

	Elementary Regular	Elementary Special	Secondary Regular	Secondary Special	Total All Regular	Total All Special
<b>Support</b>	\$ 1,149,389	\$ 289,135	\$ 636,090	\$ 213,284	1,785,479	502,419
Assessment	49,330	122,815	27,300	90,596	76,630	213,411
Direct Service	1,100,059	85,855	608,790	63,332	1,708,849	149,187
Related Service	N/A	80,465	N/A	59,356	N/A	139,821
<b>TOTAL:</b>	<b>16,643,942</b>	<b>544,005</b>	<b>3,598,140</b>	<b>356,704</b>	<b>25,748,492</b>	<b>6,901,601</b>
<b>PPE:</b>	<b>3,374</b>	<b>7,821</b>	<b>3,335</b>	<b>13,699</b>	<b>3,360</b>	<b>10,316</b>
<b>Supplemental</b>	<b>6,644,751</b>	<b>3,555,090</b>	<b>12,702,690</b>	<b>4,247,220</b>	<b>10,242,891</b>	<b>900,709</b>
Depreciation	1,351,642	105,490	748,020	77,816	2,099,662	183,306
Food Service	4,785,010	373,450	2,648,100	275,480	7,433,110	648,930
Adult Ed.	508,099	65,065	202,020	3,408	710,119	68,473
Other						
<b>NEW TOTAL:</b>	<b>\$23,288,693</b>	<b>\$3,555,090</b>	<b>\$12,702,690</b>	<b>\$4,247,220</b>	<b>\$35,991,383</b>	<b>\$782,310</b>
<b>NEW PPE:</b>	<b>\$4,721</b>	<b>\$9,234</b>	<b>\$4,653</b>	<b>\$14,955</b>	<b>\$4,697</b>	<b>\$11,663</b>
					<b>TOTAL BUDGET:</b>	<b>\$43,793,693</b>

**Table 4.2**

**CAPE Total Annual Expenditures for Regular and Special Education in Current Dollars, School Year 1992-93**

<b>Expenditure Category</b>	<b>Elementary Regular Education</b>	<b>Elementary Special Education</b>	<b>Secondary Regular Education</b>	<b>Secondary Special Education</b>	<b>Total All Regular Education</b>	<b>Total All Special Education</b>
<b><u>Comprehensive</u></b>	<b>\$304,542</b>	<b>\$85,498</b>	<b>\$175,644</b>	<b>\$73,563</b>	<b>\$480,186</b>	<b>\$159,061</b>
<b>Transport</b>	<b>304,542</b>	<b>85,498</b>	<b>175,644</b>	<b>73,563</b>	<b>480,186</b>	<b>159,061</b>
<b><u>Service</u></b>	<b>1,764,410</b>	<b>143,810</b>	<b>1,017,620</b>	<b>123,735</b>	<b>2,782,030</b>	<b>267,545</b>
<b>Maint.</b>	<b>1,764,410</b>	<b>143,810</b>	<b>1,017,620</b>	<b>123,735</b>	<b>2,782,030</b>	<b>267,545</b>
<b><u>Admin.</u></b>	<b>3,601,330</b>	<b>381,786</b>	<b>2,091,000</b>	<b>330,186</b>	<b>5,692,330</b>	<b>711,972</b>
<b>Gen. Central</b>	<b>957,132</b>	<b>78,012</b>	<b>462,808</b>	<b>56,274</b>	<b>1,419,940</b>	<b>134,286</b>
<b>Level-specific</b>	<b>1,305,180</b>	<b>194,636</b>	<b>789,004</b>	<b>171,873</b>	<b>2,009,484</b>	<b>366,509</b>
<b>Site-based</b>	<b>1,339,018</b>	<b>109,138</b>	<b>839,188</b>	<b>102,039</b>	<b>2,178,206</b>	<b>211,177</b>
<b><u>Instruction</u></b>	<b>10,760,484</b>	<b>2,368,728</b>	<b>4,909,668</b>	<b>4,858,209</b>	<b>15,670,152</b>	<b>7,226,937</b>
<b>Regular</b>	<b>10,760,484</b>	<b>1,386,880</b>	<b>4,909,668</b>	<b>4,268,010</b>	<b>15,670,152</b>	<b>5,654,890</b>
<b>Special</b>	<b>N/A</b>	<b>981,848</b>	<b>N/A</b>	<b>590,199</b>	<b>N/A</b>	<b>1,572,047</b>
<b>Total:</b>	<b>\$16,430,766</b>	<b>\$2,979,822</b>	<b>\$8,193,933</b>	<b>\$5,385,693</b>	<b>\$24,624,694</b>	<b>\$8,365,515</b>

Table Continued

Table 4.2 Continued

	Elementary Regular	Elementary Special	Secondary Regular	Secondary Special	Total All Regular	Total All Special
<b>Support</b>	\$ 1,111,820	296,682	\$ 641,240	\$ 255,267	\$ 1,753,060	551,949
Assessment	48,340	127,262	27,880	109,497	\$	236,759
Direct Service	1,063,480	86,680	613,360	74,580	76,220	161,260
Related Service	N/A	82,740	N/A	71,190	1,676,840	153,930
					N/A	
<b>TOTAL:</b>	17,542,586	3,276,504	8,835,172	5,640,960		8,917,464
<b>PPE:</b>	3,629	8,316	3,169	16,640	26,377,758	12,166
					3,461	
<b>Supplemental</b>	6,738,596	546,872	3,537,972	436,632		983,504
Depreciation	1,281,010	104,410	738,820	89,835	10,276,568	194,245
Food Service	4,659,976	379,816	2,687,632	326,796	2,019,830	706,612
Adult Ed.	797,610	62,646	111,520	20,001	7,347,608	82,647
Other					909,130	
<b>NEW TOTAL:</b>	\$24,281,182	\$3,823,376	\$12,373,144	\$6,077,492	\$36,654,326	\$9900968
<b>NEW PPE:</b>	\$5,023	\$9,704	\$4,438	\$17,928	\$4,809	\$13,500
					<b>TOTAL</b>	
					<b>BUDGET:</b>	\$46,555,194

**Table 4.3**

**CAPE Total Annual Expenditures for Regular and Special Education in Current Dollars, School Year 1993-94**

<b>Expenditure Category</b>	<b>Elementary Regular Education</b>	<b>Elementary Special Education</b>	<b>Secondary Regular Education</b>	<b>Secondary Special Education</b>	<b>Total All Regular Education</b>	<b>Total All Special Education</b>
<b><u>Comprehensive</u></b>	<b>\$417,824</b>	<b>\$116,966</b>	<b>\$244,200</b>	<b>\$68,272</b>	<b>\$662,024</b>	<b>\$185,238</b>
<b>Transport</b>	<b>417,824</b>	<b>116,966</b>	<b>244,200</b>	<b>68,272</b>	<b>662,024</b>	<b>185,238</b>
<b><u>Service</u></b>	<b>1,823,232</b>	<b>178,944</b>	<b>1,065,600</b>	<b>104,448</b>	<b>2,888,832</b>	<b>283,392</b>
<b>Maint.</b>	<b>1,823,232</b>	<b>178,944</b>	<b>1,065,600</b>	<b>104,448</b>	<b>2,888,832</b>	<b>283,392</b>
<b><u>Admin.</u></b>	<b>4,059,540</b>	<b>487,902</b>	<b>2,422,575</b>	<b>289,680</b>	<b>6,482,115</b>	<b>779,582</b>
<b>Gen. Central</b>	<b>1,125,276</b>	<b>110,442</b>	<b>563,325</b>	<b>55,216</b>	<b>1,688,601</b>	<b>165,658</b>
<b>Level-specific</b>	<b>1,433,896</b>	<b>230,204</b>	<b>876,900</b>	<b>138,176</b>	<b>2,310,796</b>	<b>368,380</b>
<b>Site-based</b>	<b>1,500,368</b>	<b>147,256</b>	<b>982,350</b>	<b>96,288</b>	<b>2,482,718</b>	<b>243,544</b>
<b><u>Instruction</u></b>	<b>11,718,064</b>	<b>1,905,474</b>	<b>7,065,150</b>	<b>3,543,072</b>	<b>18,783,214</b>	<b>5,448,546</b>
<b>Regular</b>	<b>11,718,064</b>	<b>911,496</b>	<b>7,065,150</b>	<b>2,947,664</b>	<b>18,783,214</b>	<b>3,859,160</b>
<b>Special</b>	<b>N/A</b>	<b>993,978</b>	<b>N/A</b>	<b>595,408</b>	<b>N/A</b>	<b>1,589,386</b>
<b>TOTAL:</b>	<b>\$18,018,660</b>	<b>\$2,689,286</b>	<b>\$10,797,525</b>	<b>\$4,005,472</b>	<b>\$28,835,659</b>	<b>\$6,526,872</b>

**Continued**

Table 4.3 Continued

	Elementary Regular	Elementary Special	Secondary Regular	Secondary Special	Total All Regular	Total All Special
<b>Support</b> \$	1,201,244	\$ 347,170	\$ 702,075	\$ 202,640	\$ 1,903,319	\$ 549,810
Assessment	52,228	143,062	30,525	83,504	82,753	226,566
Direct Service	1,149,016	112,772	671,550	65,824	1,820,566	178,596
Related Service	N/A	91,336	N/A	53,312	N/A	144,648
<b>TOTAL:</b>	<b>19,219,904</b>	<b>3,036,456</b>	<b>11,499,600</b>	<b>4,208,112</b>	<b>30,738,978</b>	<b>7,076,682</b>
<b>PPE:</b>	<b>4,048</b>	<b>6,516</b>	<b>4,144</b>	<b>15,471</b>	<b>4,086</b>	<b>9,589</b>
<b>Supplemental</b>	<b>6,243,620</b>	<b>597,878</b>	<b>3,543,675</b>	<b>346,800</b>	<b>9,787,295</b>	<b>944,678</b>
Depreciation	1,381,668	135,606	807,525	79,152	2,189,193	214,758
Food Service	45,865,468	450,156	2,680,650	262,752	7,267,218	712,908
Adult Ed.	275,384	12,116	55,500	4,896	330,884	17,012
Other						
<b>NEW TOTAL:</b>	<b>\$25,463,524</b>	<b>\$3,634,334</b>	<b>\$15,043,275</b>	<b>\$4,554,912</b>	<b>\$40,526,273</b>	<b>\$8,021,360</b>
<b>NEW PPE:</b>	<b>\$5,363</b>	<b>\$7,799</b>	<b>\$5,421</b>	<b>\$16,746</b>	<b>\$5,387</b>	<b>\$10,869</b>
					<b>TOTAL BUDGET:</b>	<b>\$48,547,633</b>

The CAPE Model yielded calculations in nominal dollars. They are the basis for entry of amounts in the accounting records and are used in conventional financial reporting. In order to analyze the actual change in per pupil cost for regular education and special education, the nominal calculations are restated in units of common purchasing power or 1993 constant dollars. According the Rothstein, it is commonplace to use the consumer price index (CPI) to adjust for inflation.<sup>1</sup>

The Financial Accounting Standards Board recommends the use of the CPI in making general price-level adjustments. The general formula to convert historical costs into constant dollars of a uniform purchasing power uses index numbers as follows:<sup>2</sup>

$$\text{Cost measured in current year} = \text{historical cost} \times \frac{\text{Current CPI}}{\text{CPI at date of acquisition}}$$

constant dollars

The calculations converted into 1993 dollars are presented in Table 4.4 for the 1991-92 school year, Table 4.5 for the 1992-93 school year, and Table 4.6 for the 1993-94 school year.

---

<sup>1</sup>Richard Rothstein and Karen Miles, Where's the Money Gone? (Washington, D.C.: Economic Policy Institute, 1996).

<sup>2</sup>I.N. Reynolds and A. Slavin and A. Sanders, Elementary Accounting. (Hinsdale, Illinois: Dryden Press, 1981), 740.

**Table 4.4**

**CAPE Total Annual Expenditures for Regular and Special Education in 1993 Constant Dollars, School Year 1991-92**

<b>Expenditure Category</b>	<b>Elementary Regular Education</b>	<b>Elementary Special Education</b>	<b>Secondary Regular Education</b>	<b>Secondary Special Education</b>	<b>Total All Regular Education</b>	<b>Total All Special Education</b>	<b>Total Percentage of Budget</b>
<b>Comprehensive</b>	\$ 4,344,005	\$ 147,324	\$ 240,185	\$ 108,675	\$ 674,191	\$ 255,999	2%
Transport	4,344,005	147,324	240,185	108,675	674,191	255,999	
<b>Service</b>		132,633	940,485	97,838	2,639,904	230,471	6%
Maint.	1,699,419	132,633	940,485	97,838	2,639,904	230,471	
	1,699,419						
<b>Admin.</b>		396,673	2,234,014	304,653	6,061,628	701,326	15%
Gen. Central	3,827,613	78,763	491,946	51,777	1,501,139	130,540	
Level-specific	1,009,193	204,866	821,840	157,475	2,191,833	362,341	
Site-based	1,369,993	113,044	920,228	95,731	2,368,656	208,775	
	1,448,428						
<b>Instruction</b>		2,208,637	5,561,884	3,386,700	16,025,073	5,595,337	47%
Regular	10,463,189	1,143,496	5,561,884	2,649,754	16,025,073	3,793,250	
Special	10463189	1,065,141	N/A	736,946	N/A	1,802,087	
	N/A						
<b>TOTALS:</b>	<b>\$16,424,226</b>	<b>\$2,885,267</b>	<b>\$8,976,568</b>	<b>\$3,897,866</b>	<b>\$25,400,796</b>	<b>\$6,783,133</b>	<b>70%</b>

(Table Continued)



Table 4.4 Continued

	Elementary Regular	Elementary Special	Secondary Regular	Secondary Special	Total All Regular	Total All Special	Total Percentag e
<b>Support</b>	\$ 1,218,352	\$ 306,483	\$ 674,255	\$ 226,081	\$ 1,892,607	532,564	5%
Assessment	52,290	130,184	28,938	96,032	\$ 226,216		
Direct Service	1,166,063	91,006	645,317	67,132	81,228	158,138	
Related Service	N/A	85,293	N/A	62,917	1,811,380	148,210	
					N/A		
<b>TOTAL:</b>	<b>17,642,578</b>	<b>3,191,750</b>	<b>9,650,823</b>	<b>4,123,947</b>		<b>7,315,697</b>	
<b>PPE:</b>	<b>3,576</b>	<b>8,290</b>	<b>3,535</b>	<b>14,521</b>	<b>27,293,403</b>	<b>10,935</b>	
					<b>3,562</b>		
<b>Supplemental</b>	<b>7,043,436</b>	<b>576,645</b>	<b>3,814,028</b>	<b>378,106</b>		<b>954,751</b>	<b>25%</b>
Depreciation	1,432,741	111,819	792,901	82,485	10,857,464	194,304	
Food Service	5,072,111	395,857	2,806,986	292,008	936,642	687,865	
Adult Ed.	538,585	68,969	214,141	3,612	7,879,097	72,581	
Other					752,726		
<b>NEW TOTAL:</b>	<b>\$24,686,014</b>	<b>\$3,768,395</b>	<b>\$13,464,851</b>	<b>\$4,502,053</b>	<b>\$38,150,867</b>	<b>\$8,270,448</b>	<b>30%</b>
<b>NEW PPE:</b>	<b>\$5,004</b>	<b>\$9,788</b>	<b>\$4,932</b>	<b>\$15,852</b>	<b>\$4,979</b>	<b>\$12,363</b>	
					<b>TOTAL</b>		
					<b>BUDGET:</b>	<b>\$46,421,315</b>	

**Table 4.5**  
**CAPE Total Annual Expenditures for Regular and Special Education in 1992 Constant Dollars, School Year 1992-93**

Expenditure Category	Elementary Regular Education	Elementary Special Education	Secondary Regular Education	Secondary Special Education	Total All Regular Education	Total All Special Education	Total Percentage of Budget
<u>Comprehensive</u>	\$ 313,678	\$ 88,063	\$ 180,913	\$ 75,770	\$ 494,591	\$ 163,833	1%
Transport	313,678	88,063	180,913	75,770	494,591	163,833	
<u>Service</u>	1,817,342	148,124	1,048,149	127,447	2,865,491	275,571	7%
Maint.	1,817,342	148,124	1,048,149	127,447	2,865,491	275,571	
<u>Admin.</u>	3,709,370	393,240	2,153,730	340,091	5,863,100	733,331	14%
Gen. Central	985,846	80,352	476,692	57,962	1,462,538	138,314	
Level-specific	1,344,335	200,475	864,364	177,029	2,208,699	377,504	
Site-based	1,379,189	112,412	864,364	105,100	2,243,553	217,512	
<u>Instruction</u>	11083299	2439790	5056958	5003955	16140257	7,443,745	49%
Regular	11083299	1428486	5056958	4396050	16140257	5824536	
Special	N/A	1011303	N/A	607905	N/A	1619208	
<b>Totals:</b>	<b>\$16,923,689</b>	<b>\$3,069,217</b>	<b>\$8,439,750</b>	<b>\$5,547,263</b>	<b>\$25,363,439</b>	<b>\$8,616,480</b>	<b>71%</b>

(Table  
Continued)

Table 4.5 Continued

	Elementary Regular	Elementary Special	Secondary Regular	Secondary Special	Total All Regular	Total All Special	Total Percentage
<b>Support</b> \$	1,145,175	\$ 305,582	\$ 660,477	\$ 262,925	\$ 1,805,652	\$ 568,507	5%
<b>Assessment</b>	49,883	131,080	28,716	112,782	78,599	243,862	
<b>Direct Service</b>	1,095,292	89,280	63,176	76,817	1,727,053	166097	
<b>Related Service</b>	N/A	85,222	N/A	73,326	N/A	158548	
<b>TOTAL:</b>	18,068,864	3,374,799	9,100,227	5,810,188	27,169,091	9184987	
<b>PPE:</b>	3,738	8,565	3,264	17,139	3,565	12531	
<b>Supplemental</b>	6,940,754	563,278	3,644,111	449,731	10,584,865	1013009	24%
<b>Depreciation</b>	1,319,440	107,542	760,985	92,530	2,080,425	200072	
<b>Food Service</b>	4,799,775	391,210	2,768,261	336,500	7,568,036	727710	
<b>Adult Ed.</b>	821,538	64,525	114,866	20,601	936,404	85126	
<b>Other</b>							
<b>NEW TOTAL:</b>	\$25,009,618	\$3,938,077	\$12,744,338	\$6,259,919	\$37,753,956	\$10,197,996	29%
<b>NEW PPE:</b>	\$5,174	\$9,899	\$4,571	\$18,466	\$4,953	\$13,912	
					<b>TOTAL BUDGET:</b>	\$47,951,952	

**Table 4.6**  
**CAPE Total Annual Expenditures for Regular and Special Education in 1993 Constant Dollars, School Year 1993-94**

<b>Expenditure Category</b>	<b>Elementary Regular Education</b>	<b>Elementary Special Education</b>	<b>Secondary Regular Education</b>	<b>Secondary Special Education</b>	<b>Total All Regular Education</b>	<b>Total All Special Education</b>	<b>Total Percentage of Budget</b>
<u>Comprehensive</u> \$	417,824	116,966	\$ 244,200	\$ 68,272	\$ 66,2024	185,238	2%
Transport	\$ 417,824	116,966	244,200	68,272	\$ 662,024	185,238	
<u>Service</u>		17 8,944	1,065,600	104,448		283,392	7%
Maint.	1,823,232	178,944	1,065,600	104,448	2,888,832	283,392	
	1,823,232				2,888,832		
<u>Admin.</u>		487,902	2,422,575	289,680		779,582	15%
Gen. Central	4,059,540	110,442	563,325	55,216	6,482,115	165,658	
Level-specific	1,125,276	230,204	876,900	138,176	1,688,601	368,380	
Site-based	1,433,896	147,256	982,350	96,288	2,310,796	243,544	
	1,500,368				2,482,718		
<u>Instruction</u>		1,905,474	7,065,150	3,543,072		5,448,546	49
Regular	11,718,064	911,496	7065150	2,947,664	18,783,214	3,859,160	
Special	11,718,064	993,978	N/A	595,408	18,783,214	1,589,386	
	N/A				N/A		
<b>Totals:</b>	<b>\$18,018,660</b>	<b>\$2,689,286</b>	<b>\$10,797,525</b>	<b>\$4,005,472</b>	<b>\$28,835,659</b>	<b>\$6,526,872</b>	<b>73%</b>

Table 4.6 Continued

	Elementary Regular	Elementary Special	Secondary Regular	Secondary Special	Total All Regular	Total All Special	Total Percentage
<b>Support \$</b>	1,201,244	347,170	\$ 702,075	\$ 202,640	\$ 1,903,319	\$ 549,810	5%
Assessment	\$	143,062	30,525	83,504	82,753	226,566	
Direct Service	52,228	112,772	671,550	65,824	1,820,566	178,596	
Related Service	1,149,016	91,336	N/A	53,312	N/A	144,648	
	N/A						
<b>TOTAL:</b>		3,036,456	11,499,600	4,208,112	30,738,978	7,076,682	
<b>PPE:</b>	19,219,904	6,516	4,144	15,471	4,086	9,589	
	4,048						
<b>Supplemental</b>		597,878	3,543,675	346,800	9,787,295	944,678	22%
Depreciation	6,243,620	135,606	807,525	79,152	2,189,193	214,758	
Food Service	1,381,668	450,156	2,680,650	262,752	7,267,218	712,908	
Adult Ed.	45,865,468	12,116	55,500	4,896	330,884	17,012	
Other	275,384						
<b>NEW TOTAL:</b>	\$25,463,524	\$3,634,334	\$15,043,275	\$4,554,912	\$40,526,273	\$8,021,360	27%
<b>NEW PPE:</b>	\$5,363	\$7,799	\$5,421	\$16,746	\$5,387	\$10,869	
					<b>TOTAL BUDGET:</b>	\$48,547,633	

During the 1991-1994 study years, the percentage of the total budget allocated to the cost centers used in the CAPE model averaged two percent for transportation, seven percent for maintenance and operations, fifteen percent for administration, forty-nine percent for instruction, five percent for support services and twenty-two percent for supplemental budgetary items. Also, the fluctuation in the percentage of the budget allocated to each cost center ranged from zero percent to two percent for consecutive school years. Meanwhile, as presented in Table 4.7, the fluctuation in per pupil expenditures for regular education and special education students ranged from nineteen percent increase to a twenty-two percent decrease for consecutive school years.

The per pupil expenditure with greatest impact was that of the secondary special education students. The per pupil cost for secondary special education students averaged 1.5 times the per pupil cost for elementary special education students and three to four times the per pupil cost for regular education students. This excess can be partly attributed to the increase in programming offered to all students at the secondary level, and an increase in restrictive placements at the secondary level. Kakalik et. al. found in the Rand study that the more restrictive the environment, the more costly the instructional service.<sup>3</sup>

---

<sup>3</sup>James Kakalik and J. Carney and M. Furry and M Thomas, The Cost of Special Education, (Santa Monica, CA: The Rand Corporation, 1981).

Table 4.7  
CAPE Results

Comparison of Summary of Per Pupil Expenditures for Regular and Special Education Cost Information in 1993 Constant Dollars, School Year 1991-92, 1992-93, and 1993-94

<b>Source</b>	<b>1991-92</b>	<b>1992-93</b>	<b><u>% Change</u> from FY 91 to FY 92</b>	<b>1993-94</b>	<b><u>% Change</u> from FY 92 to FY 93</b>
All Regular Education	\$4,979	\$4,953	-.5%	\$5,387	+9%
All Special Education	12,363	13,912	+13%	10,869	-22%
Regular Elementary	5,004	5,174	+3%	5,363	+4%
Special Elementary	9,788	9,995	+2%	7,799	-22%
Regular Secondary	4,932	4,571	-7%	5,421	+19%
Special Secondary	15,852	18,466	+16%	16,746	-9%

## **Research Findings**

Question 2: WHAT WERE THE TOTAL MEAN ANNUAL PER PUPIL EXPENDITURES IN CONSTANT DOLLARS OF SPECIAL EDUCATION BY SERVICE DELIVERY OPTIONS (INTENSITY AND LOCATION OF SERVICES ACROSS THE CONTINUUM OF SERVICES), AND HOW DOES EACH COMPARE?

In the CAPE model, Moche categorized each disability as mild, moderate, or severe in the range of intensity of service delivery. The disability categories which are classified as mild in the range of intensity of service are educable mental disabled (EMD), speech and language impaired (SLI), specific learning disabled (SLD), and developmentally delayed (DD). The disability categories which are classified as moderate in the range of intensity of service are orthopedically impaired (OI), other health impaired (OHI), autistic (AUT), trainable mental disabled (TMD), and traumatic brain injury (TBI). The disability categories which are classified as severe in the range of intensity of service are hearing impaired (HI), multiple disabilities (MD), severely and profoundly disabled (SPD), visually impaired (VI), and deaf (D).

The CAPE Model provided the per pupil cost of special education students by service delivery options and intensity of services as presented in Table 4.8. By contrast, the extent to which the finance department reports expenditures by service delivery category is limited. A report is completed for the State Department of Education in the Annual School Report for purposes indicating actual expenditures made directly to special education personnel and related services by category of service delivery. The fluctuation in per pupil cost by intensity of service ranged from 0.2 percent to 24.0 percent in



consecutive school years.

According to CAPE results, the increase or decrease in the per pupil expenditures was generally commensurate with the increase or decrease in intensity of service. Specifically, the change in those costs incurred by students with disabilities in the mild or moderate category was minimal and was not commensurate with the percentage of budgetary increase per annum. Meanwhile, those students with disabilities categorized as severe in nature realized a twenty-four percent increase in per pupil expenditures during each of the consecutive school years during 1991-94. However, the increase can be attributed to a minimal increase in student enrollment and residential placement.

Using the CAPE model results, the mean value per service delivery model is easily calculated. The difference between the per pupil expenditures for students in the resource setting and students in the self-contained setting increased significantly during each of the study years. At the elementary level, the decrease in resource costs was commensurate with the decrease in resource student contact time in the resource setting and increased time in the inclusion setting. For example, a student in a resource setting would contribute a higher FTE than a student in the inclusive setting. Although, a decrease in contact time is not the written policy, a review of I.E.P.'s indicate that the amount of contact time contributed to the calculation of FTE's for inclusion students is overall lower than that of the FTEs for resource students.

At the secondary level, the per pupil expenditures for students in the resource setting averaged 1.7 times the per pupil expenditures for students in the self-contained setting. Stevenson found that the cost index for self-contained placements increased as the

pupil/teacher ratio was lowered.<sup>4</sup> In the case of Danville, the pupil/teacher ratio in self-contained placements at the secondary level increased with each study year, thus, decreasing per pupil cost. Meanwhile, the resource cost continued to increase due to the increase in resource FTE's or student contact time with resource teachers, regular education programs, and increased programming in elective and vocational classes.

---

<sup>4</sup>Freda Stevenson, "A Cost Analysis of Special Education Delivery Models: Resource, Instructional, Special Day School," (Doctoral Dissertation, Loyola University of Chicago, 1990), 122.

Table 4.8

Average Per Pupil Education Expenditures by Program Type and Intensity of Service Delivery in 1993 Constant Dollars, School Years 1991-92, 1992-93, and 1993-94

YEAR	PROGRAM TYPE	MILD	MODERATE	SEVERE	PROGRAM MEAN
1991-92	Elementary Resource	8,320	6,154	14,986	9,820
	Elementary Self-Contained	10,574	15,463	12,479	12,839
	Secondary Resource	15,231	20,748	15,230	17,070
	Secondary Self-Contained	12,810	10,894	11,364	13,124
	MEAN FOR SERVICE:	12,810	13,315	13,515	
1992-93	Elementary Resource	7,814	5,486	11,778	8,610
	Elementary Self-Contained	10,010	11,165	24,846	15,800
	Secondary Resource	16,465	19,043	22,024	19,917
	Secondary Self-Contained	15,066	13,903	6,271	12,099
	MEAN FOR SERVICE:	12,832	12,771	16,717	
1993-94	Elementary Resource	5,770	3,936	4,693	4,800
	Elementary Self-Contained	10,191	13,062	33,733	18,995
	Secondary Resource	17,582	27,253	39,954	28,263
	Secondary Self-Contained	20,413	11,719	4,501	12,211
	MEAN FOR SERVICE:	13,489	13,993	20,720	

## Research Findings

Question 3: WHAT WERE THE TOTAL MEAN ANNUAL PER PUPIL EXPENDITURES IN CONSTANT DOLLARS OF SPECIAL EDUCATION BY DISABILITY CATEGORY, AND HOW DOES EACH COMPARE?

The CAPE Model provides per pupil expenditures by disability category. The expenditures are presented in 1993 constant dollars in Table 4.9 for elementary students and Table 4.10 for secondary students. The fluctuation in per pupil expenditures (PPE) for each category and major program type can be attributed to various changes in program, I.E.P., enrollment, or staffing, i.e., teacher/pupil ratio.

The consumer price index was used as a basis for determining significant change in the PPE for each category. The increase in the CPI from fiscal year 1991 to fiscal year 1992 was three percent. Similarly, the increase in the CPI from fiscal year 1992 to fiscal year 1993 was also three percent.<sup>5</sup> The disability categories which can be identified in this study as exceeding the CPI change in PPE from fiscal year 1991 to fiscal year 1992 for elementary students are HI, VI, SLD, EMD, DD, and SPH. The disability categories which can be identified in this study as exceeding the CPI change in PPE for the secondary level students during the same period are HI, OI, OHI, SLD, Deaf, SED, and TMD. The disability categories which can be identified in this study as exceeding the CPI change in PPE from fiscal year 1992 to fiscal year 1993 for elementary students are HI, OI, OHI,

---

<sup>5</sup>James Worsham, "A Guide for Comparing Expenses by Year," Nation's Business, (February 1996):8.

SED, TMD, and SPH. The disability categories which can be identified in this study as exceeding the CPI change in PPE for the secondary level students during the same period are EMD, SLI, OHI, TMD, SED, SLD, and SPH.

The disability categories which are identified in the CAPE model as severe in intensity of service in which the PPE growth exceeded the CPI growth in fiscal year 1992 and fiscal year 1993 are HI, VI, SPH, Deaf, and OI. As reported in Research Question 2, a minimal program change in intensity of services within a category, as defined by Moche, can lead to a significant increase in PPE. For example, the PPE for the HI program increased two hundred percent from the 1991-92 school year to the 1992-93 school year. The increase can be attributed to the placement of one student in an alternative day program. The following year the PPE for the HI program decreased seventy-two percent. This decrease can be attributed to the reassignment of the student to the public day school, the reduction of staff from two teachers to one teacher, and an addition of an aide. Other programs experiencing an increase in PPE for similar reasons include DD, OI, and OHI. Other significant changes in PPE at the elementary level were revealed in the EMD and SLD programs. During the 1991-92 and 1992-93 school year, one student was enrolled in the EMD Resource program. This attributed to the high per pupil costs during these study years. During the 1993-94 school year, the student was self-contained. Therefore, the expenditures for the category during the last school year was zero. Another significant change appeared in the Self-Contained EMD program. The per pupil expenditure dropped thirty-one percent from the 1991-92 school year to the 1993-94 school year. This can be attributed to the increase in teacher/pupil ratio. During the 1991-92 school year,

teacher/pupil ratio was 1 to 7. During the 1993-94 school year, the teacher/pupil ratio was 1 to 10. The Regulations Governing Special Education Programs for the State for Disabled Children in Virginia indicate that each LEA shall staff the EMD self-contained programs with 1 teacher and 1 aide for every 10 children.<sup>6</sup>

Conversely, the per pupil expenditures for the SLD program increased seventy-one percent the first year of the study and fifty-one percent the second year of the study. Again, this change can be attributed to the change in pupil/teacher ratio. The teacher/pupil ratio for each of the study year was 1 to 19 for the 1991-92 school year; 1 to 11 for the 1992-93 school year; and 1 to 13 for the 1993-94 school year. The decrease in teacher/pupil ratio was due to increased staffing. Also, the student FTEs increased fifteen percent from the 1991-92 school year to the 1993-94 school year.

Significant changes at the secondary level occurred in the EMD and SED programs. Although the teacher/pupil ratios decreased during the study years, the Danville Public School System experienced a reduction in staff and greater numbers of EMD students placed in the resource program. The teacher pupil ratio during the study years was 1 to 18 for the 1991-92 school year; 1 to 15 for the 1992-93 school year; and 1 to 12 for the 1993-94 school year. Initially, the calculations seem to contradict earlier findings; however, a review of records indicated a reduction of staff and a review of homeroom rosters indicated that several EMD students in the resource program were served in cross-

---

<sup>6</sup>Virginia Department of Education, Regulations Governing Special Education Programs for Handicapped Children and Youth in Virginia, (Richmond, VA: Division of Special Education Management and Programs, Virginia Department of Education, 1990).

categorical settings.

The final area of significant change was the per pupil expenditures for students in the secondary SED program. During the 1991-92 school year, the low teacher/pupil ratio, 1 to 4, contributed to the high per pupil expenditures. However, as the study progressed the teacher/pupil ratio increased to 1 to 8 by the 1993-94 school year. Also, during the same period, two SED students were placed in day programs. Therefore, contributing to a high per pupil expenditure in the self-contained setting.

TABLE 4.9

Average Per Pupil Elementary Special Education Expenditures by Disability Category and Major Program Types in 1993 Constant Dollars, School Years 1991-92, 1992-93, and 1993-94

Disability	<u>Resource</u> 1991-92	1992-93	% of <u>chang e</u>	1993-94	% of change	<u>Self- Contained</u> 1991-92	1992-93	% of change	1993- 94	% of change
EMD	21,587	18,144	-16	N/A	+100	11,382	13,031	+14	7,866	-40
HI	10,235	14,067	+37	19,410	+38	22,310	39,611	+78	14,046	-65
SLI	5,094	4,516	-11	4,432	-2	N/A	N/A	-	N/A	-
VI	20,607	22,165	+8	21,506	-3	9,842	N/A	-100	N/A	-
SED	29,528	15,458	-48	7,946	-49	15,589	10,530	-32	12,340	+17
OI	5,145	4,965	-3	6,964	+40	N/A	N/A	-	4,954	+100
OHI	5,296	7,966	-50	8,326	+5	N/A	N/A	-	N/A	-
SLD	11,927	20,352	+71	9,957	-4	10,003	12,664	+27	10,617	-16
TMD	N/A	N/A	-	N/A	-	16,207	13,931	-14	15,619	+12
DEAF	N/A	N/A	-	N/A	-	3,872	3,639	-6	3,684	+1
AUTISTIC	3,872	N/A	-100	N/A	-	N/A	3,639	+100	3,684	+1
DD	10,235	N/A	-100	9,859	+100	3,872	4,607	+19	3,684	-20
SPH	N/A	N/A	-	N/A	-	11,746	14,217	+21	34,438	+142
TBI	N/A	N/A	-	8,798	+100	N/A	N/A	-	N/A	-



TABLE 4.10

Average Per Pupil Secondary Special Education Expenditures by Disability Category and Major Program Types in 1993 Constant Dollars, School Years 1991-92, 1992-93, and 1993-94

Disability	<u>Resource</u> 1991-92	1992-93	% of change	1993-94	% of change	<u>Self- Contained</u> <u>1991-92</u>	1992-93	% of change	1993- 94	% of change
EMD	N/A	N/A	-	7,037	+100	16,383	13,800	-16	7,360	-47
HI	9,683	29,032	+200	8,009	-72	N/A	N/A	-	N/A	-
SLI	8,978	6,816	-24	7,936	+16	N/A	N/A	-	N/A	-
SED	28,386	23,572	-17	11,396	-52	13,388	13,964	+4	32,439	+132
OI	4,876	12,107	+148	6,059	-50	N/A	N/A	-	N/A	-
OHI	9,191	15,010	+63	20,262	+35	N/A	N/A	-	5,234	+100
SLD	15,657	17,489	+12	15,814	-10	18,445	20,963	+14	29,235	+39
TMD	N/A	N/A	-	2,780	+100	9,553	7,974	-17	23,356	+193
DEAF	3,915	29,032	+642	3,702	-87	N/A	3,644	+100	3,702	+2
AUTISTIC	N/A	N/A	-	N/A	-	N/A	N/A	-	N/A	-
SPH	N/A	N/A	-	N/A	-	13,120	4,449	-66	5,997	+35

## **Research Findings:**

Question 4: WHAT WERE THE DIFFERENCES BETWEEN THE CAPE RESULTS AND THE STATE AND FEDERAL REPORTED COST ANALYSIS RESULTS?

A comparison between CAPE results and state and federal reported results as configured by the finance department in the Danville Public Schools is presented in Table 4.11 for the 1991-92 school year Table 4.12 for the 1992-93 school year; and Table 4.13 for the 1993-94 school year. Some differences exist in the means by which the CAPE model allows for data analysis and the analysis completed by the LEA in completing state and federal results which account for significant cost differences.

### **TRANSPORTATION**

The LEA reports per pupil costs to be included in the basic aid cost calculated for each LEA. Costs are calculated for regular transportation, exclusive schedule for disabled pupils transportation, special arrangement for disabled pupils transportation and bus replacement costs. In using the CAPE format, the capital outlay expenditures are disaggregated so as to not be in the general and non-general transportation cost center. Capital outlay expenditures are annualized in the CAPE model and collapsed under the supplemental cost center.

### **ADMINISTRATION**

The LEA reports school administrative services in the Annual School Report by cost center, e.g., management information services, central office instructional services, finance services, and school-based administration. In cost determinations for excess cost,

administrative costs are calculated for school-based administration and instructional support services. Also, the accounting system used by the LEA's finance department on the state and federal reports exclude those administrative positions which are not directly related to a academic level, i.e. Executive Administrative Positions at the Central Office. Finally, the total percentage allocated to special education and regular education cost centers is equivalent to the percentage of special and regular education students of the total ADM.

By contrast, the CAPE model provides an aggregate of administrative costs to include costs for general central office administrators, site-based administrators, and level-administrators. Costs are allocated to levels, e.g., elementary or secondary, based on the percentage of Principals at each level.

#### CAPITAL OUTLAY

State school aid is not provided for capital outlay financing. The capital outlay is reported in a budget separate and apart from the operating budget. The capital outlay for additions and replacements are reported by the LEA in the year the cost are incurred.

The CAPE model uses an annualization formula as delineated in Chapter 3 to account for expenditures. The data is collapsed under the supplemental expenditures cost center in CAPE 1.

#### SUPPORT SERVICES

The costs to be attributed to regular education and special education cost centers for all psychological, speech, school visiting teachers, and health expenditures are determined

by the division's Finance Department by calculating the percentage equivalent to the ratio of special education students to total ADM for the reporting year. The percentage of special and regular education students at each level is calculated. Then the total cost of school psychologist, school visiting teachers, speech teachers, and health equivalent is multiplied by the percentage of special and regular education students at each level. As a result, approximately nine percent of the costs for support services are attributed to special education students. By contrast, the CAPE model requires the use of actual contact time in calculating expenditures for support services. The results indicate that approximately twenty-four percent of the support services costs for support services can be attributed to the education of students with disabilities.

#### COMPENSATORY AND BILINGUAL EDUCATION

The Standards of Quality require LEAs to provide remedial programs in grade K-12 to reduce the number of students who score in the bottom national quartile on tests which currently form the Virginia State Assessment Program and for those who fail the state's 6th-grade Literacy Passport tests. Also, the LEAs are required to offer English as a Second Language programs.<sup>7</sup>

In reporting the cost differential in the PPE for regular education and special education students, the expenditures of Chapter I programs, programs for bilingual education, programs for the educationally deprived, and other programs for the preschool disabled

---

<sup>7</sup>J.B. Rickman, "Public School Finance Programs of the United States and Canada," American Education Finance Association and Center for the Study of States, Volume 2, (1992).

are excluded. By contrast in using the CAPE model for this study to determine cost differentials in the PPE for regular education and special education students, the expenditures of Chapter I programs, programs for bilingual education, programs for the educationally deprived, and other programs for the preschool disabled are included.

However, the CAPE model is designed to allow the user to delete specific expenditure categories for a more tailored analysis. This study includes the aforementioned categories to obtain a more accurate account of expenditures on regular and special education students.

Table 4.11  
Comparison of State and Federal Reported Data and CAPE Data in 1991-92 Current Dollars

Source	<u>Elementary Regular</u>		<u>Elementary Special Ed.</u>		<u>Secondary Regular</u>		<u>Secondary Special Ed.</u>	
	State & Federal Reported Data	Cape Data	State & Federal Reported Data	Cape Data	State & Federal Reported Data	Cape Data	State & Federal Reported Data	Cape Data
Transport. \$	589,620 \$	409,439 \$	175,208 \$	138,985 \$	345,839 \$	226,590 \$	69,750	102,524
Admin.	1,944,666	3,610,956	229,967	374,220	1,143,634	2,107,560	91,646	287,408
Maintenance and Operation	1,604,822	1,603,225	189,778	125,125	941,301	887,250	75,630	92,300
Instruction	12,867,057	9,870,933	1,575,558	2,083,620	9,077,530	5,247,060	919,767	3,195,000
Support	427,347	1,149,389	303,751	289,135	563,998	636,090	156,353	153,928
<b>SUBTOTAL</b>	17,642,449	16,430,766	2,626,074	3,276,504	12,163,758	8,835,172	1,302,855	5,411,219
Food Services (OTHER)	744,567	6,644,751	84,024	544,005	416,758	3,598,140	33,485	356,704
<b>TOTALS:</b>	<b>18,387,016</b>	<b>23,075,519</b>	<b>2,710,098</b>	<b>3,820,509</b>	<b>12,580,516</b>	<b>12,433,312</b>	<b>1,336,340</b>	<b>5,767,923</b>

Table 4.12

Comparison State and Federal Reported Data and CAPE Data in 1992-93 Current Dollars

Source	<u>Elementary</u> <u>Regular</u> State & Federal Reported Data		<u>Elementary</u> <u>Special Ed.</u> State & Federal Reported Data		<u>Secondary</u> <u>Regular</u> State & Federal Reported Data		<u>Secondary</u> <u>Special</u> <u>Ed.</u> State & Federal Reported Data	
		Cape Data		Cape Data		Cape Data		Cape Data
Transport.	\$ 500,403	\$ 304,542	\$ 155,349	\$ 85,498	\$ 308,627	\$ 175,644	\$ 67,304	73,563
Admin.	1,924,894	3,601,330	223,027	381,786	1,187,189	2,091,000	96,073	330,186
Maintenance	1,729,663	1,764,410	200,407	143,810	1,066,780	1,017,620	86,329	123,735
Instruction	13,057,924	1,760,484	1,707,374	2,368,728	9,034,362	4,909,668	900,404	4,858,209
Support	429,565	1,111,820	339,917	296,682	566,800	641,240	152,745	25,526
<b>SUBTOTAL</b>	17,642,449	8,542,586	2,626,074	3,276,504	12,163,758	8,835,172	1,302,855	5,411,219
Food Service (Other)	756,923	6,738,596	86,269	546,872	459,216	3,537,972	37,162	436,632
<b>TOTALS:</b>	<b>18,399,372</b>	<b>15,281,182</b>	<b>2,712,343</b>	<b>3,823,376</b>	<b>12,622,974</b>	<b>12,373,144</b>	<b>1,340,017</b>	<b>5,847,851</b>

Table 4.13

Comparison State and Federal Reported Data and CAPE Data In 1993-94 Current Dollars

Source	<u>Elementary</u> <u>Regular</u> State & Federal Reported Data	Cape Data	<u>Elementary</u> <u>Special Ed.</u> State & Federal Reported	Cape Data	<u>Secondary</u> <u>Regular</u> State & Federal Reported	Cape Data	<u>Secondary</u> <u>Special Ed.</u> State & Federal Reported	Cape Data
	Transport. \$	541,993 \$	417,824 \$	176,647 \$	116,966 \$	329,067 \$	244,200 \$	73,515 \$
Admin.	2,083,210	4,059,540	258,436	487,902	1,305,938	2,422,575	114,091	289,680
Maintenance	1,718,373	1,823,232	214,797	178,944	1,043,298	1,065,600	92,056	104,448
Instruction	13,588,213	11,718,064	1,919,418	1,905,474	9,109,548	7,065,150	937,236	3,543,072
Support	459,402	1,201,244	329,856	347,170	680,229	702,075	169,773	202,640
<b>SUBTOTAL</b>	18,391,191	19,219	2,899,154	3,036,456	12,468,080	11,499,600	1,386,671	4,208,112
Food Services and Other	717,814	5,819,627	89,727	516,219	435,816	3,287,962	38,454	416,396
<b>TOTALS:</b>	<b>19,109,005</b>	<b>25,039,531</b>	<b>2,988,881</b>	<b>3,552,675</b>	<b>12,903,896</b>	<b>14,787,562</b>	<b>1,425,125</b>	<b>4,624,508</b>



## **Research Findings**

Question 5: WHAT WERE THE DIFFERENCES IN METHODOLOGY AND CONCLUSIONS DERIVED FROM EXCESS COST COMPUTATION FORMULAS PRESENTED IN THE FEDERAL REGULATIONS, THE VIRGINIA STATE REGULATIONS, AND THE CAPE FORMULA?

Local Education Agencies must use funds provided under Part B Flow-Through Funds only for the costs which exceed the amount computed under Regulation 300.184 (P.L. 94-142) and which are directly attributable to the education of children with disabilities. The LEA's finance department extracts expenditures from the Annual School Report. The expenditure determinations are made for elementary regular and special education and secondary regular and special education. Where records were not available to directly identify the amount of expenditures by program categories, an allocation was made on the basis of direct cause and effect relationship to the amount of the expenditure.

The cost categories used to complete the excess cost determinations are instruction, administration, related services, transportation, and operations and maintenance, and school food services. As explained in Research Question 4, the LEA's excess cost determinations exclude expenditures for Chapter I, programs for bilingual education, programs for the educationally deprived and preschool disabled.

The cost determinations using the CAPE model for the cost differential in the PPE for regular education and special education use similar cost categories. However, the CAPE model for this study included program expenditures which were excluded by the LEA's

report. Finally, the difference in variables in determining excess cost expenditures accounts for the differences as presented in Table 4.14. The CAPE model can be adjusted for data entry of only expenditures used in calculating excess cost for the state reports.

Table 4.14

Comparison of Excess Cost Calculations in Current Dollars, School Years 1991-92, 1992-93, and 1993-94

LEVEL	<u>1991-92</u>		<u>1992-93</u>		<u>1993-94</u>	
	Federal Report	CAPE	Federal Report	CAPE	Federal Report	CAPE
Regular Elementary	\$ 3,813	\$ 4,721	\$ 3,926	\$ 4,858	\$ 4,094	\$ 4,441
Special Elementary	4,544	9,234	4,977	9,704	5,376	6,877
<b>EXCESS COST</b>	<b>731</b>	<b>4,513</b>	<b>1,051</b>	<b>4,846</b>	<b>1,282</b>	<b>2,436</b>
Regular Secondary	4,474	4,653	4,368	4,366	4,579	4,499
Special Secondary	6,012	14,746	5,654	17,928	6,223	15,824
<b>EXCESS</b>	<b>1,538</b>	<b>10,093</b>	<b>1,286</b>	<b>13,562</b>	<b>1,644</b>	<b>11,325</b>

## Chapter 5

### Discussion, Conclusions and Recommendations

#### **Discussion**

This study proposed to serve as an impartial field-test for an instrument and to provide a descriptive cost analysis of the Danville, Virginia, Public School System's special education programs and services. This chapter provides conclusions related to the use of the CAPE Model, recommendations for modifications necessary to improve the use of the CAPE Model, and recommendations for modifications necessary to improve the fiscal accountability on behalf of the Danville Public School System.

The type of 'analysis' which compiles cost data separately for special education students is seldom completed in local education agencies. Hence, research to collect and analyze data can prove invaluable in programming decisions. As a result of this study, findings which warrant further research follow.

## 1. INCLUSION AS A SERVICE DELIVERY MODEL AND THE IMPACT ON PER-PUPIL COST.

Inclusion should not be looked upon as a way to reduce costs. Since “inclusion” is not recognized as a service delivery model by the the Virginia Department of Education Regulations Regarding Special Education Students, students in the inclusion program are educated as “resource” students. However, as the research progressed, it became evident that the majority of the “resource” students at the elementary level were educated in an “inclusive” environment. Most often, these students received consultative programming with the assistance of an instructional aide in the regular classroom.

Upon reaching the high school, many students were returned to the resource or self-contained environment because of their lack of success in the regular program. Also, many students with behavioral difficulties at the middle and high school level were assisted by a full-time instructional aide. Finally, there is very little encouragement or fiscal effort toward creating independent Orthopedically Impaired (O.I.) students in the inclusive setting. Most O.I. students were assisted by a full-time instructional aide.

## 2. THE METHOD FOR CALCULATING THE PER-PUPIL COST FOR OPERATION AND MAINTENANCE.

Special education students often require more space than do regular education students because of the reduced pupil-teacher ratio and, invariably, the need for additional resource equipment. This cost analysis model would be further enhanced by research in which a method was developed to calculate the per-pupil cost for operation and maintenance based upon the amount of space provided per pupil. An index might be

developed to determine the per-pupil square footage and cost for regular education and special education students by service delivery model.

### 3. METHODS FOR IDENTIFYING TRUE COSTS.

It is suggested that local education agencies employ highly efficient fiscal management. In attempting to identify cost data related to specific placement delivery models in this study, considerable difficulty was encountered due to inconsistencies in identification of expenditures and reporting. The Commonwealth of Virginia's State Department of Education and all local education agencies should work to develop compatible accounting, reporting formats and accurate cost data by program, and accurate procedures for identifying costs as attributable to the regular education and special education program.

### **Conclusions**

An analysis of special education cost reflects a variety of choices and constraints addressed by the state and local policymakers. Local education agencies need detailed cost analysis to assist in making decisions regarding allocation of dwindling resources; the monitoring of expenditure levels; the design, planning, and evaluation of educational programs; and the incentives for inappropriate classification and programs for children with disabilities.<sup>1</sup> Also, as this study revealed, the LEA's need to invest in further expertise in analyzing and calculating the cost of special education programs. Vague and inconsistent accounting procedures often compound the pressures from the community

---

<sup>1</sup>Henry Levin, Cost Effectiveness: A Primer, (Beverly Hills, CA: Sage Publications).

members for greater accountability.

Also, as Slobojan explains, since the passage of P.L. 94-142, the cost of implementing requirements stipulated by the act have been a topic of concern for policymakers, school administrators, and taxpayers.<sup>2</sup> Such is the case in Danville. The school board members and city council members in Danville constantly protest the seemingly high expenditures for special education. While we cannot blame taxpayers and others overseeing funds for the desire to see their dollars spent wisely, we certainly do not want the focus to deviate from producing productive citizens with disabling conditions to one of eliminating resources. Without adequate information and signs of continuous progress in programming, an elimination of needed resources is likely. In maintaining a focus on producing productive citizens, we must analyze cost and assure the public that programming is cost-effective and beneficial to all students.

Unlike the Moche study, this study did reveal high excess cost ratios as found in previous studies. For example, Stevenson reviews that Kakalik (1981) stated that average per pupil expenditures for special education students were twice the amount spent for regular education students; Rossmiller reported special education costs four to five times the cost of regular education; and Moore et. al. found that special education programs were 2.3 times more costly than regular education programs (See Table 5.1). More recently, Larson (1985) reported that special education services

---

<sup>2</sup>A. Slobojan, "A Study of Educational Program Costs for Handicapped Students: Fredrick County, Maryland, Public Schools," ( Doctoral Dissertation, Virginia Polytechnic Institute and State Univeristy, 1986).

were 2.5 to 3.2 times the cost of regular education services.<sup>3</sup> However, studies of this nature offer limited generalization due to the use of data from one local education agency not necessarily characteristic or representative of all other local education agencies.

Results of this study, indicated that special education total annual mean per pupil expenditures for the 1991-92 and the 1992-93 school years were 2 times the per pupil cost of elementary regular education and 4 times the per pupil cost of secondary regular education. During the final year of this study, 1993-94, the special total annual per pupil expenditures dropped to 1.5 times the per pupil cost of elementary regular education cost and 3.5 times the per pupil cost of secondary regular education cost.

## **Recommendations**

This study resulted in the following recommendations:

- (1) The procedures be clarified in calculating fixed asset cost of land and furniture and retirement payments. The cost of land and furniture can be included under B2-Acquisition and Improvements or Supplemental Expenses Input Center. The retirement payments can be accounted under the salaries category by level of employment.

---

<sup>3</sup>Jeffrey Larson, "Framework for Descriptive and Comparative Cost Analysis of Public and Nonpublic Special Education Programs," (Doctoral Dissertation, Virginia Polytechnic Institute and State University, 1985).



Table 5.1  
 Comparison of Summary of Special Education Cost School Years 1993-94, 1992-91, 1991-92, 1985-86, 1977-78, and 1968-69 In  
 Constant 1993 Dollars, Students With Disabilities and Regular Education Students Information

Type of Expenditure	<u>Rossmiller</u> 1968-69	<u>Kakalik</u> 1977-78	<u>Moore</u> 1985-86	<u>CAPE</u> 1991-92	<u>CAPE</u> 1992-93	<u>CAPE</u> 1993-94
Average Per Pupil Expenditure \$ for Special Education Students:	5,136	\$ 8,295	\$ 8,658	\$ 12,710	\$ 14,231	\$ 11,485
Excess Per Pupil Cost for Special Education Students:	2,459	4,469	4,859	7,742	9,391	7,015
Average Total Per Pupil Expenditures for Regular Education Students:	2,677	3,826	3,799	4,968	4,840	4,470
Cost Ratio (ratio of total special ed. costs to regular ed. costs):	1.92	2.17	2.28	2.56	2.94	2.57

---

Freda Stevenson, 1990. "A Cost Analysis of Special Education Delivery Models: Resource, Instructional, Special Day School." Doctoral Dissertation, Loyola University of Chicago.

- (2) The CAPE spreadsheets be linked or embedded to create a more user friendly model. The objects can be embedded as a part of the final worksheet. By embedding the data or objects, the user can make changes in any cell in the spreadsheet allowing the change to flow-through to the summary sheet without additional data entry or transfer data from one file to another. Embedding is much like linking objects within a file. Linking will allow the connectivity of several documents.
- (3) The CAPE spreadsheets be linked to the text-manipulation and layout features of a word processor. A link with a word processor with menus, commands, and toolbars would allow formatting to increase ease of use by anyone who is unfamiliar with the spreadsheet format. This would also decrease the potential for user error because of accidental deletions of formulas in cells.
- (4) The CAPE Model formula for calculating future costs be re-evaluated. The projection for calculating future cost one year beyond the accounting year is calculated using the CPI from cell L68 as a multiplier. The projection for the second, third, fourth, and fifth year beyond the the accounting year uses the multiplier from cell K128. However, this is an empty cell. The multiplier should come from cell K69 for the second year; cell N69 for the third year; cell K70 for the fourth year; cell N70 for the fifth year.
- (5) The Danville Public School system further analyze the use of resources at all levels and specifically the secondary level.

- (6) The study be replicated in other Virginia School systems to determine additional modifications. This study should especially be replicated in larger, more metropolitan school divisions to measure costs with the full impact of economy of scale.
- (7) The State Department of Education for the Commonwealth of Virginia should develop more uniform cost accounting procedures throughout the local education agencies to allow comparability of per pupil expenditures for regular education and special education students.
- (8) Since the costs of Adult Education and Food Services does not attribute to direct per-pupil expenditures for education regular and special education students, these costs should be deleted in the CAPE model when calculating per-pupil expenditures in Virginia.

## Appendices

## Appendix A

<b>Milestones in Special Education in Virginia</b>	
1839	Virginia School for the Deaf and Blind was established at Staunton, Virginia.
1908	Virginia School for the Deaf and Blind was established in Hampton, Virginia.
1930	Legislation enacted enabling the Virginia Commission for the Blind to establish and maintain special education classes for the blind in the public day schools.
1931	Governor John Garland Pollard appointed a committee to study the special education needs of disabled children.
1945	Inauguration of the Visiting Teacher Service in Virginia
1946	Special Education program placed in the Division of Elementary Education. The State Department of Education began reimbursing school divisions for salaries of teachers of special groups, teachers of homebound children, hospital teachers, and for teaching materials utilized in special programs.
1947	The Woodrow Wilson Army General Hospital, Fishersville, Virginia, property was acquired by the state to operate as the Woodrow Wilson Rehabilitation Center under the State Board of Education.
1954	General Assembly passed legislation to expand the special education programs and substantially increase the appropriation to special programs.
1958	Special Education Program placed in the Division of Elementary and Special Education.
1966	Inauguration of the School Psychology Program in Virginia by the Board of Education.
1968	First mandatory legislation enacted by the General Assembly requiring a program of special education for hearing impaired children, ages two through twenty, to begin with the school year 1970-71.
1968	The State Board of Education officially established learning disabilities as a disabling condition. Guidelines for learning disabled were approved.
1973	The Board of Education established Educational Standards for the education of children in state-operated residential program.

Joswiak, L. J. (1975). "Financing Special Education in Virginia: Equitable Services and Adequate Funding Through a Categorical Program Cost Analysis." Doctoral Dissertation, Indiana University School of Education.

## Appendix B

<b>Milestones in Special Education During the Nineteenth Century in the United States</b>	
1817	The earliest known school for disabled students was established in Hartford, Connecticut. Thomas Gallaudet founded the American Asylum for the Education of the Deaf and Dumb.
1818	The New York Institution for the Education of the Deaf and Dumb was opened. The school was founded by private donations.
1821	New York appropriated funds for the New York Institution of the Deaf and Dumb.
1829	The Massachusetts School for the Blind became the first public residential school in the United States.
1830	Due to the tireless efforts of Horace Mann, the Massachusetts State Legislature passed into law a “Resolve for Erecting a Lunatic Hospital”, the first state hospital for the mentally ill.
1823- 1844	Three new state schools were built for deaf students in Kentucky, Ohio, and Virginia.
1844- 1860	Seventeen new schools for deaf students were established.
1864	The National Deaf Mute College was founded in Washington, D.C. The name later changed to Gallaudet College.

Alexander, K. & Alexander, M. D. (1992). American Public School Law, 3rd Edition. St. Paul, Minn.: West Publishing Co.

Appendix C  
Historical Development of Special Education Legislation

Year of Public Law	Establishment or Authorization of Public Law
1823 - P.L. 19-8-+	Established funding for The School for the Deaf in Kentucky.
1879 - P.L. 45-186	American Printing House for the Blind in Louisville, Kentucky
1918 - The Soldiers' Rehabilitation Act	Offered vocational rehabilitation services in the form of job training and counseling. Amended in 1944 to include services to the mentally ill individuals and the mentally retarded.
1920 - P.L. 66-236	Extended vocational rehabilitation benefits to civilians.
1948 - P.L. 80-617	Amended Civil Service Act to remove discrimination in hiring the physically disabled.
1954 - P.L. 88-531	Authorized cooperative research for the retarded.
1958 - P.L.85-905	Authorized captioned films and other specialized media for the deaf.
1958 - P.L. 85-926	Authorized funds for training teachers of the mentally retarded.
1961 - P.L. 87-276	Authorized funds for the training of teachers of the deaf.
1962 - P.L. 87-415	Authorized skill training for the unemployed and underemployed.
1963 - P.L.88-164 Mental Health Construction Act	Augmented previous laws in this category to include hard of hearing, deaf, speech impaired, visually disabled, emotionally disturbed, crippled and otherwise impaired as well as the mentally retarded and deaf. Also, added grants for research.
1963 - P.L. 88-210 Vocational Education Act	Made provisions for those who were disabled prevented their effective participation in regular vocational education programs as well as a number of other provisions.
1965 - P.L. 89-313	The ESEA was amended to provide assistance to state programs or schools for the disabled.
1966 - P.L. 89-694	Created a model secondary school for the deaf in Washington, D.C.
	Table Continued

Appendix C continued	
1966 - P.L. 89-750	Added grants for preschool, elementary, and secondary disabled children under the ESEA of 1965.
1967 P.L.90-170	Updated and extended mental retardation needs.
1967 P.L. 90-247	Established regional resource media centers for the disabled and amended the ESEA.
1968 -P.L. 90-538 The Handicapped Children's Early Assistance Act	Established experimental preschool programs for the disabled.
1973 - P.L. 93-112 The Vocational Rehabilitation Act	Section 504, the first major civil rights statute to protect the rights of the disabled. Section 504 applies to all agencies receiving federal funds for any purpose and states that: "No otherwise qualified disabled individual in the United States...shall solely by reason of his disability be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."

Boston, B. (1977). Education policy and the education for all handicapped children act (P.L. 94-142).  
Institute of Educational Leadership. Washington, D.C.



Appendix D  
Objections to the Education of the Handicapped Act (EHA)

OBJECTIONS TO EHA	RESPONSE BY LEGISLATORS
Educating disabled children is too expensive.	Although it may cost more to educate disabled children than nondisabled children, the states have a constitutional duty to do so. Federal funds help state and local education agencies comply with that duty. Perhaps the costs of educating disabled children will require additional tax levies, but present state and local educational funds can be reallocated. Funds spent on the far more costly task of maintaining disabled children in institutions during the school-age years and afterwards, can be reduced and diverted by educating them.
Granted, it is cheaper in the long run to educate a disabled child than to have the state pay for life-time care, but state and local education agencies look only to their own funds and have little concern about the wider fiscal benefits of educating a disabled child.	Short sightedness is common among all agencies of government but is not forgivable. The EHA addresses the wider concerns through provisions allowing SEAs to use funds not passed through to LEAs for service contracts with state and private agencies requiring state and local agencies to educate disabled children in their care or custody and providing increased levels of federal funds.
The EHA requires funding of "related services" which are really not special education services.	The related services are essential to the appropriate education of a disabled child. Without them, special education is inadequate education.
The EHA tips the scales of state-federal relationships so drastically toward the federal that state and local discretion in the education of disabled children is all but eliminated.	The EHA is a formula-grant act that does not require that states participate. Moreover, state and local autonomy has permitted the states to fail in their legal duties to educate disabled children. The federal government must correct violations of citizens' Fifth and Fourteenth Amendment rights. To that end, it can legislate even without appropriation.
The requirement for single-agency responsibility runs against the grain of the Tenth Amendment which provided that states retained powers not specifically delegated by the U.S. Constitution to the federal government.	As a condition for allocating federal funds to states that seek them, the federal government constitutionally may require administrative convenience through the single-agency device. Moreover, the single-agency requirement seals service gaps.
	Table Continued

OBJECTIONS TO EHA	RESPONSE BY LEGISLATORS
Appendix D continued	
<p>The EHA places unwarranted emphasis on disabled children by putting an inordinate amount of public resources behind their education. More to the point, it says that disabled students are entitled to more of society's benefits than other children.</p>	<p>The issue of competing equities...who is to be inconvenienced so that the needs of disabled students may be met, and to what degree are they to be inconvenienced... so at the heart of all legislation that advances the interests of any minority group, whether the group is characterized by race, sex, disability, or some other trait. The Act corrects massive past discrimination, it redresses the balance of fiscal equities only slightly by providing a limited portion of the additional cost to educate disabled children.</p>
<p>The EHA imposes such an excessive administrative burden that it will divert educators from their proper role...educating disabled children. Bureaucrats will devise coping behavior, resulting in mere paper compliance.</p>	<p>Although more paperwork is required, better paperwork is also called for, and SEAs and LEAs may charge some administrative costs against federal funds. Some educators may take approaches that undermine or diminish children's rights under the law, but the reaction certainly will not be universal.</p>
<p>The EHA creates artificial ceilings for the classification of disabled children for federal funding purposes. For example, some school systems typically have more learning disabled children than 2% of all their children.</p>	<p>The ceilings place reasonable limits based on available data and on the responsibility of the federal government to fund state and local programs. Open-ended funding would be disastrous. The ceilings force the school system to adhere to the priorities by counting only most needy children as eligible for federal funds.</p>

Turnbull, H. R. III (1986). Free appropriate public education: The law and children with disabilities. Denver, CO: Love Publishing Co

Appendix E  
CAPE Comprehensive Cost Component, Transportation Input Center

CAPE COMPREHENSIVE COST COMPONENT	TRANSPORTATION INPUT CENTER	
Formula	Spreadsheet Cell	Calculation
<b>A. TRANSPORTATION INPUT CENTER</b>		
<b>1. General transportation administrative costs (V40)</b>	E77	(V40) _____
<b>2. Average per pupil expenditure, administrative costs (V40) divided by all K-12 students general transportation students (P46)</b>	F79	(V40) _____ / (P46) _____ = (F79) _____ PPE
<b>3. General transportation non-administrative costs (X40)</b>	E88	(X40) _____
<b>4. Average per pupil expenditure, non-administrative costs (X40) divided by all K-12 general transportation students (P46)</b>	F90	(X40) _____ / (P46) _____ = (F90) _____ PPE
<b>5. General transportation contract costs (V46)</b>	E93	(V46) _____
<b>6. Average per pupil expenditure, contract costs (V46) divided by all K-12 general transportation students (P46)</b>	F94	(V46) _____ / (P46) _____ = (F94) _____

Appendix E Continued		
<b>7. Total General Transportation Costs for REGULAR EDUCATION, (Admin. PPE F79 times all K-12 reg. Ed. general transportation students P49) plus (Non-admin. PPE F90 times students P49) plus (Contract PPE F94 times students P49)</b>	<b>E104</b>	$\begin{aligned} &[(F79) \underline{\hspace{2cm}} \times \\ &(P49) \underline{\hspace{2cm}} = \\ &(E100) \underline{\hspace{2cm}} ] \\ &+ \\ &[(F90) \underline{\hspace{2cm}} \times \\ &(P49) \underline{\hspace{2cm}} = \\ &(E102) \underline{\hspace{2cm}} ] \\ &= \\ &(E104) \underline{\hspace{2cm}} \end{aligned}$
<b>8. Average per pupil costs of general transportation for Regular Education, Total Costs (E104) divided by K-12 regular education students (P21)</b>	<b>E105</b>	$\begin{aligned} &(E104) \underline{\hspace{2cm}} / \\ &(P21) \underline{\hspace{2cm}} = \\ &(E105) \underline{\hspace{2cm}} \end{aligned}$
<b>9. Total General Transportation Costs for SPECIAL EDUCATION, (Admin. PPE F79 times all K-12 special education general transportation students P52) plus (Non-Admin, PPE F90 times students P52) plus (Contract PPE F94 times students P52)</b>	<b>E111</b>	$\begin{aligned} &[(F79) \underline{\hspace{2cm}} \times \\ &(P52) \underline{\hspace{2cm}} = \\ &(E107) \underline{\hspace{2cm}} ] \\ &+ \\ &[(F90) \underline{\hspace{2cm}} \times \\ &(P52) \underline{\hspace{2cm}} = \\ &(E108) \underline{\hspace{2cm}} ] \\ &+ \\ &[(F94) \underline{\hspace{2cm}} \times \\ &(P52) \underline{\hspace{2cm}} = \\ &(E109) \underline{\hspace{2cm}} ] = \\ &(E111) \underline{\hspace{2cm}} \end{aligned}$
<b>10. Average per pupil costs of general transportation for SPECIAL EDUCATION, total costs (E111) divided by all K-12 special education students (P18)</b>	<b>E112</b>	$\begin{aligned} &(E111) \underline{\hspace{2cm}} / \\ &(P18) \underline{\hspace{2cm}} = \\ &(E112) \underline{\hspace{2cm}} \end{aligned}$

<b>Appendix E Continued</b>		
<b>NON-GENERAL TRANSPORTATION</b>		
<b>11. Composite Costs of Non-general transp. (V52)</b>	<b>E118</b>	<b>(V52)</b> _____
<b>12. Per Pupil expenditure (PPE), Composite Costs (V52) divided by all non- general transportation students (P63)</b>	<b>E119</b>	<b>(V52)</b> _____ / <b>(P63)</b> _____ = <b>E119</b> _____
<b>13.REGULAR EDUCATION non-general transportation costs, Composite PPE (E119) times number of regular education non- general transpiration students(P39)</b>	<b>E123</b>	<b>(E119)</b> _____ x <b>(P39)</b> _____ = <b>(E123)</b> _____
<b>14. Average PPE distributed across all K-12 REGULAR EDUCATION students, Regular Education costs (E123) divided by all K-12 regular education students (P21)</b>	<b>E124</b>	<b>(E123)</b> _____ / <b>(P21)</b> _____ = <b>(E124)</b> _____
<b>15. SPECIAL EDUCATION non-general transportation costs, Composite PPE (E119) times number of special education non-general transportation students (P43)</b>	<b>E127</b>	<b>(E119)</b> _____ x <b>(P43)</b> _____ = <b>(E127)</b> _____
<b>16. Average PPE distributed across all K-12 SPECIAL EDUCATION students, Special Education costs (E127) divided by all K-12 special education students (P18)</b>	<b>E128</b>	<b>(E127)</b> _____ / <b>(P18)</b> _____ = <b>(E128)</b> _____

Appendix E Continued		
<b>17. PRESCHOOL REGULAR EDUCATION, non-general transportation costs, Composite PPE (E119) times the number of preschool regular education non-general transportation students (P53).</b>	<b>E130</b>	$\frac{(E119)}{(P53)} \times (E130)$
<b>18. Average PPE distributed across all PRESCHOOL REGULAR EDUCATION students, Composite Costs (E130) divided by all preschool regular education students (P34)</b>	<b>E131</b>	$\frac{(E130)}{(P34)} = (E131)$
<b>19. PRESCHOOL SPECIAL EDUCATION, non-general transportation costs, Composite PPE (E119) times the number of preschool special education non-general transportation students (P60)</b>	<b>E133</b>	$\frac{(E119)}{(P60)} \times (E133)$
<b>20. Average PPE distributed across all, PRESCHOOL SPECIAL EDUCATION students, Composite Costs (E133) divided by all preschool special education students (P35)</b>	<b>E134</b>	$\frac{(E133)}{(P35)} = (E134)$

Appendix F

CAPE Comprehensive Cost Component, Supplemental Expenses Input Center

CAPE COMPREHENSIVE COST COMPONENT	SUPPLEMENTAL EXPENSES INPUT CENTER	PAGE 1
Formula	Spreadsheet Cell #	Calculation
<b>A. Depreciation</b>		
<b>1. Facilities Annualization Factor</b>	<b>E144</b>	<b>(E144) 0.1061</b> _____
<b>2. Replacement cost of facilities (T88)</b>	<b>E146</b>	<b>(E146)</b> _____
<b>3. Annual cost of facilities depreciation, factor (E144) times replacement cost (E146)</b>	<b>E148</b>	<b>(E144) 0.1061</b> _____ x <b>(E146)</b> _____ = <b>(E148)</b> _____
<b>4. Average PPE for all K-12 students, annual cost (E148) divided by all K-12 students in ADM (P16)</b>	<b>E151</b>	<b>(E148)</b> _____ / <b>(P16)</b> _____ = <b>(E151)</b> _____
<b>5. REGULAR EDUCATION cost of facilities depreciation, Average PPE (E151) times number of K-12 regular education students (P21)</b>	<b>E152</b>	<b>(E151)</b> _____ x <b>(P21)</b> _____ = <b>(E152)</b> _____
<b>6. SPECIAL EDUCATION cost of facilities depreciation, Average PPE (E151) times number of K-12 special education students (P18)</b>	<b>H152</b>	<b>(E151)</b> _____ x <b>(P18)</b> _____ = <b>(H152)</b> _____

<b>Appendix F Continued</b>		
<b>7. Vehicles Annualization Factor</b>	<b>E154</b>	<b>(E154) 0.1468</b> _____
<b>8. Replacement cost of vehicles (T92)</b>	<b>E156</b>	<b>(T92)</b> _____
<b>9. Annual Cost of Vehicles depreciation, factor (E154) times replacement cost (E156)</b>	<b>E158</b>	<b>(E154) 0.1468</b> x <b>(E156)</b> _____ = <b>(E158)</b> _____
<b>10. Average PPE for all students, annual cost (E158) divided by all K-12 students in ADM (P16)</b>	<b>E161</b>	<b>(E158)</b> _____ / <b>(P16)</b> _____ = <b>(E161)</b> _____
<b>11. REGULAR EDUCATION vehicle depreciation costs, average PPE (E161) times K-12 regular education students (P21)</b>	<b>E162</b>	<b>(E161)</b> _____ x <b>(P21)</b> _____ = <b>(E162)</b> _____
<b>12. SPECIAL EDUCATION vehicle depreciation costs, average PPE (E161) times K-12 special education students (P18)</b>	<b>E163</b>	<b>(E161)</b> _____ x <b>(P18)</b> _____ = <b>(E163)</b> _____



<b>Appendix F Continued</b>		
<b>B. START-UP (PROGRAM INITIATION) COSTS</b>		
<b>13. Total program initiation costs for Adult Education (AB40) and Transportation (AD40)</b>	<b>E169</b>	<u>(AB40)</u> + <u>(AD40)</u> = <u>(E169)</u>
<b>14. Average per pupil expenditure, total costs (E169) divided by all K-12 students in ADM (P16)</b>	<b>F169</b>	<u>(E169)</u> x <u>(P21)</u> = <u>(G169)</u>
<b>15. REGULAR EDUCATION program start-up costs, average PPE (F169) times number K-12 regular education students (P21)</b>	<b>G169</b>	<u>(F169)</u> x <u>(P21)</u> = <u>(G169)</u>
<b>16. SPECIAL EDUCATION program start-up costs, average PPE (F169) times number K-12 special education students (P18)</b>	<b>H169</b>	<u>(F169)</u> x <u>(P18)</u> = <u>(H169)</u>

Appendix G  
CAPE Service Cost Component

<b>CAPE SERVICE COST COMPONENT</b>		<b>PAGE 1</b>
<b>A. MAINTENANCE AND OPERATIONS</b>		
<b>1. Total of personnel costs (AJ40 + AN40)</b>	<b>E361</b>	<b>(AJ40)</b> _____ + <b>(AN40)</b> _____ = <b>(E361)</b> _____
<b>2. Total of other operations expenditures (AJ54)</b>	<b>E366</b>	<b>(AJ54)</b> _____
<b>3. Total maintenance and operations (E361 + E366)</b>	<b>E368</b>	<b>(E361)</b> _____ + <b>(E366)</b> _____ = <b>(E368)</b> _____
<b>4. Average annual PPE, total maintenance and operations (E368) divided by all K-12 students in ADM (P16)</b>	<b>E371</b>	<b>(E368)</b> _____ / <b>(P16)</b> _____ = <b>(E371)</b> _____
<b>5. REGULAR EDUCATION costs of maintenance and operations, PPE (E376) times all K-12 regular education students (P21)</b>	<b>G371</b>	<b>(E376)</b> _____ x <b>(P21)</b> _____ = <b>(G371)</b> _____
<b>6. SPECIAL EDUCATION costs of maintenance and operations, PPE (E376) times all K-12 special education students (P18)</b>	<b>H371</b>	<b>(E376)</b> _____ x <b>(P18)</b> _____ = <b>(H371)</b> _____

Appendix G continued		
<b>B. SUPPLEMENTAL EXPENSES</b>		
1. Total, food services (AL40)	E374	(AL40) _____
2. Average annual PPE, total costs (E374) divided by all K-12 students (P16)	E376	(E374) _____ / (P16) _____ = (376) _____
3. REGULAR EDUCATION costs of food services, PPE (E376) times all K-12 regular education students (P21)	G374	(E376) _____ x (P21) _____ = (G374) _____
4. SPECIAL EDUCATION costs of food services, PPE (E376) times all K-12 special education student (P18)	H374	(E376) _____ x (P18) _____ = (H374) _____
5. Total cost of other supplemental expenses including facilities, capital outlay, debt service and fund transfers (E383+E386+E388)	G388	(E383) _____ + (E386) _____ + (E388) _____ = (G388) _____
6. Average PPE, total cost (G388) divided by all K-12 students (P16)	H388	(G388) _____ / (P16) _____ = (H388) _____
7. REGULAR ED. costs of other supplemental, PPE (H388) times all K-12 regular education students (P21)	H389	(H388) _____ x (P21) _____ = (H389) _____
8. SPECIAL EDUCATION costs of other supplemental, PPE (H388) times all K-12 special education students (P18)	H390	(H388) _____ x (P18) _____ = (H390) _____

Appendix H  
CAPE Administrative Cost Component

CAPE COMPREHENSIVE COST COMPONENT		PAGE 1
Formula	Spreadsheet Cell #	Calculation
<b>A. GENERAL CENTRAL ADMINISTRATION INPUT CENTER</b>		
<b>1. Total General Central Administration Costs</b>	<b>F76</b>	
<b>2. Total number of principals and assistant principals (M19 +M26)</b>	<b>F78</b>	<u>(M19)</u> + <u>(M26)</u> = <u>(F78)</u>
<b>3. Mean cost per principal/assistant principal total cost (F76) divided by total principals &amp; assistant principals (F78)</b>	<b>F81</b>	<u>(F76)</u> / <u>(F78)</u> = <u>(F81)</u>
<b>4. Total elementary regular principal and assistant principal (M20 + M28)</b>	<b>F83</b>	<u>(M20)</u> + <u>(M28)</u> = <u>(F83)</u>
<b>5. Total elementary cost, mean (F81) times total elementary administration (F83)</b>	<b>F85</b>	<u>(F81)</u> x <u>(F83)</u> = <u>(F85)</u>
<b>6. Mean PPE, elementary, Total (F85) divided by all elementary ADM (P23)</b>	<b>G85</b>	<u>(F85)</u> / <u>(P23)</u> = <u>(G85)</u>

<b>Appendix H continued</b>		
<b>7. ELEMENTARY REGULAR EDUCATION, PPE (G85) times elementary regular education students (P39)</b>	<b>H85</b>	$\frac{(G85)}{(P39)} \times (H85)$
<b>8. Average (F81) times Elementary Special Education Principal &amp; Assistant Principal (M23)</b>	<b>F92</b>	$\frac{(F81)}{(M23)} \times (F92)$
<b>9. ELEMENTARY SPECIAL EDUCATION, PPE (G85) times elementary special education students (P32) plus special education costs (F92)</b>	<b>H86</b>	$\left[ \frac{(G85)}{(P32)} \times (F92) \right] + (H86)$
<b>10. Total secondary principal &amp; assistant principal (M21 + M30)</b>	<b>F89</b>	$\frac{(M21)}{(M30)} \times (F89)$
<b>11. Total secondary cost, average (F81) times regular secondary administration (F89)</b>	<b>F91</b>	$\frac{(F81)}{(F89)} \times (F91)$
<b>12. Average PPE, secondary cost (F91) divided by all secondary students (P25)</b>	<b>G91</b>	$\frac{(F91)}{(P25)} \times (G91)$
<b>13. SECONDARY REGULAR EDUCATION, PPE (G91) times secondary regular education students (P36)</b>	<b>H91</b>	$\frac{(G91)}{(P36)} \times (H91)$
<b>14. Average (F81) times secondary education administration (M18)</b>	<b>F93</b>	$\frac{(F81)}{(M18)} \times (F93)$
<b>15. SECONDARY SPECIAL EDUCATION, PPE (G91) times secondary special education cost (F93)</b>	<b>H92</b>	$\left[ \frac{(G91)}{(P43)} \times (F93) \right] + (H92)$

<b>Appendix H continued</b>		
<b>B. LEVEL-SPECIFIC ADMINISTRATION INPUT CENTER</b>		
<b>1. Total cost of elementary level specific administration</b>	<b>F97</b>	_____
<b>2. Total cost of secondary level specific administration</b>	<b>F100</b>	_____
<b>3. Total cost of non-primary special education administration</b>	<b>F103</b>	_____
<b>4. Average elementary PPE, elementary level cost (F97) divided by all elementary students (P23)</b>	<b>G97</b>	$\frac{(F97) \text{ _____}}{(P23) \text{ _____}} = (G97) \text{ _____}$
<b>5. Average secondary PPE, secondary level cost (F100) divided by all secondary students (P25)</b>	<b>G100</b>	$\frac{(F100) \text{ _____}}{(P25) \text{ _____}} = (G100) \text{ _____}$
<b>6. Average Special Education PPE, special education cost (F103) divided by all special education students (P29)</b>	<b>G103</b>	$\frac{(G97) \text{ _____} \times (P29) \text{ _____}}{(G103) \text{ _____}} =$
<b>7. REGULAR EDUCATION ELEMENTARY LEVEL-SPECIFIC, PPE (G97) times regular education elementary students (P39)</b>	<b>H97</b>	$\frac{(G97) \text{ _____} \times (P39) \text{ _____}}{(H97) \text{ _____}} =$
<b>8. SPECIAL EDUCATION ELEMENTARY LEVEL-SPECIFIC, elementary PPE (G97) times elementary special education students (P32) plus Special Education PPE (G103) times elementary special education students (P32)</b>	<b>H103</b>	$\left[ \frac{(G97) \text{ _____} \times (P32) \text{ _____}}{(P32) \text{ _____}} \right] + \left[ \frac{(G103) \text{ _____} \times (P32) \text{ _____}}{(P32) \text{ _____}} \right] = (H103) \text{ _____}$

<b>Appendix H Continued</b>		
<b>9. REGULAR EDUCATION SECONDARY LEVEL-SPECIFIC, PPE (G100) times regular education secondary students (P43)</b>	<b>H100</b>	$\frac{(G100)}{(P43)} \times (H100)$
<b>10. SPECIAL EDUCATION SECONDARY LEVEL-SPECIFIC, Secondary PPE (G100) times special education secondary students (P36) plus special education PPE (G103) times special education secondary students (P36)</b>	<b>H104</b>	$\frac{[(G100) \times (P36)] + [(G103) \times (P36)]}{(H104)}$
<b>C. SITE-BASED ADMINISTRATION INPUT CENTER</b>		
<b>1. Total cost, elementary principal's office</b>	<b>F112</b>	_____
<b>2. Total cost, secondary principal's office</b>	<b>F116</b>	_____
<b>3. Total cost, special education principal's office</b>	<b>F120</b>	_____
<b>4. PPE, elementary cost (F112) divided by all elementary students in ADM (P23)</b>	<b>G112</b>	$\frac{(F112)}{(P23)}$
<b>5. PPE, secondary cost (F116) divided by all secondary students in ADM (P25)</b>	<b>G116</b>	$\frac{(F116)}{(P25)}$
<b>6. PPE, special education cost (F120) divided by all special education students (P29)</b>	<b>G120</b>	$\frac{(F120)}{(P29)}$
<b>7. REGULAR ELEMENTARY EDUCATION, PPE (G112) times all elementary regular education (P39)</b>	<b>H112</b>	$\frac{(F112)}{(P39)} \times (H112)$

Appendix H continued		
<b>8. ELEMENTARY SPECIAL EDUCATION, PPE (G112) times all elementary special education (P32) plus special education PPE (G120) times elementary special education (P32)</b>	<b>H120</b>	$\begin{aligned} & [(G112) \quad \quad \quad ] \times \\ & (P32) \quad \quad \quad ] + \\ & [(G120) \quad \quad \quad ] \times \\ & (P32) \quad \quad \quad ] = \\ & (H120) \quad \quad \quad \end{aligned}$
<b>9. REGULAR SECONDARY EDUCATION, PPE (G116) times regular education secondary students (P43)</b>	<b>H116</b>	$\begin{aligned} & (G116) \quad \quad \quad \times \\ & (P43) \quad \quad \quad = \\ & (H116) \quad \quad \quad \end{aligned}$
<b>10. SECONDARY SPECIAL EDUCATION, PPE(G116) times special education secondary students (P36) plus special education PPE (G120) times special education secondary students (P36)</b>	<b>H121</b>	$\begin{aligned} & [(G116) \quad \quad \quad ] \times \\ & (P36) \quad \quad \quad ] + \\ & [(G120) \quad \quad \quad ] \times \\ & (P36) \quad \quad \quad ] = \\ & (H121) \quad \quad \quad \end{aligned}$



Appendix I  
CAPE Support Cost Component

CAPE SUPPORT COST COMPONENT	ASSESSMENT INPUT CENTER	PAGE 1
Formula	Spreadsheet Cell #	Calculation
<b>A. ASSESSMENT INPUT CENTER</b>		
<b>1. Total assessment costs</b>	<b>F211</b>	_____
<b>2. Proportion special education, assessment costs (F211) times special education percentage (N80)</b>	<b>F214</b>	$\frac{(F211)}{(N80)} \times (F214)$
<b>3. Proportion regular education, assessment costs (F211) times regular education percentage (N78)</b>	<b>F217</b>	$\frac{(F211)}{(N78)} \times (F217)$
<b>4. Special education PPE, Special Education assessment costs (F214) divided by all special education students (P29)</b>	<b>F219</b>	$\frac{(F214)}{(P29)}$
<b>5. Regular education PPE, Regular Education assessment costs (F217) divided by all regular education students (P20)</b>	<b>F221</b>	$\frac{(F217)}{(P20)}$
<b>6. REGULAR EDUCATION Costs, regular education PPE (F221) times regular education students (P21)</b>	<b>F224</b>	$(F221) \times (P21)$

CAPE SUPPORT COST COMPONENT	ASSESSMENT INPUT CENTER	PAGE 1
<b>7. SPECIAL EDUCATION</b> Costs, regular education PPE (F221) times special education students (P29) plus special education PPE (F219) times special education students (P29)	<b>F230</b>	$\begin{aligned} &[(F221) \underline{\hspace{2cm}} \times \\ &(P29) \underline{\hspace{2cm}}] + \\ &[(F219) \underline{\hspace{2cm}} \times \\ &(P29) \underline{\hspace{2cm}}] = \\ &(F230) \underline{\hspace{2cm}} \end{aligned}$
<b>Appendix I continued</b>		
<b>B. DIRECT SUPPORT SERVICES INPUT CENTER</b>		
<b>1. Total Direct Support Services, F235 + F238</b>	<b>F239</b>	$\begin{aligned} &(F235) \underline{\hspace{2cm}} + \\ &(F238) \underline{\hspace{2cm}} = \\ &(F239) \underline{\hspace{2cm}} \end{aligned}$
<b>2. PPE, total costs (F239) divided by all K-12 (P20)</b>	<b>F241</b>	$\begin{aligned} &(F239) \underline{\hspace{2cm}} / \\ &(P20) \underline{\hspace{2cm}} = \\ &(F241) \underline{\hspace{2cm}} \end{aligned}$
<b>3. REGULAR EDUCATION PPE (F241) times all K-12 regular education students (P21)</b>	<b>F244</b>	$\begin{aligned} &(F241) \underline{\hspace{2cm}} \times \\ &(P21) \underline{\hspace{2cm}} = \\ &(F244) \underline{\hspace{2cm}} \end{aligned}$
<b>4. SPECIAL EDUCATION, PPE (F241) times all K-12 special education students (P29)</b>	<b>F247</b>	$\begin{aligned} &(F241) \underline{\hspace{2cm}} \times \\ &(P29) \underline{\hspace{2cm}} = \\ &(F247) \underline{\hspace{2cm}} \end{aligned}$
<b>C. RELATED SERVICES INPUT CENTER</b>		
<b>1. Total Costs, related</b>	<b>F254</b>	$\underline{\hspace{2cm}}$
<b>2. PPE, total (F254) divided by sum of number preschool disabled (M68) plus K-12 special education (P29)</b>	<b>F257</b>	$\begin{aligned} &(F254) \underline{\hspace{2cm}} / \\ &[(M68) \underline{\hspace{2cm}} + \\ &(P29) \underline{\hspace{2cm}}] = \\ &(F257) \underline{\hspace{2cm}} \end{aligned}$
<b>3. PRESCHOOL DISABLED PPE (F227) times number preschool disabled (M68)</b>	<b>F260</b>	$\begin{aligned} &(F227) \underline{\hspace{2cm}} \times \\ &(M68) \underline{\hspace{2cm}} = \\ &(F260) \underline{\hspace{2cm}} \end{aligned}$

<b>Appendix I continued</b>		
<b>4. K-12 SPECIAL EDUCATION, PPE (F227)</b> times number K-12 special education students (P29)	<b>F263</b>	<u>(F227)</u> x <u>(P29)</u> = <u>(F263)</u>

Appendix J

CAPE Instructional Cost Component, Special Education, Segregated Placement

\*NOTE: The following worksheet may be used to calculate broad program as well as specific program category costs.

CAPE INSTRUCTIONAL COST COMPONENT	SPECIAL EDUCATION (If calculating for specific disability, list here _____)	Page 1 SEGREGATED PLACEMENT
NOTE: Insert appropriate cell numbers and cost data when calculating for specific disability and model.	(If calculating for specific model, Circle One: Resource Self-Contained)	
Formula	Spreadsheet Cell #	Calculation
A. Elementary Special Education Segregated Location		
1. Total Special Education teacher costs	AR40 Elementary	_____
	AU40 Secondary	_____
2. Mean Special Education teacher costs, total costs divided by total teacher FTEs	AR41 Elementary	$\frac{(\text{AR40})}{(\text{K41})} = \frac{\text{_____}}{\text{_____}}$
	BD14 Secondary	$\frac{(\text{AU40})}{(\text{J74})} = \frac{\text{_____}}{\text{_____}}$
3. Teacher costs to environment: Average Special Education teacher costs times special education teacher FTEs to special education segregated class	F79 Elementary	$(\text{AR41}) \times (\text{L41}) = \text{_____}$
	F125 Secondary	$(\text{AU41}) \times (\text{K74}) = \text{_____}$

Appendix J continued		Page 2
<b>4. Total Special Education Aides costs</b>	<b>BA13</b> Elementary	<u>(BA13)</u> _____
	<b>BD13</b> Secondary	<u>(BD13)</u> _____
<b>5. Mean Special Education aides costs, total aides cost divided by total aides FTEs</b>	<b>BA14</b> Elementary	<u>(BA13)</u> _____ / <u>(K106)</u> _____ = <u>(BA14)</u> _____
	<b>BD14</b> Secondary	<u>(BD13)</u> _____ / <u>(N106)</u> _____ = <u>(BD14)</u> _____
<b>6. Aides costs to environment: Average Special Education aides costs times special education aides FTEs to special education segregated class</b>	<b>F83</b> Elementary	<u>(BA14)</u> _____ x <u>(L106)</u> _____ = <u>(F83)</u> _____
	<b>F129</b> Secondary	<u>(BD14)</u> _____ x <u>(O106)</u> _____ = <u>(F129)</u> _____
<b>7. Total costs of segregated special education class</b>	<b>F87</b> Elementary	<u>(F79)</u> _____ + <u>(F83)</u> _____ = <u>(F87)</u> _____
	<b>F132</b> Secondary	<u>(F125)</u> _____ + <u>(F129)</u> _____ = <u>(F132)</u> _____
<b>8. PPE, total costs divided by special education student FTEs to segregated class</b>	<b>F94</b> Elementary	<u>(F87)</u> _____ / <u>(T23)</u> _____ = <u>(F94)</u> _____
	<b>F138</b> Secondary	<u>(F132)</u> _____ / <u>(T24)</u> _____ = <u>(F138)</u> _____
<b>9. Distributed PPE, total costs divided by total special education student FTEs</b>	<b>F95</b> Elementary	<u>(F87)</u> _____ / <u>(S23)</u> _____ = <u>(F95)</u> _____

	<b>F139</b> Secondary	<b>(F132)</b> _____ / <b>(S24)</b> _____ = <b>(F139)</b> _____
<b>10. Total K-12 special education instructional costs to segregated placement</b>	<b>F140</b>	<b>(F87)</b> _____ + <b>(F132)</b> _____ = <b>(F140)</b> _____
<b>11. PPE, total costs divided by total special education student FTEs to segregated placement</b>	<b>F141</b>	<b>(F140)</b> _____ / <b>(T25)</b> _____ = <b>(F141)</b> _____
<b>12. Distributed PPE, total costs divided by total special education student FTEs</b>	<b>F142</b>	<b>(F140)</b> _____ / <b>(S25)</b> _____ = <b>(F142)</b> _____

Appendix K

CAPE Instructional Cost Component, Special Education, Inclusive Placement

**\*Note:** The following worksheet may be used to calculate broad program as well as specific program category costs.

CAPE INSTRUCTIONAL COST COMPONENT	SPECIAL EDUCATION (If calculating for specific disability, list here____)	Page 1 INCLUSION PLACEMENT
NOTE: Insert appropriate cell numbers and cost data when calculating for specific disability and model	(If calculating for specific model, Circle One: Resource Self-Contained)	
Formula	Spreadsheet Cell #	Calculation
<b>B. SPECIAL EDUCATION INCLUSION CLASS PLACEMENT</b>		
1. Special education teacher costs to inclusion: Mean special education teacher costs times special education teacher FTEs to inclusion placement in general education environment	F101 Elementary	(AR41) _____ x (M41) _____ = (F101) _____
	F144 Secondary	(AU41) _____ x (L74) _____ = (F144) _____
2. Special education aides costs to inclusion: Mean special education aides costs times special education aides FTEs to inclusion placement in general education environment	F105 Elementary	(BA14) _____ x (M106) _____ = (F105) _____
	F148 Secondary	(BD14) _____ x (P106) _____ = (F148) _____

<b>Appendix K continued</b>		
<b>3. Total special education instructional costs to inclusion</b>	<b>F108</b> Elementary	<u>(F101)</u> _____ + <u>(F105)</u> _____ = <u>(F108)</u> _____
	<b>F151</b> Secondary	<u>(F144)</u> _____ + <u>(F148)</u> _____ = <u>(F151)</u> _____
<b>4. PPE, total special education costs of inclusion divided by special education student FTEs to inclusion</b>	<b>F112</b> Elementary	<u>(F108)</u> _____ / <u>(V23)</u> _____ = <u>(F112)</u> _____
	<b>F156</b> Secondary	<u>(F132)</u> _____ + <u>(F151)</u> _____ = <u>(F156)</u> _____
<b>5. Distributed PPE, total special education costs of inclusion divided by total special education student FTEs</b>	<b>F113</b> Elementary	<u>(F108)</u> _____ / <u>(S23)</u> _____ = <u>(F113)</u> _____
	<b>F157</b> Secondary	<u>(F108)</u> _____ / <u>(S24)</u> _____ = <u>(F157)</u> _____
<b>6. Total special education costs of inclusion</b>	<b>F114</b>	<u>(F108)</u> _____ + <u>(F151)</u> _____ = <u>(F114)</u> _____
<b>7. PPE, total special education costs divided by total special education student FTEs to inclusion</b>	<b>G114</b>	<u>(F114)</u> _____ / <u>(V25)</u> _____ = <u>(G114)</u> _____
<b>8. Distributed PPE, total special education costs of inclusion divided by total special education student FTEs</b>	<b>H114</b>	<u>(F114)</u> _____ / <u>(S25)</u> _____ = <u>(H114)</u> _____



Appendix L

CAPE Instruction Cost Component, Regular Education, Mainstream Placement

**\*NOTE:** The following worksheet may be used to calculate broad program as well as specific program category costs.

CAPE INSTRUCTION COST COMPONENT	REGULAR INSTRUCTION	PAGE 1 MAINSTREAM
NOTE: Insert appropriate cell numbers and cost data when calculation for specific disability and model.	(If calculating for a specific disability, list here_____)	(If calculating for specific model, Circle One: Resource Self-Contained_
Formula	Spreadsheet Cell #	Calculation
<b>A. GENERAL EDUCATION COSTS OR MAINSTREAM EDUCATION</b>		
<b>1. Total regular education teacher costs</b>	<b>FK28</b> Elementary	_____
	<b>FK31</b> Secondary	_____
<b>2. Average regular education teacher costs, total costs divided by total regular education teacher FTEs</b>	<b>F128</b> Elementary	<b>(FK28)</b> _____ / <b>(FG18)</b> _____ = <b>(F128)</b> _____
	<b>F131</b> Secondary	<b>(FK31)</b> _____ / <b>(FJ18)</b> _____ = <b>(F131)</b> _____
<b>3. Total regular education mainstream teacher costs, average regular education teacher costs times regular education teacher FTEs to mainstream</b>	<b>F82</b> Elementary	<b>(F128)</b> _____ x <b>(FH18)</b> _____ = <b>(F82)</b> _____
	<b>F134</b> Secondary	<b>(F131)</b> _____ x <b>(FK18)</b> _____ = <b>(F134)</b> _____

<b>Appendix L Continued</b>		
<b>4. Total regular education aides costs</b>	<b>EX42</b> Elementary	_____
	<b>EZ 42</b> Secondary	_____
<b>5. Average regular education aides costs divided by total regular education aides FTEs</b>	<b>EY42</b> Elementary	$\frac{(\text{EX42})}{(\text{EY42})} =$ _____
	<b>FA42</b> Secondary	$\frac{(\text{EZ42})}{(\text{FA42})} =$ _____
<b>6. Total regular education mainstream aides cost, average regular education aides cost times aides FTEs to mainstream</b>	<b>F89</b> Elementary	$(\text{EY42}) \times$ $(\text{T38}) =$ $(\text{F89})$ _____
	<b>F141</b> Secondary	$(\text{FA42}) \times$ $(\text{W38}) =$ $(\text{F141})$ _____
<b>7. Total regular education mainstream costs</b>	<b>F91</b> Elementary	$(\text{F82}) +$ $(\text{F89}) =$ $(\text{F91})$ _____
	<b>F143</b> Secondary	$(\text{F134}) +$ $(\text{F141}) =$ $(\text{F143})$ _____
<b>8. Mean mainstream PPE, total costs divided by all student mainstream FTEs</b>	<b>F96</b> Elementary	$\frac{(\text{F91})}{(\text{U24})} =$ $(\text{F96})$ _____
	<b>F149</b> Secondary	$\frac{(\text{F143})}{(\text{U25})} =$ $(\text{F149})$ _____

<b>Appendix L continued</b>		
<b>9. Mainstream costs to regular education, average cost times student FTEs</b>	<b>F101 Elementary Regular Education</b>	<b>(F96)</b> _____ <b>x</b> <b>(U19)</b> _____ <b>=</b> <b>(F101)</b> _____
	<b>F154 Secondary Regular Education</b>	<b>(F149)</b> _____ <b>x</b> <b>(S20)</b> _____ <b>=</b> <b>(F154)</b> _____
	<b>F188 Elementary Special Education</b>	<b>(F96)</b> _____ <b>x</b> <b>(U21)</b> _____ <b>=</b> <b>(F188)</b> _____
	<b>F198 Secondary Special Education</b>	<b>(F149)</b> _____ <b>x</b> <b>(U22)</b> _____ <b>=</b> <b>(F198)</b> _____

Appendix M

CAPE Instruction Cost Component, Regular Education, Inclusive Placement

**\*NOTE:** The following worksheet may be used to calculate broad program as well as specific program category costs.

CAPE INSTRUCTION COST COMPONENT	REGULAR EDUCATION	PAGE 1 INCLUSION
NOTE: Insert cell #s and cost data for calculation of specific program costs	(If calculating for a specific disability, list here _____)	(If calculating for specific program model, Circle One: Resource Self-contained)
Formula	Spreadsheet Cell #	Calculation
<b>GENERAL EDUCATION INCLUSION COSTS TO REGULAR AND SPECIAL EDUCATION</b>		
1. Total general education teacher costs of inclusion = mean regular education teacher costs times regular education teacher FTEs to inclusive education	F107 Elementary	(F128) _____ x (F118) _____ = (F107) _____
	F160 Secondary	(FH31) _____ x (FK18) _____ = (F160) _____
2. Total general education aides costs of inclusion = mean regular education aides/assistants costs time regular education aides FTEs to inclusive education	F112 Elementary	(EY42) _____ x (U38) _____ = (F112) _____
	F165 Secondary	(FA42) _____ x (X38) _____ = (F165) _____
3. Total general education inclusion costs, teacher costs plus aides costs	F114 Elementary	(F107) _____ + (F112) _____ = (F114) _____

<b>Appendix M Continued</b>		
	<b>F167</b> Secondary	<u>(F160)</u> _____ + <u>(F165)</u> _____ = <u>(F167)</u> _____
<b>4. PPE, Mean inclusion costs per pupil: total inclusion costs divided by inclusion students FTEs</b>	<b>F120</b> Elementary	<u>(F114)</u> _____ / <u>(V24)</u> _____ = <u>(F120)</u> _____
	<b>F173</b> Secondary	<u>(F167)</u> _____ / <u>(V25)</u> _____ = <u>(F123)</u> _____
<b>5. Inclusion costs by program and level: PPE times student FTEs to inclusion</b>	<b>F124</b> Regular Education, Elementary	<u>(F120)</u> _____ x <u>(V19)</u> _____ = <u>(F124)</u> _____
	<b>F192</b> Special Education, Elementary	<u>(F120)</u> _____ x <u>(V21)</u> _____ = <u>(F192)</u> _____
	<b>F177</b> Regular Education, Secondary	<u>(F173)</u> _____ x <u>(V20)</u> _____ = <u>(F177)</u> _____
	<b>F203</b> Special Education, Secondary	<u>(F173)</u> _____ x <u>(V22)</u> _____ = <u>(F203)</u> _____
<b>6. Supplemental expenses to regular education: homebound plus textbooks plus tuition plus program initiation plus summer school plus other</b>	<b>F210 to F220</b> Regular Education, Elementary	<u>(F210)</u> _____ + <u>(F212)</u> _____ + <u>(F214)</u> _____ + <u>(F216)</u> _____ + <u>(F218)</u> _____ + <u>(F220)</u> _____ = _____
	<b>F222 to F232</b> Regular Education, Secondary	<u>(F222)</u> _____ + <u>(F224)</u> _____ + <u>(F226)</u> _____ + <u>(F228)</u> _____ + <u>(F230)</u> _____ + <u>(F232)</u> _____ = _____
	<b>F233, Preschool</b> Nondisabled	<u>(F233)</u> _____

## Appendix N

### Permission to Replicate Study

Angela Jackson Pringle has permission to replicate the methodology used in the Moche Cost Analysis of Three Southwest Virginia Special Education Programs.

The replication of the study is for the purpose of completing a doctoral dissertation, A Comparison of the Cost Analysis of Three Years of Special Education Costs in Danville, Virginia. Permission to replicate the aforementioned study includes the rights to use the Moche Cost Analysis of Public Education Model (CAPE) for a period no longer than the duration of the completion of the dissertation.

---

Joanne Spiers Moche

---

Date

## **Raw Data**

**Individuals interested in obtaining raw data from this study may do so by sending a written request, along with the reason for said request, to:**

**Angela Jackson Pringle  
725 Tamworth Drive  
Danville, Virginia 24540**

## GLOSSARY OF TECHNICAL TERMS

- average daily membership (ADM).** The aggregate membership of a school during a reporting period divided by the number of days school is in session during that period.
- capital outlay.** Costs related to the purchase of, replacement of, addition to, repair of, and maintenance of fixed assets which render useful service over a period of years.
- children with disabilities.** Children who are identified by the following disabilities: autism, deaf, deaf-blind, developmental delayed, hearing impairment, serious emotional disturbance, severe and profound disability, specific learning disability, speech or language impairment, traumatic brain injury, and/or visual impairment.
- constant prices.** Adjusted expenditures, converted into constant prices based on the price and wage structure for a selected base year, to allow for comparison of costs from year to year. This is done with an inflator or deflator, based on an appropriate price index, to compute real costs.
- cost based formula.** The percentage and excess cost methods which are based on current LEA expenditures for special education services.
- cost categories.** Program designations which include regular elementary education, regular secondary education, elementary special education, and secondary special education.
- cost centers.** A descriptive division of costs by function within input centers.
- cost components.** Primary cost allocations among categories based upon academic level, program, or service to which costs may be attributed.
- current costs.** The costs related to personnel services and consumable supplies that are used up within one fiscal year. Capital costs are not included.
- current expenditures.** Expenditures, unadjusted for inflation, for operation local public schools, excluding capital outlay and interest on school debt.
- economy of scale.** Provided the greatest fiscal efficiency in the regular education program due to larger class sizes, homogeneity of curriculum materials and assignments, and student transportation systems serving large numbers of students.
- elementary education.** Grades kindergarten through the seventh grade in public and non-public education programming in the Commonwealth of Virginia.
- excess or added costs of special education.** The additional costs incurred for educating a child in special education which are above and beyond the cost of educating a child in general education.
- home instruction (homebound or home-based instruction).** Instruction provided to student in the home setting or other prearranged setting or environment within the community but outside of the regular school setting.
- hospital/institution.** Instruction provided in a non-LEA (non-local education agency) program, including hospitals, institutions, and residential schools.



**inclusion.** Instruction by both regular and special education personnel, delivered to disabled and nondisabled student in the general education environment. A special education classroom with a teacher aide paid through the regular education budget but assigned for purposes of including disabled students in the program also was considered an inclusive classroom.

**Individualized Educational Program (IEP).** A document that is prepared under the federal requirements of special education delineating the special education program and related services requiring involvement of parents, teachers, and a school administrator. The school administrator has to be capable of obligating school division resources.

**ingredient variables.** Expenditures described in terms of resources or ingredients required to implement a given program or intervention; line-item expenses within CAPE cost centers.

**input centers.** Separation of component costs by main function.

**least restrictive environment or LRE.** A requirement of the IDEA which calls for students with disabilities to be educated to the maximum extent possible with students without disabilities.

**line-item.** Classification of expenditures by function (such as “instruction”) and by object ( such as “teacher”).

**local education agency or LEA.** The term used synonymously for the school divisions or school districts in Virginia.

**mainstream.** Instruction by regular education personnel, delivered to disabled and nondisabled students in the general education environment.

**monitor.** Instruction by regular education personnel, delivered to disabled and nondisabled students in the general education environment, with consultative or supplemental services provided by special education personnel as needed. This model was included within the resource designation for reporting and cost calculation purposes

**percentage based formula.** A provision for LEAs to receive a portion of approved costs of special education services.

**personnel based formula.** A provision for funding for all or a portion of the salaries of personnel working with children with disabilities. No other costs are reimbursed.

**resource.** Instruction by special education personnel, delivered to disabled students, within a separate (“pull-out”) special education classroom for less than 50% of the instructional day excluding lunch, time spent before the first instructional period begins, transition time between classes, and time spent at school after the last instructional period.

**resource costs.** The costs that are measured in physical units. This can include items such as number of teachers, teacher hours, or number of textbooks.

**resource cost model.** An estimate of program requirements for special education and a summary of the costs to provide needed resources.

- resource cost formula.** Include unit and personnel mechanisms in which distribution of funds is based on payment for specified resources.
- secondary education.** Grades eighth through twelfth in public and non-public education programming in the State of Virginia.
- self-contained.** Instruction by special education personnel, delivered to disabled students within a separate (“pull-out”) special education classroom for 50% or more of the instructional day excluding lunch, time spent before the first instructional period begins, transition time between classes, and time spent at school after the last instructional period.
- straight sum or flat grant.** A provision for a fixed amount of funds for each eligible student with disabilities. The amount may or may not vary by the disability of the students served.
- student based formula.** Include the weighted and straight sum formulas and are based on the number and the type of children served. total costs. Cost figures of general education, special education, and related services for those students with special needs receive.
- total expenditures.** The sum of current and capital expenditures; includes all current expenditures, depreciation costs, capital outlay, and interest on the school debt.
- unit costs.** Total complete expenditure divided by some unit, such as number of pupils, to derive an average figure for a defined group.
- unit formula.** Provisions for a fixed amount of money for each qualified unit of instruction, administration, and/or transportation. Funding is disbursed for the cost of the resources needed to operate the unit. The amount of funding provided may vary by type or unit.
- weighted formula.** Funding provisions for each child with disabilities as a multiple of the general education per pupil reimbursement. This formula is essentially a per pupil funding mechanism with different amounts provided based on a pupil’s disability and/or placement.

## REFERENCE

- Aleman, S. R. (1994). "Individuals With Disabilities Education Act:Reauthorization Overview." Congressional Research Service Report. Library of Congress. (November):1-6.
- Alexander, M.D.& Alexander, K. (1992). American public school law, 3rd Edition. St. Paul Minn.:West Publishing Co.
- Alexander, K. & Salmon, R.G. (1995). Public school finance. Boston: Allyn and Bacon Publishing Co.
- Anthony, P. (1991). "Financing Special Education in an Era of Fiscal Restraint." School Business Affairs, 57 (9)(September): 16-20.
- Beales, J. R. (1993). "Special Education, Expenditures and Obligations: Policy Study Number 161." Reason Foundation, (July): 3-26.
- Boston, B. (1977). "Education Policy and the Education for All Handicapped Children Act (P.L. 94-142)." Institute for Educational Leadership.
- Brown, E.L. (1982). "A Time and Cost Analysis of the Principal's role in the Administration of Special Education Problems." Doctoral dissertation, University of Nebraska.
- Chaikind, S., Danielson, L.C., Brauen, M. L. (1993). "What Do We Know About the Costs of Special Education?" The Journal of Special Education, 26 (4): 344-370.
- Coombs, P.H. & Hallak, J. (1987). Cost Analysis in Education: A Tool for Policy and Planning. Baltimore, MD.:Johns Hopkins University Press.
- Danville Chamber of Commerce (1996). Statistical Information for the City of Danville. Danville, VA: Danville Chamber of Commerce.
- Duenas, I. E. (1993). "Narrative Review of the Literature." American Institutes for Research in the Behavioral Sciences: the Center for Special Education Finance, October: 1-63.

- Education for All Handicapped Children's Act, Public Law 94-142,  
(reauthorized as IDEA 1990), 20 U.S.C. 1400 et seq. (1975)
- Gillespie, D. N. (1980). "A Study of Compliance with the Education for All Handicapped Children Act Excess Cost Requirements in Selected Local Education Agencies in Florida." Doctoral Dissertation, Virginia Polytechnic Institute and State University.
- Johns, R.L., Morphet, E. L., & Alexander, K. (1983). The Economics & Financing of Education. Fourth Edition. Englewood Cliffs, N.J.: Prentice Hall Publishing Co.
- Jones, P. (1982). "Historical Perspectives on Education of the Handicapped." A Practical Guide to Federal Special Education Law: Understanding the Implementation of P.L. 94-142.
- Joswiak, L. J. (1975). "Financing Special Education in Virginia: Equitable Services and Adequate Funding Through a Categorical Program Cost Analysis." Doctoral Dissertation, School of Education Indiana University.
- Kakalik, J.S., Carney, M.F., Furry, W.S., & Thomas, M.A. (1981). The Cost of Special Educaiton. Rand Note N-1792-ED, Santa Monica, CA: The Rand Corporation.
- Kienas, K. L. (1986). "A Comparison of the Efficiency and Effectiveness of Two Models for Determining the Cost of Special Education Programs." Doctoral Dissertation, Virginia Polytechnic Institute and State University.
- Larson, J. B. (1985). "Framework for Descriptive and Comparative Cost Analysis of Public and Nonpublic Special Education Programs." Doctoral Dissertation, Virginia Polytechnic Institute and State University.
- Levin, H. M. (1983). Cost-effectiveness: A primer. Beverly Hill, CA: Sage Publications.
- Martin, E. W.; Martin R.; Terman, D. L. (1996). "The Legislative and Litigation History of Special Education." The Future of Children, 6 (1). (Spring): 25-39.
- McQuain, S. (1984). "An Analysis of State Special Education Finance Formulas." Doctoral Dissertation, Virginia Polytechnic Institute and State University.

- Moche, J. S. (1995). "Cost Analysis of Three Southwest Virginia Special Education Programs." Doctoral Dissertation, Virginia Polytechnic Institute and State University.
- Murphy, A. (1983). The Report of the Commission on the Financing of A Free and Appropriate Education for Special Needs Children. Congress of the United States House of Representatives Committee on Education and Labor Subcommittee on Select Education. (March): 1-37
- National Education Association (1987). Understanding State School Finance Formulas. West Haven, Conn.: Professional and Organizational Developmental/Research Division: 3-24.
- O'Reilly, F. (1989). "State Special Education Finance Systems, 1988-89." National Association of State Directors of Special Education. Washington, D.C.
- O'Reilly, F. (1993). "Special Education Finance Systems, 1992-93." American Institute for Research in the Behavioral Sciences: Center for Special Education Finance: the Center for Special Education Finance. (December): 1-74.
- O'Reilly, F. (1995). "State Special Education Funding Formulas and the Use of Separate Placements for Students with Disabilities: Policy Paper Number 7." American Institute for Research in the Behavioral Sciences: the Center for Special Education Finance. (December): 1-26.
- Parrish, T. B. (1993). "Federal Policy Options for Funding Special Education." American Institute for Research in the Behavioral Sciences: the Center for Special Education Finance. (November): 1-3.
- Parrish, T. B. (1993). "State Funding Provisions and Least Restrictive Environment: Implications for Federal Policy: Brief No. 2." American Institute for Research in the Behavioral Sciences: the Center for Special Education Finance. (Fall): 1-5.
- Parrish, T. B.; Verstegen, D. A. (1994). "Policy Issues and Alternatives, Fiscal Provisions of the IDEA: Policy Paper Number 3." American Institute for Research in the Behavioral Sciences: the Center for Special Education Finance. (June): 1-79.

- Parrish, T. B. (1996). "Special Education Finance: Past, Present, Future: Policy Paper Number 8." American Insitute for Research in the Behavioral Sciences: the Center for Special Education Finance. (May): 1-31.
- Picus, L. O, & Miller, C. J. (1995). "Cost and Service Delivery Trade-Offs in Providing Educational Services for Students with Severe Disabilities." Educational Administration Quarterly, 31 (2). (May): 268-293.
- Reynolds, I.N.; Slavin, A.; Sanders, A. B. (1981). Elementary Accounting. Dryden Press: Hinsdale, Illinois.
- Rickman, J. B. (1992). "Public School Finance Programs of the United States and Canada." American Education Finance Association and Center for the Study of States. Volume Two: 531-540
- Rothstein, R. & Miles, K. H. (1996) Where's The Money Gone? Washington, D.C.: Economic Policy Institute.
- Slobojan, A. (1986). "A Study of Educational Program Costs for Handicapped Students: Frederick County, Maryland, Public Schools." Doctoral Dissertation, Virginia Polytechnic Institute and State University.
- Stevenson, F. (1990). "A Cost Analysis of Special Education Delivery Models: Resource, Instructional, Special Day School." Doctoral Dissertation, Loyola University of Chicago.
- Thomas, S. B. (1985). Legal Issues in Special Education. Topeka, Kansas: National Organization of Legal Problems in Education. .
- Terman, D.L., Behrman, R. E., Larner, M. B., & Stevenson, C. S. (1996). "Special Education for Students with Disabilities: Analysis and Recommendations." The Future of Children. Vol. 6, No. 1: 1-24.
- Turnbull, R. H. (1986). Free Appropriate Public Education: the Law and Children with Disabilities. Denver, CO: Love Publishing Co.
- United Sates Department of Commerce. (1996). 1990 Census of Population General Characteristics, Virginia. Washington, D.C.: U.S. Government Printing Office.

- United States Department of Education. (1980). Second Annual Report to Congress on the Implementation of Public Law 94-142: the Education for All Handicapped Children Act. Washington D.C.: Office of Special Education Programs, Office of Special Education and Rehabilitative Services.
- United States Department of Education. (1981). Third Annual Report to Congress on the Implementation of Public Law 94-142: the Education for All Handicapped Children Act. Washington D.C.: Office of Special Education Programs, Office of Special Education and Rehabilitative Services.
- United States Department of Education. (1982). Fourth Annual Report to Congress on the Implementation of Public Law 94-142: the Education for All Handicapped Children Act. Washington D.C.: Office of Special Education Programs, Office of Special Education and Rehabilitative Services.
- United States Department of Education. (1983). Fifth Annual Report to Congress on the Implementation of Public Law 94-142: the Education for All Handicapped Children Act. Washington D.C.: Office of Special Education Programs, Office of Special Education and Rehabilitative Services.
- United States Department of Education. (1984). Sixth Annual Report to Congress on the Implementation of Public Law 94-142: the Education for All Handicapped Children Act. Washington D.C.: Office of Special Education Programs, Office of Special Education and Rehabilitative Services.
- United States Department of Education. (1993). Fifteenth Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act. Washington D.C.: Office of Special Education Programs, Office of Special Education and Rehabilitative Services.
- Vaugh, S. M.; DeFord, R.; Nelson, L.M.; Thomas, S.F. (1988). Special Education in Virginia. A Report from the Virginia Board of Education to the Office of the Governor of Virginia.
- Veillette, R.D. (1987). Understanding State School Finance Formulas. National Education Association.
- Verstegen, D. A. (1994). "Historical Overview of Fiscal Provisions of the Individuals with Disabilities Act: Policy Paper Number 2." American Institute for Research in the Behavioral Sciences: the Center for Special Education Finance. (June): 1-37.

- Ysseldyke, J. E., Algozzine, B., & Thurlow, M. L. (1992). Critical issues in special education. 2nd Edition. Houghton Mifflin.
- Verstegen, D. A. (1990). "School Finance at a Glance." Education Commission of the States.
- Virginia Department of Education (1990). Regulations Governing Special Education Programs for Handicapped Children and Youth in Virginia. Richmond, VA: Division of Special Education Management and Programs, Virginia Department of Education.
- Virginia Department of Education (1996). Outcomes Accountability Project Report. Richmond, VA: Department of Education.
- Weiner, R. (1985). P.L. 94-142: Impact on the Schools. Arlington, VA: Capital Publications.
- Worsham, J. (1996). "A Guide for Comparing Expenses by Year." Nation's Business. (February): 8.



Vita

Angela Jackson Pringle

Education	Virginia Polytechnic Institute and State University, Ed.D, Educational Administration, 1998
	Virginia Polytechnic Institute and State University Certificate of Graduate Studies, Educational Administration, 1996
	Hampton University, Master of Secondary School Administration, 1989
	Averett College, B.S. Mathematics and Management Science, 1985
Experience	
1995-present	Principal Danville Public Schools Danville, Virginia
1993-1995	Assistant Principal Danville Public Schools Danville, Virginia
1992-1993	Assistant Principal Virginia Beach Public Schools Virginia Beach, Virginia
1990-1992	Mathematics Teacher Danville Public Schools Danville, Virginia
1986-1990	Mathematics Teacher Virginia Beach Public Schools Virginia Beach, Virginia

1985-1986

Mathematics Teacher  
105Halifax County Public Schools  
Halifax County, Virginia

Background:

Born: May 6, 1963 in Halifax County,  
Virginia

---

Angela Jackson Pringle

