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A THEORETICAL ANALYSIS AND DESCRIPTION OF RECENT REFORMS IN CURRICULUM AND INSTRUCTION IN THE BRITISH PRIMARY SCHOOL

by

Lois Fair Wilson

A Dissertation Submitted to the Faculty of the DEPARTMENT OF ELEMENTARY EDUCATION In Partial Fulfillment of the Requirements For the Degree of DOCTOR OF EDUCATION In the Graduate College THE UNIVERSITY OF ARIZONA 1972
THE UNIVERSITY OF ARIZONA
GRADUATE COLLEGE

I hereby recommend that this dissertation prepared under my direction by Lois Fair Wilson
entitled A Theoretical Analysis and Description of Recent Reforms in Curriculum and Instruction in the British Primary School
be accepted as fulfilling the dissertation requirement of the degree of Doctor of Education

R. V. Allen April 24, 1972
Dissertation Director Date

After inspection of the final copy of the dissertation, the following members of the Final Examination Committee concur in its approval and recommend its acceptance:

*This approval and acceptance is contingent on the candidate's adequate performance and defense of this dissertation at the final oral examination. The inclusion of this sheet bound into the library copy of the dissertation is evidence of satisfactory performance at the final examination.
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SIGNED: Lacy Jean Wilson
ACKNOWLEDGMENTS

The writer is extremely grateful for the interest and support provided her by committee members: Dr. Milo Blecha (Chairman), Dr. R. Van Allen, Dr. Ruth Kingsley, Dr. Pat Nash, and Dr. Joseph Gullo. Throughout the time devoted to graduate study at The University of Arizona it has been these people who have always supported and encouraged the writer's efforts in seeking to deepen insights and understanding in the areas of learning theory and early childhood education.

Special appreciation is extended to Dr. R. Van Allen who served as director of the writing of this study. Dr. Allen was always ready to discuss ongoing work and provided helpful direction to the writer.

Recognition is given to Mrs. Rita Mikula who has assisted in the development of the written materials by typing and reviewing the manuscript throughout its various stages of development. Her concern for accuracy in all aspects of the final production of the study is deeply appreciated.

It would be difficult to adequately express the deep appreciation extended to Herbert Wilson, the writer's husband, who has waited patiently for the completion of this study. His encouragement, understanding, and interest in the writer's efforts
have made it possible for her to utilize the many weekends, vacation periods, and evenings needed to complete this work which began in 1968.
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ABSTRACT

This study was a descriptive and theoretical analysis of recent curriculum and instructional reforms in British primary education. Focus of the study was on the infant school and those trends and issues which tended to relate to early childhood education.

The study was divided into the following areas:

1. The historical and philosophical development of modern British primary education, emphasizing the infant school.

2. The theoretical assumptions which form the basis of recent reforms in British primary education.

3. A description of the educational program and roles of the teachers and learner.

4. Selected aspects of the program which were considered most innovative and distinctive and which were considered most successful.

5. An analysis of positive and negative or limiting characteristics of British primary educational reforms reported in both British and American sources.

6. Selection of those reforms which tended to be most relevant for transfer to early childhood programs in the United States.
Sources of data included a content analysis of British and American primary and secondary documents and publications. These data were augmented by field notes recorded by the author resulting from on-site observation and participation in reformed British primary schools. The content analysis included an overview of the historical development of the British primary school reforms, the philosophical commitment, theories of learning, the curriculum and instructional program, the roles of the teaching staff and learners, aspects of the program which tended to free or open the learning environment, areas of innovation and change, and a critique of the program.

An important contribution was the analysis of Piaget's theories of learning which tended to form a major theoretical rationale for open education development. The unifying theme emphasized was providing the reader with an understanding of British primary educational reforms. For many others it may provide an initial contact with alternatives for a more viable program for early childhood education.

Some of the most significant, positive characteristics of the British reforms with possible implications to early childhood programs in the United States were:

1. Use of a body of learning theory based upon the studies of Jean Piaget.

2. Inter-personal relations of teacher and learner reflecting mutual trust and concern for learning and development resulting in both teacher and pupil positive self-concept.
3. Replacing the concept of traditional elementary classroom organization and the role of the teacher and pupil with individualized child-centered learning experiences.

4. Concern for helping children learn how to learn replacing the structure of what to learn.

5. Replacing the traditional scope and sequence in curriculum with development of programs reflecting concern for interests and attitudes of the child.

6. Providing a climate of freedom in which teacher and learner participate in the development of classroom programs inviting pupil interaction, exploration, and discovery.

7. Elimination of the use of traditional standardized test results in determining program success as well as pupil placement.

8. Restructure of the use of advisory personnel replacing those who have served in traditional supervisory roles.

Areas for further research were identified as the theoretical foundations of the British reform curriculum and instruction in both British and American open programs to include evaluation and measurement, administration and supervision, and teacher education.
CHAPTER 1

INTRODUCTION

In the fall of 1967, a series of three articles by Joseph Featherstone were published in *The New Republic*. In these articles, Featherstone described the educational reforms which have become known as a "revolution in British primary education." As a result of these and other articles describing the reforms in British primary education, early childhood educators in the United States have become increasingly interested in the changes in British primary schools.

Certain areas in England have become identified as exemplary in reflecting modern British programs. These programs tended to provide direction and models for change throughout the nation. Many of the schools in these areas have been visited by American educators who have written and published their observations. Such reports continue to appear in current professional journals.

Adoptions of the British model have been made in some private and public school programs in the United States. In the past few years British leaders in modern primary programs have served as resource personnel in workshops and study groups in the United States. Recently, national and regional conferences
concerned with curriculum and learning have included study sections focusing on the British primary school. Educational study tours to Europe have included scheduled school visitations to primary schools in England as well as opportunity to meet British educators.

As interest and concern about the British primary school revolution has increased, a number of relevant and important questions have been asked. What forces have accelerated changes in primary education throughout Britain? What aspects of the changes have excited American educators? What practices or innovations would have relevance to early childhood programs in the United States?

Overview of the Study

The purpose of this study was to analyze recent curriculum and instructional reforms in British primary education with specific focus on the infant school. The infant school includes children from five to seven years of age. The study is theoretical and descriptive. British and American published sources of data, augmented by field notes collected through observation and participation, were used as sources for research.

The study of British primary education included the following significant areas:

1. Historical development of British primary education
2. Philosophy and rationale which formed the basis of reform in British primary education.
3. Theories of learning upon which program development was based.

4. The role of the teaching staff members and their relationship to the learner.

5. Identification by authorities of those factors of the program which tended to free the learner and the teacher.

6. Identification of those curriculum and instructional areas of the British program which were considered by British and American authorities as most innovative and appeared to constitute high potential for success in Britain.

7. Identification of those aspects of the reforms which have caused the greatest concern or criticism.

8. Identification of elements of the program which were relevant for transfer to early childhood education in the United States.

The research of Jean Piaget has been considered foundational to these reforms. His theories were analyzed from both the British and American points of view. The synthesis of the British and American use of Piaget’s theory of child development was used as a major criterion for the formulation of a model for early childhood education in the United States. The major aspects of primary education in Britain which have possible transfer to the United States were identified and incorporated into this model.
Significance of the Study

Programs for the education of young children have continued to gain significant attention throughout the United States. Evelyn Weber (1970) recently published a survey of innovative programs in early childhood education. Weber's report indicated that early education is currently being given extensive thought and attention in educational development.

Federal funding continues to support the development of Head Start and Follow Through programs. Centers for research and experimentation in early childhood education established through federal grants have produced curriculum materials and services which have influenced program design and change. Such national support has tended to recognize the importance of the early learning experiences of young children. In addition, private or commercial funding has supported mass media programs which focused on skill development as well as providing information for pre-school and primary children. TV programs such as "Sesame Street" and others focusing on language development have impact on young viewers and have affected program organization in classrooms.

American educators are increasingly in need of gaining current information which would provide a base for desirable program development for the early school years. The growing interest of American educators in the development of British primary programs appears to have influenced the pattern of program change
in individual schools as well as in some larger areas. The la-

bels of "open classrooms" and "the open school" used in describ-
ing modern English primary schools have appealed to a growing
number of educators as a way of describing education relevant for
young children.

Two of the twenty Follow Through models funded by the
federal government in 1962 were based upon the British infant
school model (Armington 1969, Cawthorne and Haskins 1962). Both
New York City's Open Door Project (Nation's Schools 1971a) and
the Educational Development Center at Newton, Massachusetts
(Armington 1969) are influenced by the British program models.

Assumptions Underlying the Study

It was assumed that the emphasis which has been placed on
the importance of the experiences of young children in their
early years will continue to be of national concern. It was as-
sumed that recent research findings of the importance of early
childhood education will continue to demand modification in pro-
grams relating to early childhood education in the United States.

It was assumed that current interest in changes in Brit-
ish primary school programs will continue to interest educators
in the United States. It was assumed that the British programs
will continue to stimulate innovation and serve as models for use
in the development of American programs.
It was assumed that the reports and articles analyzed in this study reflected adequate observation and reporting procedures by professional educational leaders. It was assumed that the schools visited during the field study phase of this research reflected a socio-economic and socio-cultural range in populations as well as a similar range in program commitment and adaptation.

Limitations of the Study

This study was limited to available reports, articles, and documents published in Great Britain, the United States, and Canada. Data used from observation and participation in field work were limited to schools in Surrey, Leicestershire, and those in the Inner London Educational Authority zone of influence as selected by the Director of Primary Education in County Hall, London, England. A total of eleven schools were visited.

There was no attempt to compare the schools undergoing reform with the traditional British schools. No attempt was made to compare or contrast the model used for the British primary school with other early childhood education models in the United States.

Neither parent reaction nor teacher reaction to the changes in primary education were included in this study. No attempt was made to correlate family style and socio-economic level and the success of the school program.
This study was limited to a description and theoretical analysis of the infant school curriculum and organization. Although the range of British primary education was described, this study focused on the infant school program. This might include nursery education in some cases.

Definitions of Terms

Educational Priorities Area: The educational priorities area includes the neighborhood areas in London identified as those where children are most severely handicapped by home conditions. Additional school funding is provided in such areas.

Family Grouping: Family grouping is the familiar term used for vertical age grouping. In a school where family grouping is used, a child remains in the same class, with the same teacher, for the whole period of his infant school life. Entering with a few (perhaps five to eight other newcomers) a child joins a class which already contains ten to twelve children of six years of age and ten to twelve children, seven years of age. Entry into school depends upon the child's date of birth.

Follow Through: Follow Through programs are designed to follow Head Start programs in providing continuity of educational experiences for young children generally in low income areas of the United States. Such programs are generally funded through the United States Office of Health, Education and Welfare.
**Hadow Report:** A consultative committee appointed in 1924 by the President of the Board of Education in Britain included Sir Henry Hadow as chairman. The committee was directed to survey the whole range of elementary education. The reports of the committee are commonly referred to as the Hadow Report.

**Headmaster, Headmistress:** The headmaster or headmistress is the designated head teacher of primary school units. Generally, women serve as heads in infant schools. Junior schools have either men or women as heads.

**Head Start:** Head Start is the label given to pre-school programs for children in low income areas in the United States. Such programs are generally funded by the United States Office of Health, Education and Welfare or other agencies.

**Immigrant Children:** An "immigrant child" is defined in England as a child born abroad of immigrant parents or born in England of parents who immigrated after 1955. Most of these children are handicapped by unfamiliarity with the English way of living as well as with standard English language. In some inner London schools, more than half the pupils are from immigrant families.

**Infant Schools:** The British "infant school" unit includes children between the ages of five and seven. If there is a nursery class in an infant school education programs include children of ages three and four.
Integrated Day: The integrated day is a school day which is combined into a whole and has the minimum of timetabling. Within this day there is time and opportunity in a planned educative environment for the social, intellectual, emotional, physical, and aesthetic growth of the child at his own rate of development.

Junior School: The British junior school unit includes children from the ages of seven or eight through eleven.

L.E.A.'s: Local Education Authorities are responsible for all maintained schools in England and Wales. They are the county or city councils that oversee the schools in their area. One hundred and forty-eight such authorities of many different sizes exist in England. Legally, the curriculum of a school is the responsibility of the local L.E.A.

Open Education: Open education is a phrase used to describe "free day," "integrated day," "integrated curriculum," "informal classroom," "developmental classroom," "Leicestershire model." Open education has its most immediate roots in England. It has become a way of thinking about children, learning, and knowledge.

Plowden Report: Children and Their Primary Schools, Volumes I and II: A report of the Central Advisory Council of Education, Department of Education and Science, published in 1967, is commonly known as the Plowden Report. Lady Bridget Plowden served as chairman of the Council whose members were appointed
in 1963 by the Minister of Education. The Council considered the whole subject of primary education and its transition to secondary education.

**Primary Schools:** The British primary school is a unit organized for pupils between the ages of five and eleven (or, if there is a nursery class, three and eleven). When the annual admissions amount to two or more classes the school is divided between separate infant and junior departments or between separate schools. Each department and school has its own head teacher.

**State Schools:** State schools in England are the tax supported schools which most children must compulsorily attend. Compulsory education begins at age five.

**Wendy House:** The Wendy House is the English label for the playhouse corner or home center in infant school classrooms.

**Design of the Study**

This study was theoretical and descriptive. The data of the study included selected content from a wide range of British and American reports, articles, materials, and documents about current reforms in British primary education. The data also included a historical perspective of the development of British education based upon Her Majesty's Stationery Office publications and other standard British sources.

These published sources of data were augmented by a field study of British primary education using standard observation-participation procedures. The field study included a range of
urban, suburban, and semi-rural tax supported primary schools representing a range of socio-economic and cultural differences. Content analysis of the data formed the basis of the study. The analysis of published materials was correlated by data collected from field research.

Analysis of British materials and a content analysis of American data were used to describe the primary school program. This included historical development, philosophy and rationale, theory of learning, role of the teaching staff members and their relationship to the learner, aspects of the program which tended to free the learner and the teacher, curriculum and instructional program which were considered innovative and appeared to constitute high potential for success, and aspects of the reform which have caused concern or criticism.

Emphasis was given to the application of Piaget's learning theory to early childhood curriculum. The report of the Central Advisory Council for Education (Plowden Report 1967),* Children and Their Primary Schools, stated that a major school of research dominant in Great Britain and influencing school practice was associated in particular with Jean Piaget. Piaget's theory influenced the 1931 report on the state of education in England and recommendations for change. The Piagetian school of thought continued to provide a theoretical base for recommended program organization and development in primary schools. Stages of

*In this text, the Plowden Report is alternately cited as the "Council."
learning were considered. Values of play, investigation, use of primitive materials, the strengthening of intrinsic interest in learning, the relation of language and learning, and the need for an integrated curriculum were developed as reflections of implications for practice which were supported by Piaget's theory.

American educators gave little attention to Piaget's writing until the late 50's and 60's (Lavatelli 1970). With the increasing interest in early childhood in the United States, attention has been given to the significance of Piaget's research by many including Hunt (1961), Flavell (1963), Bruner, Oliver, and Greenfield (1966), and Sigel and Hooper (1968). Studies along Piagetian lines have been so numerous that only selected publications were used in this study. An aspect of this study was the application of Piaget's theories to early childhood curriculum. Both British authorities and those in the United States provided direction, description, and analysis of these applications.

Attention was given to the significance centers in the United States have given to transfer of aspects of British models to the United States. Consideration was given to the development of programs for early childhood education in the United States based upon British theory.

In Chapter 1 an overview of the study was presented. This included the significance of the problem and the sources of data as well as the method of analysis. Assumptions,
limitations, definitions of terms, and the design of the study were included.

The relation of the infant school to British primary education was developed in Chapter 2. The historical development of primary education, philosophy and rationale which formed the basis of reform in British primary education, theories of learning upon which program development was based, role of the teaching staff members and their relationship to the learner, identification of those factors which tended to free the learner and the teacher, and identification by British educators of those areas of programs which were considered as most innovative and potentially successful, as well as aspects of reforms which have been questioned by British critics are identified.

Chapter 3 has included in it an analysis of the recent literature written by American educators about British education. The content analysis was based upon those areas identified and described in Chapter 2. These included the areas of historical development, philosophy and rationale, theories of learning upon which program development was based, the role of the teaching staff members and their relationship to the learner, factors of the program which tended to free the teacher and the learner, curriculum and instructional areas of the program which were considered as most innovative and potentially successful, and identification of those aspects of reform which have caused greatest concern or criticism.
Chapter 4 included an analysis of learning theory of Jean Piaget. Consideration was made of the application and use of Piaget's research by British authorities. Studies by American educators of Piaget's theories as related to the cognitive functioning of young children were identified. A synthesis of the British and American theoretical application of Piaget's theory of development concludes this chapter.

Chapter 5 described programs for young children in the United States which reflected major aspects of British primary education. These aspects have been considered as some of those transferred from British practice for use in developing programs in the United States. Further considerations were given to possible utilization of British reforms in American programs for early childhood education. A model for early childhood education was included in the conclusion of this chapter.

A summary of this study was included in Chapter 6. Conclusions were based on this study, implications for the development of educational programs, and recommendations for further research are incorporated in this concluding chapter.
CHAPTER 2

ENGLISH PRIMARY EDUCATION

Sir Anthony Crosland, Secretary of State for Education and Science, stated in the foreword to the Plowden Report, "Primary education is the base on which all other education has to be built. Its importance cannot be over-estimated (1967, p. iii)."

This chapter deals with major areas of primary education for young children in England. Significant aspects of the historical development of primary education were identified. The philosophy and rationale which form the basis of reform were identified through description of aspects of the present program. Major theories of learning upon which program development has been based are presented. The role of the teaching staff members and their relationship to the learner was described. Factors which tended to free the teacher and the learner were identified. Those curriculum and instructional areas of the British program which were considered most innovative and potentially successful were identified and described. Aspects of the existing program which have caused concern and criticism were identified. A brief description of the organizational pattern of British primary education serves as an introduction to this chapter.

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Organizational Patterns

The British primary school is an institution organized for children between the average ages of five and eleven years of age, or if there is a nursery class, three and eleven. When the annual admissions amount to two or more classes, the school is divided between separate infant, five to seven years, and junior, seven to eleven years, departments in the same primary school, or between separate infant and junior schools. Each department has its own head teacher and is housed in a separate building or separate floors if both units are included in the same building (Central Office of Information for British Information Services 1967).

The number of children attending an infant school averages around 240. The average number attending the junior school is three hundred. Thirty-five to forty children are found in most classrooms. Most classes have one teacher although in some situations auxiliary teachers move from room to room to assist in the classroom setting. The head continues in the role of teacher and moves in and out of classrooms, serving as another adult available to help children (Wilson 1971).

The Plowden Report recommended that the terms "infant school" and "junior school" be replaced by "first school" and "middle school." It should be noted that if the recommendations of the Council are adopted changes will occur both in the names used to identify schools for the primary years and in the age
range for each school. The report recommended that "children stay in 'first schools' until the age of eight or more and in the 'middle schools' until they are twelve and one-half (1967, p. 462)." Although some schools have begun to move in these directions, the traditional terms "infant" and "junior" have been used throughout this study.

In surveying the historical development of British education for young children it was appropriate to look at current reports which included historical data considered significant. Such data set the background for understanding current programs.

**Historical Development**

Contemporary British authors have presented historical flashbacks of British primary education. Such information established the background for understanding the significant changes reflected in descriptions of current programs.

Blackie described a typical primary school before World War II:

The building is almost certainly old. Most of the new buildings of the 1930's were for senior students and only on new estates were young children taught in up-to-date buildings. In a large city school there would probably be a hall, with classrooms opening off it and, as often as not, the head teacher's desk would be in the hall so that he or she might keep an eye on all that went on. In smaller schools, whether in town or country, there might be no hall and sometimes no room for the head teacher, who would sit in the classroom in which he taught. The children would spend much of the day sitting at double desks or sometimes long desks without backs and they would either be receiving instruction in the form of class-lessons or be performing tasks of writing, reading
or learning by heart. They would seldom, often never, have an opportunity of choosing what they did. Set exercises, set compositions, set drawings or paintings, set music, set physical exercise, set lessons--these dominated most of the day in most schools. Many teachers showed great skills in handling large classes and in getting the children to work. The best teachers managed to infuse a remarkable amount of interest into this very rigid framework and a few were beginning to break away from it to encourage more initiative and enterprise in the children (1967, p. 6).

Dorothy E. M. Gardner reviewed the developments in the English infant and nursery schools:

During a professional life which began in 1921, I have witnessed great changes in education and in particularly in Infant Schools. It may be well that in the period ahead the very significant developments which are now so evident in Junior Schools may mean that the Infant School may cease to be the most rapidly changing part of the educational landscape. However, Infant Schools in considerable numbers began to reflect fundamental changes considerably earlier than did more than a few Junior Schools or Junior Departments of schools for children of a wider age range.

The nursery school too has changed and developed, but as a younger institution it did not have far to go. There never was a time when the Nursery School teacher's function was envisaged as chiefly that of a purveyor of information or moral training simultaneously to large numbers of relatively passive children. One has, however, only to open any textbook on the history of education to realise that for many years the Infant School teacher was expected to function in that way - in the nineteen-twenties it was still very common to find Infant teachers in front of their classes instructing and exhorting and, though often with great skill and warm humanity, trying to achieve the impossible task of securing uniformly good results from all members of the whole class. Oral lessons, usually short in duration, were interspersed with periods of physical activity or "occupation," but even in these periods the whole class would be engaged in the same series of physical exercises or the same "occupation." A considerable part of the teacher's time and energy was devoted to holding back the brighter children sufficiently to allow the more average ones to
maintain the pace, while the rest of her exertions were particularly directed to the still more difficult problem of the backward child (1966, p. 1).

Mary Brown and Norman Precious began their text with the following statements:

It was only just over 150 years ago that some seven-year old children were working a sixteen-hour day and for some time after the Education Act of 1870, which introduced compulsory State education, the scope of the schools was very limited. Education based on mechanical proficiency, the obedience and passivity of the pupil and verbal instruction by the teacher was the general rule. Most teachers were instructors and ruled by fear. They were paid according to the number of attendances and the children's success in examination results. During the tragedy and chaos of the Second World War, evaluation brought to light the terrible poverty in certain areas and conscription revealed a great deal of illiteracy. Butler's 1944 Education Act was the result of the public outcry for the situation to be improved and this Act stressed that education should be made available to fit the requirements of each and every child and it should be an education suitable for his age, aptitude, and ability (1969, p. 11).

Evelyn Lawrence summarized attempts to analyze influences of the past upon the present by stating:

The history of education is a complex one, like a history of life itself. The forgotten teachers, in their classrooms, the innumerable lectures, magazine articles, conferences and drawing room meetings are gone mostly without record. Generalized stages in educational change do not readily suggest themselves but after a century of evaluation the scene has altered and its moderations can be noted (1969, p. 9).

The historical development of freeing curriculum and placing with teachers decisions for curriculum with their implications is contributed to the understanding of current practice. A summary of significant changes are presented for this purpose.
1898

Ending of the system of payment by results under which a proportion of teachers' salaries was dependent upon the results of an annual examination of pupils held by Her Majesty's Inspectors. This suspension led to an increasing freedom of teachers to exercise their own judgment in matters of syllabus.

1905

A Handbook of Suggestions for Consideration of Teachers, which included only broad requirements, was issued by the Board of Education. A large measure of choice was left to individual schools.

1918

The teachers' handbook included in the preface a statement indicating that the only uniform practice which the Board of Education desired to see in the teaching of public elementary schools was that each teacher should think for himself, and work out for himself such methods of teaching as may use his powers to the very best advantage and be best suited to the particular needs and conditions of schools. Uniformity in detail of practice was considered undesirable, even if it were attainable. Teachers were reminded that freedom implies a corresponding responsibility for its use.
1937

The 1918 statement in the teachers' handbook was reprinted.

1944

Enactment of the Education Act of 1944 included the elimination of the Elementary Code. The only statutory requirement remaining was that children should be educated according to their age, ability, and aptitude. All children were to receive religious instruction of an undenominational Christian character according to an agreed syllabus and take part in daily religious services. This was the only curriculum requirement included in the Act. The old division into elementary and higher education was replaced by the threefold classification: primary, secondary, and further education.

During the forty-six years between the abolition of payment by results and abolition of the codes, the use made by teachers of their growing freedom varied considerably. Teachers responding most towards freedom to experiment and change were those in infant schools. The infant schools were already influenced by the philosophy of nursery schools because the training for nursery work was often given in colleges which specialized in infant education.
The Hadow Report

In the introduction to the Plowden Report the Central Advi­sory Council stated that they were invited, in effect, to analyze how far the intentions of Sir Henry Hadow and his commit­tee had been carried out and stood the test of time. Hadow and his committee were commissioned in 1924 by the President of the Board of Education, now called the Secretary of State for Educa­tion, to study the whole of elementary education and report as to courses of study suitable for children up to the age of eleven in elementary schools, with special needs of children in rural areas (Board of Education [Hadow Report] 1931, p. xii).

The Council making the 1967 report considered Hadow as the architect of the English educational system. They considered that the foundations for modern British education were laid in three reports made by the Consultative Committee on the study of British education under the chairmanship of Sir Henry. These re­ports included the 1926 Education of the Adolescent, Primary School made in 1931, and Infant and Nursery Schools of 1933.

John Blackie (1967), retired Chief Inspector for Primary Education, indicated that the Hadow Report changed the whole face of English education. Blackie considered the most far reaching recommendation to be that the old elementary school, which had had an age range of five to fourteen be split in two. The younger part with children of five to eleven was to be called the Primary School and the older part, eleven to fourteen, the Senior
Elementary. This reorganization slowly began to develop after 1927 and by 1939 had affected only one-third of the children in England.

In considering the role of the infant school in the development of primary education the Hadow Report traced the earlier development of infant and elementary schools:

Up to 1870, apart from certain educational provisions in the Factory Acts (1833 to 1867) and in the Mines Acts (1860), which only applied to children working in factories and mines, there was no general legal compulsion on parents to send their children to school. The Education Act of 1870 conferred on the newly established School Boards power to make by-laws requiring the attendance of children between the ages of 5 to 10 with power to retain them at school to the ages of 11, 12, or 13, subject to the provision that such by-laws must grant exemptions on certain conditions to pupils over the age of 10. The Education Act of 1880 turned this power into a duty. As before 1870 the provision of Primary Schools was left wholly to the voluntary efforts of different bodies, mostly denominational, aided by grants from the Treasury between 1833 and 1839 and from the Education Department as from 1839, it is not surprising to find that there was little attempt in practice to differentiate between junior or primary instruction on the one hand and senior or post-primary instruction on the other hand, since the number of pupils who remained over the age of 10 in most primary schools was comparatively small. It is, however, interesting to find that from the very inception of the movement for the provision of popular elementary education on a large scale there was a noticeable tendency to differentiate the provision made for infants under the age of 6 from that for children over that age.

In tracing the development of Primary Schools for children above the infant stage, it is impossible to ignore the influence of the Infants' Schools which gradually came into existence in the early decades of the last century, partly as "minding schools" for young children in industrial areas, whose parents were at work during the day, partly as a means of promoting their physical well-being and furnishing opportunities for their moral and social training and partly to provide
some elementary instruction in the 3 R's, which would render it possible for the children to make more rapid progress when they entered the monitorial school. Even before 1805 Joseph Lancaster had drawn attention to the necessity for improving the "initiatory," i.e., the dame schools and the minding schools, if children on entering the monitorial school at the age of 6 were to derive full benefit from it. The Infant School established in 1816 by Robert Owen (1771-1858) at New Lanark in Scotland had a great influence on the development of infant education. Children were admitted to the school at the age of 2 and cared for while their parents were at work in the local cotton mills. The instruction of children under 6 was to consist of "whatever might be supposed useful that they could understand, and much attention was devoted to singing, dancing, and playing." In 1818 a group of Radicals and advanced Whigs comprising Brougham, James Mill and others, combined to establish an Infant School on Owen's lines in London, and imported a teacher from New Lanark. Owen's ideas were popularised and at the same time given a new direction by Samuel Wilderspin (1792-1866) who worked out a system of infant education which left its mark for many years on the curriculum and the building of Elementary Schools. To him these schools owed the infant "gallery," and a mistaken zeal for the initiation of children at too early an age to formal instruction. The training of teachers for infant schools was first seriously begun by the Home and Colonial Institution (later known as the Home and Colonial Society) which was founded in 1836 to establish Infant Schools and to train teachers for work in them. The principal promoter of this Society, Rev. Charles Mayo (1792-1846) was definitely influenced by Pestalozzi.

The Society originally set out to train teachers for children under the age of seven, but later extended its scope to prepare teachers to deal with children up to the age of 10. The reason for this was that the tendency in parishes, where only one school could be established, was to organise a school for older children, and leave the education of the infants to the Dame Schools. On the other hand, in many places Infant Schools preceded the Elementary Schools. It is impossible not to be struck by the contrast between the rather arid and narrow conception of education as conducted in the monitorial schools, in which the instruction was almost limited to the three R's, with needlework for girls, and in some instances a little gardening and other occupation for the
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boys, and the comparatively rich tradition underlying the curriculum provided in the better Infant Schools, which was largely based on ideas deriving from Oberlin, Owen, and Pestalozzi (Hadow Report 1931, pp. 1-3).

The Plowden Report

The most comprehensive survey available on British primary schools is found in Volumes I and II, Children and Their Primary Schools (1967). This survey was commissioned in 1963 by the Minister of Education, Sir Edward Boyle. He instructed the Central Advisory Council for Education in England to consider the whole subject of primary education and the transition to secondary education. Extensive reference has been made to this report throughout this chapter. Volume I included the findings and recommendations of the Council. Volume II consisted of accounts of surveys and research commissioned at the request of the Department of Education and Science. This report is more commonly known as the Plowden Report. Lady Bridget Plowden served as chairman of the Central Advisory Council for Education (England) throughout this study. The Council included a range of people concerned with education. Titles of listed Council members included those of university professors, headmasters and headmistresses, housewives and parents, school inspectors, and members of the Central Advisory Council.

This report was submitted to the Right Honorable Anthony Crosland, Secretary of State for Education and Science, by Lady Plowden on October 28, 1966. In the foreword to the report
Anthony Crosland recognized the work of the Council members by stating:

Their report is now published and everyone - not only those professionally concerned with education, but parents and the general public - must be grateful for the thoroughness with which they have carried out their task.

Primary education is the base on which all other education has to be built. Its importance cannot be over-estimated.

The many recommendations in the Report, some of far-reaching significance, will be studied with the greatest care by the Government and, I am sure, by all the other interests concerned (Plowden 1967, p. iii).

Part V, "The Children in the Schools," was considered by the committee as the heart of the report. Questions such as the following were considered in this section.

Is there any genuine conflict based on children as they are, and education thought of primarily as a preparation for the future?

Has "finding out" proved to be better than "being told?"

Have methods been worked out through which discovery can be stimulated and guided and children develop from it a coherent body of knowledge?

Has emphasis on the Hadow Report placed on individual progress been justified by its results?

How can head teachers and class teachers arrange the internal workings of each school and each class to meet the different needs of the highly gifted boys and girls, of slow learning pupils and of all the infinite varieties and latents which lie between?

Do children learn more through active co-operation than by passive obedience (1967, p. 2)?
In answering such questions the Council report included reference to aspects of traditional primary education in past years. These were contrasted to descriptions of present practice. Significant changes which had affected present practice were identified. The report described the best practices found by the Council. These practices set the direction recommended for all schools to move toward reflecting.

**Philosophy and Rationale Which Form the Basis of Reform in British Primary Education**

The Plowden Report was the most comprehensive survey of current practice in primary education in England available at the time this study was made. The content of the 1967 report was based upon a description of practice followed by recommendations for change made by the Council. This report has been considered to reflect the philosophy and rationale which form the basis of reform in modern British primary education. The Council based its study upon the existing structure of nursery and primary education, the nature of the child, and recent research on how children learn. Thoughtful consideration was given to the philosophy and rationale forming the basis of change in providing for the education of children.

"At the heart of the educational process lies the child." This initial statement in the Plowden Report regarding "The Children: Their Growth and Development" sets the foundation for educational concern in England.
The Advisory Council stated: "No advances in policy, no acquisitions of new equipment have their desired effect unless they are in harmony with the child, unless they are fundamentally acceptable to him (1967, p. 7)."

The report emphasized that knowledge of the manner in which children develop is of prime importance both in avoiding educationally harmful practices and in introducing effective ones. The report reviewed the work done on the physical, emotional, and intellectual growth of children in the last fifty years. The work of the Central Advisory Council focused on those facts which had greatest educational significance and those principles and practices which had a direct bearing on educational practice and planning. Only the most obvious implications were included in the report. Those listed by the Advisory Council in the Plowden Report included the following:

Individual differences between children of the same age are so great that any class, however homogeneous it seems, must always be treated as a body of children needing individual and different attention.

Until a child is ready to take a particular step forward, it is a waste of time to try to teach him to take it.

Even at the ages with which we are concerned boys and girls develop at different rates and react in different ways - a fact which needs particular attention because we have co-educational schools. Boys are more vulnerable to adverse environmental circumstances than girls. Both reach maturity earlier.

Though I.Q. scores are a useful rough indication of potential ability they should not be treated as infallible predictors. Judgments which determine careers should be deferred as long as possible.
Since a child grows up intellectually, emotionally and physically at different rates, his teachers need to know and take account of his "developmental age" in all three aspects. The child's physique, personality, and capacity to learn develop as a result of continuous interaction between his environmental and genetical inheritance. Unlike the genetic factors the environmental factors are, or ought to be, largely within our control (1967, pp. 25-26).

The Advisory Council considered it significant to include in the 1967 report a statement made by the Hadow Committee in 1931 on aspects of the later stages of education which continued to reflect the rationale of the 1967 report for change in primary education: "The schools whose first intention was to teach children how to read have thus been compelled to broaden their aims until it might be said that they have now to teach children how to live (1967, p. 100)."

The major force in change in English primary education appeared to be a commitment to the belief that the major role of primary education was to provide an educational environment in which children could be helped to learn to live.

A summary of the aims of primary education was made by the Consultative Council in the Plowden Report. The Council stated that if these beliefs were applied to all primary schools it would be apparent that the trend of their practices and outlooks would correspond to a recognizable philosophy of education and to a view of society. This philosophy of education and view of society were summarized in the following manner:
A school is not merely a teaching shop, it must transmit values and attitudes. It is a community in which children learn to live first and foremost as children and not as future adults. In family life children learn to live with people of all ages. The schools set out deliberately to devise the right environment for children to allow them to be themselves and to develop in the way and at the pace appropriate to them. It tries to equalize opportunities and to compensate for handicaps. It lays special stress on individual discovery, on first hand experience and on opportunities for creative work. It insists that knowledge does not fall into neatly separate compartments and that work and play are not opposite but complementary. A child brought up in such an atmosphere at all stages of his education has some hope of becoming a balanced and mature adult and of being able to look critically at the society of which he forms a part. Not all primary schools correspond to this picture but it does represent a general quickening trend.

Some people, while conceding that children are happier under the modern regime and perhaps more versatile, question whether they are being fitted to grapple with the world which they will enter when they leave school. The view is worth examining because it is quite widely held, but we think it rests on a misconception. It isolates society, and regards education as being in all stages recognisable and specifically a preparation for this. It fails to understand that the best preparation for being a happy and useful man or woman is to live fully as a child. Finally, it assumes, quite wrongly, that the older virtues, as they are usually called, of neatness, accuracy, care and perseverance, and the sheer knowledge which is an essential of being educated will decline. These are genuine virtues and an education which does not foster them is faulty.

Society is right to expect that importance will be attached to these virtues in all schools. . . . (Plowden 1967, pp. 187-188).

Current Practice: Philosophy and Rationale

Significant to this study were some areas relating to the organization of primary schools including: recommendations for
entrance and leaving age, class and school size, and the place of nursery education.

Age

The Plowden Report indicated that in England children were admitted to infant schools at intervals of four months and promoted to junior schools or classes only at intervals of twelve months. Children were required to go to school at the beginning of the term after their fifth birthday, although it was common practice for children to be admitted in the term before their fifth birthday; they were promoted to the junior school (or junior classes) in the September following their seventh birthday (see Appendix A).

The Plowden Report (1967) indicated that the choice of five as the age at which children must begin school was made in 1870 almost by chance. The Hadow Report (Board of Education 1931) included the Consultative Committee's study of the five year old age entrance. The Hadow Committee concluded that since this entrance age was working well in practice there was not good reason for modifying the law.

In 1964 the Central Advisory Council began again to survey aspects of desirable age for school entry. A part of this survey included visiting primary schools in Denmark, France, Sweden, Poland, the United States of America, and the U.S.S.R. where the compulsory entrance age was higher. The Council reported that most countries other than Israel and a few stated
whose educational systems were derived from the British system favored a later age entrance than England.

The Council concluded in the Plowden Report that it would continue to support the five year level for compulsory school entrance. The report included the following statement:

It seems to us, too, that there is sound educational agreement for admitting five year olds to school. It was with this age group that informal ways of learning, and teaching geared to individual needs, was first extensively used in this country. There is a marked contrast between education given to six and seven year olds in England and in most countries with a later age of entry. In this country, learning through play and creative work continues throughout most infant schools; elsewhere this approach seems to us on our visits often to be lacking. We think that it is probably sacrificed to the formal work which a later date of entry might easily seem to demand. We should not want this to happen in England (1967, p. 139).

The Plowden Report further recommended that the statutory term by which children must go to school should be defined as the September term following their fifth birthday. Attendance at a nursery school should be permitted for the first term of compulsory education. The report indicated that a child should be allowed to attend school for a half a day, if their parents wished, until the child reached the age of six. This would mean that some children would be nearly six before they attended full-day infant school and some no older than at present. The median age for infant school entrance would be five years six months. The report considered the raising of age of entry by a few months as beneficial for the following reasons:
It would simplify the organization of the infant schools which could then be staffed and equipped for a full year.

Children would no longer need to be promoted each term.

The unfairness which springs from the varying lengths of education in the infant school would disappear.

The savings of teachers and classrooms would help to make possible a preparatory period of part-time nursery education for all who want it.

This would ease the transition from full-time home to full-time school, as would the slightly later start of school life for two-thirds of the five-year-olds. Those children will still need an introductory period of part-time school after reaching the statutory age and would, we think, largely come from those who are barely five on admission (Plowden 1967, p. 139).

These changes were recommended by the Council only if nursery education was available for all who wished it for at least one year before school starts.

Size

The results of the 1964 National Survey of Maintained Primary Schools were reported in January 1965. The survey revealed that most infant schools included between one hundred and three hundred children on the roll; just under half of the junior and infant schools had fewer than one hundred children on roll; nearly one-third of all primary schools included all age schools, of which only a few remained, had one hundred or fewer children on roll. They contained, however, only about twelve percent of the primary school populations; junior schools, which were
concentrated in urban areas, tended to be larger than junior mixed and infant schools (see Appendix B).

The Plowden Report (1967) indicated that the National Survey on infant starters in 1963 revealed in that year a quarter of the children of parents included in the survey entered a class of thirty or under; slightly fewer went into a class with more than forty children. The rest were in classes of thirty-one to forty. Twenty-six percent of the special sample of infant starters entered classes over forty. The Council indicated that in an increasing number of areas the rising fives were being included because the summer term was when the infant school was most crowded. Conditions relating to large class size for young children appeared to be increasing. It was predicted that except in the educational priorities area changes for entrance and leaving infant schools as recommended in the Plowden Report would not be possible until the late 1970's.

The Plowden Report recommended that as the schools reorganize to first schools, which were identified at the time of the report as infant schools, they include children from eight to twelve years of age. It was recommended that the average number for each should be 240 children per first school and 300 to 450 children per junior school. The Council report indicated that surveys made during this study favored schools small enough for children to move freely about the building without anxiety. The Committee recommended that primary schools should be of a size in
which the head and other teachers know children as individuals.
The report further stated that schools should be small enough for heads to know parents personally and to involve them in the work and life of the school.

The Plowden Report concluded that a class teacher could not satisfactorily work with more than thirty to thirty-five children. The Secretary of State declared his sympathy for an ultimate objective for this class size for primary and secondary schools.

Nursery Education

The Plowden Report included recommendations for providing nursery schools for children under five. Over two-thirds of the parents included in the National Survey wanted their children to start school before the age of five. The Council considered that to raise for some children the age of school entry and not to provide some alternative education for the year before the new age of entry would be inexpedient as well as educationally unsound. They recommended that alternative education usually should be part-time in a nursery group. The Council indicated that nursery schools were needed especially in socially deprived areas which were considered priority areas. In these areas were clustered immigrant families whose primary language was one other than English. The Council supported the need of these children for "verbal stimulus, the opportunities for constructive play, a
more richly differentiated environment, and the access to early medican care as provided through the school (1967, p. 36)."

**Theories of Learning Upon Which Program Development Is Based**

It would be difficult, if not impossible, to separate learning theory, the role of the teacher, curriculum and instruction in surveying the development of English primary school programs, especially those of the infant school level. The curriculum was dependent upon the teacher. The teacher's commitment to children and her background in learning theory helped to determine how provisions were made for child learning in the classroom.

Education given in all schools in England in the Nineteenth Century was based upon the ideas then current about children. It was believed that children should be strictly disciplined, severely punished when they were noisy, dirty, naughty, or lazy and that they should learn facts, spelling, and figures by heart. Blackie (1969) and the Plowden Report (1967) both stressed that there were individual teachers and individual schools in which more enlightened practices were followed, especially in nursery and some infant schools. In general, strictness, insistence upon sitting still and quiet, repetition, and the learning of facts were considered by most teachers and parents as the best way to teach children.
The change from this system to the freedom and informality reflected in many modern British primary schools might be attributed to many forces. Two major factors appeared in British references used in this study. One was reference to the growing body of literature concerned about learning and the education of young children available to teachers toward the end of the Nineteenth Century. Some of those already identified were associated with the works of Rousseau, Pestalozzi, Froebel, Whitehead, Dewey, and Montessori. All encouraged change and innovation. The second factor which encouraged change in curriculum supported by those new learning theories accepted by teachers was the complete absence of any centralized curriculum in England since 1926. This lack of structure provided freedom for English teachers to frame their own syllabus and develop their own methods.

In recent years, the translations of Jean Piaget's studies have revealed through his detailed and systematic observation much about the stages of learning which some of the earlier intuitive teachers had already hypothesized. The interpretation of Piaget's research reinforced much of that which was beginning to appear in British education in the 1930's. Application of Piagetian theories appeared in the Hadow Report (1931) and provided support to the recommendation made at that time by the committee developing this survey of education in England.
The Froebelian school which appeared in England came from Germany when liberal Germans moved to Britain after the 1848 revolution. The Germans brought with them Froebel's approach to educating young children. They provided great influence for change in the ways in which young children might be educated in England. British families who cared about the education of their young children welcomed and encouraged the development of classrooms with teachers trained in Froebel's methods. The approach as developed by those teachers and others trained in schools using Froebel's approach grew and spread. Evelyn Lawrence traced the influence of Froebel's philosophy. She stated:

Gradually, the more formal parts of the school method were dropped, and freedom and initiative for the children in accordance with Froebel's own better teaching crept in. Gradually, the movement broadened out as more teachers were trained and more Froebel schools established. Among more progressive educationalists Froebel's main principles became a part of the ordinary staff of thinking, no longer attached to the name of the man who gave them birth (1969, p. 12).

Authorities identified the influence of Marie Montessori as well as Frederick Froebel in influencing change in primary education for the younger children. Although in the Plowden Report the Central Advisory Council recognized the Froebel School as one of the strongest influences in the early development of primary schools, Gardner and Cass (1968) viewed the greatest single influence on nursery and infant schools in the 1920's as that of Montessori. They gave recognition to the efforts of pioneer infant teachers who appreciated and utilized Montessori's
approach. They gave recognition to teachers who saw that it was possible even in large classes to have children busily and purposefully occupied while the teacher could be in the background helping children individually. Gardner and Cass indicated that some schools adopted the self-teaching and self-correcting materials developed by Montessori, but more often teachers developed adaptations of the materials as well as developing their own.

Gardner and Cass (1968) noted other forces influencing teacher change during this period. One was the result of the work of psychologists who constructed and applied intelligence tests. Through the use and interpretation of these tests, teachers were helped to recognize that they could not expect the same degree of achievement from all children of the same age. The other was the impact of the "project method" as emphasized by Dewey. Dewey's influence was described:

It was the strong emphasis which the "project" idea placed upon the purposes and interests of the learner that its great contribution lay. Progressive infant teachers were quick to appreciate its value in that it harnessed to the cause of education the tremendous drive and energy of children when they are deeply concerned about finding out certain things and gaining certain skills for ends which they themselves appreciate (Gardner and Cass 1968, p. 4).

The growing recognition by infant and nursery school teachers of the variety of ways in which children evidenced enthusiasm for finding out about the world around them and overcoming difficulties gave these teachers an even deeper respect
for the purpose of children and for their eagerness to learn was cited by Gardner and Cass (1968). Older as well as younger infant school children were provided a greater variety of choice through the use of the "project" method. The term "activities" replaced that of "project" in the planning and organizing of learning experiences for young children since the project approach required focus on one major theme. Teachers in nursery and infant schools recognized greater satisfaction for children in the use of diverse interest areas throughout the classroom.

Play and Learning

Gardner and Cass cited the influence on teachers in the 1930's of the published research of Susan Isaacs concerned with learning and young children. They stated that Isaacs illustrated how often the highest peaks of the child's thought and learning were found in the situation of spontaneous and purposeful play. They noted, "Teachers realised afresh what Froebel meant when he wrote of play that it is not 'trivial' but 'highly serious and of deep significance' (1968, p. 6)."

Gardner and Cass and the Central Advisory Council in the Plowden Report recognized the value of play and the child learning inherent in it. The Plowden Report stated that "... play is the central activity in all nursery schools and in many infant schools (1967, p. 193)." Gardner and Cass stated that it would appear that in modern nursery schools free play had moved into the heart of the curriculum. They indicated in infant schools...
that it was increasingly common to find at least one hour a day devoted to a period in which children could choose their occupations pursuing them either individually or in larger groups. Gardner and Cass stated that some infant schools, like most nursery schools, devoted most of the day to children's free choice only making breaks when particular experiences were offered by the teacher, such as stories, poetry, and listening or moving to music. Reading, writing, and mathematics, creative music, and practice of physical skills with apparatus were available at many times of the day together with the creative materials and dramatic properties which previously were more commonly associated with the idea of a single free choice period.

Language and Learning

The significant importance of language accompanying child activation was given recognition by British educators. The Central Advisory Council in the Plowden Report concluded that the development of language was central to the educational process. They reported:

Spoken language plays a central role in learning. . . The complex perceptual-motor skills of reading and writing are based in their first stages upon speech, the wealth and variety of experience from which effective language develops. Language originates as a means of expressing feeling, establishing contact with others and bringing about desired responses from them; these remain as fundamental functions of language, even at a more mature level. Language increasingly serves as a means of organizing and controlling experiences and the child's own response to it (1967, p. 19).
Leonard Marsh referred to the works of Luria and Vygotsky as well as Piaget in contributing to the research related to the development of language and thought. Although Marsh would not completely identify thought with language he felt it was clear that language played a vital part. Marsh referred to the relation of language and learning when he stated:

Every teacher is concerned to discover how children learn and we often ask the question "How do children think?" The cognitive field of psychological study as a component of any education theory has been described by Piaget. The study of the development of children of basic concepts and strategies for their thinking involves setting up performance situations (or the time-consuming abstraction of material from normal classroom situations) and the clinical interview technique. Obviously, such methods depend to a large extent on our understanding of the use of language and the realization that the words spoken by a child do not necessarily reveal the extent or real nature of the child's personal experience and cannot pretend to be free from misinterpretation. Despite these difficulties much valuable material has come to hand, and it is the best method we have (1970, p. 12).

Marsh stated it was clear that an analysis by Piaget gave the teacher a psychological theory of utmost significance in its influence on the practical provisions for learning. He stated that the "active" view of knowledge outlined by Piaget, that knowledge was not the contemplation in one's mind by copies of things, but rather a result of the individual's actions on into thought, provided the most satisfactory guide for the teacher. This lent support to the developing pattern of primary education.
Current Influences

The Council developing the Plowden Report indicated that the major bodies of research dominant in Great Britain today were associated with the names Baldwin, Isaacs, Luria, Bruner, and, in particular, Jean Piaget. The Council felt that the theories of such persons focused on discovering the ground plan of the growth of intellectual powers and order in which they are acquired. The report stated:

One of its most important conclusions is that the great majority of primary school children can only learn efficiently from concrete situations, as lived and described. From these situations, children acquire concepts from every area of the curriculum. According to Piaget, all learning calls for organization of material or of behavior on the part of the learner, and the learner has to adapt himself and is altered in the process. Learning takes place through a continuous process of interaction between the learner and his environment, which results in the building up of consistent and stable patterns of behavior, physical and mental. Each new experience reorganizes, however slightly, the structure of the mind and contributes to the child's world picture (1967, p. 192).

The Council referred to that made to Piaget in the 1931 Hadow Report in relation to a similar inclusion in the 1967 report. Members of the Council stated:

Piaget's thought which influenced the 1931 Report and our own, is not easy to understand. It is almost impossible to express in other than technical terms. Although he is not primarily an educationalist, his work has important implications for teachers. His observations of the sequence in the development of children's concepts are being tested on samples of children in many countries and these tests are tending to confirm his main findings. Much more investigation is needed on the extent to which the school environment and the guidance of teaching provided by teachers can accelerate children's progress. The effect of social
expectations on the way children learn also calls for study. Nevertheless Piaget's explanations appear to most educationalists in this country to fit the observed facts of children's learning more satisfactorily than any other (1967, p. 192).

The Plowden Report rejected in the main, the behaviorist theory of learning process associated with Thorndike, Hull, Pavlov, and Skinner. The report stated that the behaviorist was concerned with simple and complex operant conditioning, the place of reinforcement in learning, habit formation, and the measurement of various kinds of stimulus-response behavior. Much of the more recent work derived from animal studies and its main relevance was in motor learning though some work has been done on the learning information, concepts and skills by children and adults. The report indicated that this type of research "did not offer direct help to teachers since for the most part, the motives and sequence of children's learnings were too complicated for analysis in terms of simple models (1967, p. 192)."

Support was provided in the Plowden Report to teachers who arranged many opportunities for children to play, investigate, explore, and discover through self-directed activities in integrated programs. The report valued the role of concrete experiences in child learning and the research of psychologists developing theory which supported this kind of structure and organization for learning.

It appeared that the behaviorists had been rejected by British authorities. More interest had been placed in the
interpretation and application in the school setting of research in cognition, particularly that of Jean Piaget. An analysis of the interpretation and aspects of application of the research of Piaget is developed more fully in Chapter 4. It has been assumed that the practices described in modern English infant schools reflect the interpretation of Piaget as providing the theoretical base for developing programs.

The Role of Teaching Staff Members--
Their Relationship to the Learner

The Teacher

The role of the teacher was given prime importance in all British sources. The Council members who developed the Plowden Report stated that in every section of the report they were forced back to the recognition of the teacher's role and its prime importance. The report reinforced the concept that to a unique extent primary teachers in England had the "responsibility and the spur of freedom." They adopted schemes of work to the children for whom they were responsible and, the Council reported, in an increasing number of schools teachers planned how the day would be spent. The Council report indicated that it has long been the characteristic of the English educational system that the teacher has been expected to carry the burden of teaching by example as well as precept. The report stated:
He (the teacher) is expected to be a good man and to influence children more by what he is than by what he knows or by his methods. "First he wrought and then he taught" is particularly relevant to the teachers of young children. Teachers cannot escape the knowledge that children will catch values and attitudes far more from what teachers do than what they say. Unless they are courteous they cannot expect courtesy from children: when teachers are eager to learn and turn readily to observation and to books, their pupils are likely to do the same. There is little hope that children will come to an appreciation of order and beauty either in nature or what is man-made, unless these qualities are enjoyed by their teachers and exemplified in the schools (1967, p. 312).

The staff of most schools was described as including teachers who planned for groups of children sometimes including auxiliary teachers and ancillary helpers who assisted teachers in classrooms. A teaching head usually moved in and out of the classroom interacting with children and teachers throughout the day.

The Head Teacher

In every school the head teacher was the dominating influence (Blackie 1967). The head influenced the philosophy of the school and the behavior of the teachers in it. Although the curriculum of a school was the responsibility of the L.E.A. (Local Education Authority), in practice the L.E.A. delegated this responsibility to the head teacher. The choice of the head teacher was made by the L.E.A. Once the head was appointed he was given almost complete freedom in deciding how his school was to be run. The head teacher decided whether to run his school democratically and consulted his staff at all points, or merely
issued instructions and directives to them. Blackie (1967) stated that a great majority of the schools were run on a more or less democratic basis. Even so, he indicated, the staff carried out the wishes of the head and if they did not agree they sought other posts. Authorities appeared to agree that generally staffs were friendly and cooperative and on easy terms with their head teacher.

The most important factor for the development of the "good" school was the relationship between head and teacher and the head's interpretation of his role in the school, noted Leonard Marsh (1970). Marsh indicated that the process of change was highlighted in the example of schools where the traditional head's room and desk have gone, to be replaced by a general meeting area with informal furniture for staff use, smaller specialized areas for secretarial and administrative tasks, as well as a more private area for the use of staff and head in meeting with parents and others.

Marsh considered that teachers and heads saw the primary school as an extension of the good home. He indicated that the school environment should be planned to influence, to provide opportunities for choice within an appropriate and carefully devised range, and to produce a climate where children experience a mature pattern of sound relationship and catch a sense of standard and judgment in this pattern in their work. Providing such
an environment was considered by Marsh as "the primary professional responsibility of teachers working with young children (1970, p. 8)."

Marsh indicated that one of the major responsibilities of the head should be with the arrangements of space, the general differentiation of school area to provide a range of opportunities and experiences for children. Under his influence through group discussions, Marsh continued:

... the head would be concerned in strengthening the observational basis of the work of the staff (both in the sense of using the environment and the observations of the professional teachers of children in the learning situations) so as to have available accurate observational descriptions of children to guide the work of the school (1970, p. 139).

Factors Which Tend to Free the Teacher and the Learner

The sensitive relationship between teacher and child was considered common practice in most British literature describing modern primary schools. This relation was described by Blackie (1969) in the composite study of Primary Education in Britain Today. Blackie indicated that the essential point in the whole educational system was the point of contact between teacher and child. It was to make this contact as fruitful as possible so everything else might exist: authority, administration, inspection, curriculum. If the system failed to work at this point of contact (between teacher and child), it failed everywhere. Blackie described this as a contact between persons where both
the teacher and the pupil must have full scope as persons. If
the teacher became simply a transmitter of other people's ideas
and was obliged to follow a scheme of work thought out by some­
boby else, Blackie felt that "the teacher then ceased to act as a
person because he had not been made, or even allowed, to use his
mind and imagination, to the fullest extent. The English system
allowed him to do otherwise (1969, p. 5)."

How does the teacher work out this system or plan in his
own classroom setting? How does he work out his own innovations
in practice? Blackie suggested some of the following factors as
influencing teacher behavior in planning for the learner: "he is
helped by his initial training, by the courses he attends after
his initial training, by his reading, by the advice and support
of colleagues and inspectors, and by internalizing all of these
so that they become a part of his teaching personality (1969,
p. 5)." Blackie concluded that innovation under such a system
may come more slowly than when imposed from above, but it comes
more surely because it is initiated by the teacher, based on and
tested, by his own experience. British sources indicated that
the English system encouraged teacher and child to behave as in­
dividuals. Each is encouraged to develop initiative and enter­
prise.

Other factors which were considered as freeing the teach­
er and learner were identified in the organization of the day,
organization of the children, and organization of the environment
for learning. Organization in each of these areas provides significant concern for the learner and his learning needs.

Organization of the Day

The Central Advisory Council in the Plowden Report (1967) indicated that the labels of "free day" and "integrated curriculum" reflected the beliefs about how children learn. The Council stated that the strongest influence making for the free day had been the conviction of some teachers and other educationalists that it is through play that young children learn. They felt that if teachers encouraged overlap between what is done in periods of self-chosen activity and in the time allocated to reading and writing, a good learning situation would probably result. Children who are not ready to read could go on playing and building up vocabulary, while other children were reading. Play would lead naturally to reading and writing associated with it. The report stated:

Children do not flit from activity to activity in their anxiety to make use of materials not available at other times of the day. Some infant schools are not confident enough in the value of self-chosen activity to give the whole day to it, except for times which are used for stories, poetry, movement, and music—even these may be voluntary, particularly for younger children. The tendency is spreading to junior schools. Children may plan when to do work assigned to them and also have time in which to follow personal or group interests of their own choice. In a few infant and junior schools the day is still divided into a succession of short periods. In the great majority, we are glad to say, there longer periods and these can be adjusted at the teacher's discretion (1967, p. 1967).
It was felt that the role of the teacher in such a plan was the determining factor for its success. The Plowden Report (1967) stated that in the past heads were expected to show exactly what each class was doing every minute of the week and to provide a summary showing the total number of minutes to be spent in each subject. This was referred to as the timetable. In extreme cases, the curriculum was divided into spelling, dictation, grammar, exercises, composition, recitation, reading, handwriting, table and mental arithmetic.

The Council concluded that it was obvious that this arrangement was not suited to what is known about the nature of children, of the classification of subject matter, or of the art of teaching. The report intimated that the teacher could best judge when to make a change. The moment of change might not be the same for each child in the class.

The Council reported that children planned their own work in many schools. The report observed that the teacher constantly ensured a balance within the day or week both for the class and for individuals. The Council charged the teacher with the responsibility of seeing that time was profitably spent and that he gave guidance for its use. "In the last resort," the Council concluded, "the teacher's relationship with his pupils, his openness to their suggestions, and their trust in him are far more important than the nominal degree of freedom in the timetable (1967, p. 1967)."
The integrated day was described by Brown and Precious as "one which is combined into a whole and has the minimum of timetabling (1969, p. 13)." Within this day there was time and opportunity in a planned educative environment for the social, intellectual, emotional, physical, and aesthetic growth of the child at his own rate of development. Their definition extended this day to encompass the whole life of the child during the six years of primary education.

Organization of Children

Not only has the organization of the school day moved toward an integrated day, but in recent years infant schools have begun to include a range of ages within one class group. Common terms given to this method of organization have been family grouping, vertical grouping, vertical all-age grouping, and cross-age grouping. Such forms of grouping might be identified as another factor which frees the learner and the teacher.

The concept of vertical grouping was developed by Mary Mycock in Teaching in the British Primary School. She described the large English primary school as traditionally classifying pupils according to chronological age. "The children progress through classes in the primary years moving from teacher to teacher according to age and sometimes according to ability." However, she continued, "In small schools, mainly in rural areas, mixed age-grouping was unavoidable because of the small numbers of children in each age group (1970, p. 35)."
In recent years there has been considerable interest in the relationship between how children are grouped and the significant influence of multi-age grouping on the development of each child, Mycock reported. This interest has resulted in some large urban schools voluntarily adopting a system of vertical or family grouping. Vertical grouping has been utilized more frequently in infant schools than in junior schools. In schools which contained vertical grouping, all classes were parallel. Each class contained an equal proportion of children of all ages from four and one-half to seven and one-half years to eight. The children remained throughout their infant school in the care of one teacher.

Ridgeway and Lawton (1968) observed that in practice teachers found this system gave to the children a valuable sense of security and stability. To their teachers it gave a deeper quality of insight into the all-round development and character of the children which sprang from two to three years of close and intimate association.

Authorities agreed that vertical grouping was more common in infant school classes, although Mycock reported that junior schools were beginning to question the whole notion of homogeneous grouping whether by age or ability. Attention has been focused on problems of class organization with particular reference to streaming and non-streaming. Traditionally, streaming was
based upon placing children in specific classes and groups according to their ability.

Some junior schools have progressed from non-streaming to vertical grouping, especially in the seven to nine year age range, and teachers spoke enthusiastically of the opportunities this grouping affords. Mycock concluded that "as yet, specific evidence of this method of organization from the junior stage is much less abundant than from the infant stage (1970, p. 35)."

Organization of the Environment

The significance of the organization of the environment by the teachers and its use for learning by young children was considered of prime importance by all English authorities. This has been identified as another factor which contributed toward freeing the teacher and learner.

Among the authorities who developed this topic were Ridgeway and Lawton (1968), Brown and Precious (1969), Mann (1964), Marsh (1970), Blackie (1967), and the Central Advisory Council in Children and Their Primary Schools (Plowden 1967).

In the preface to Ridgeway and Lawton's Family Grouping in the Primary School, L. Christian Schiller remarked:

Young children grow to the full when they live in an environment which encourages growth. Material things are an important part of this environment. The most important part is the climate of thought and feeling created by those adults in whose care the children are (1968, p. 8).
Brown and Precious expressed this view: "In a school where the integrated day is in practice, the environment is all-important. It must be so well planned, challenging, interesting, and attractive that the child wants to become involved with the materials, wants to satisfy his curiosity, and to learn (1969, p. 13)."

Mann listed the following points for consideration of teachers in their use of the environment for learning:

1. We must study the environment in which we have to work and discover its possibilities, so that we can use it to greatest advantage. At the same time, we must decide how to overcome its disadvantages.

2. We must know how to organise the time at our disposal so that the best possible use is made of it to suit the needs of all the children under our care.

3. We must list possible useful materials that can be made available for the children's use and seek sources, even unusual ones, of supply.

4. We must consider, in advance, possible ways in which children might use these materials to aid their development, yet we must be ready to reconsider or change our plans to fit in with the actual needs of the children.

5. We must have such knowledge and understanding of the children's needs that we know when it is best to leave a child to experiment and work alone and when it is best for us to "teach" (1964, p. 17).

Marsh described the use of the environment by the teacher:

The teacher in the primary school recognizes that there are many different ways of learning and teaching and that his planning will for the most part involve a pattern of varying activities and varying groups. It is a flexible and fluid learning pattern requiring a range of materials and equipment. The teacher is
anxious to get an enormous variety into the small teaching space permitted by current building cost limits so as to involve children in the process of choice within the space framework established by the teacher (1970, pp. 101-102).

Marsh also described the school design as that which took into account concern for flexible schedules with a variety of materials available for child activity and learning. The total area of the school was seen as teaching space including use of hallways, assembly rooms, and outside areas. The school site was used as part of the larger teaching area that makes up the neighborhood.

Use of the environment outside the classroom was developed by most British authorities. Interests of children identified outside the normal classroom setting were brought into the classroom for further investigation and study. The Plowden Report included the following example: "Where once the teacher brought autumn leaves into the classroom and talked about the seasons and their characteristics, now he will take the children out to see them (1967, p. 199)."

Marsh (1970) described the classroom as one reflecting an orderly environment with the disciplined arrangement of an enormous variety of working possibilities within a small space. Within the framework of the school, space needed to be arranged so as to encourage quiet, reflective reading with larger areas for general research and recording activities, and yet larger areas for movement and physical activities. Marsh described one
building where "working bays" were created. The teacher arranged materials in the bays or work center, reflecting such areas as craft, cooking, or library activities. Children worked in small groups or as individuals for long uninterrupted periods or for only a moment. In the workshop studio resource area was found a variety of materials for child learning ranging from those encouraging mathematical investigation to creative art and construction activities.

The major aim in primary education was that of creating a suitable environment for children. Included in Blackie's presentation of the character and aims of primary education which appeared in Primary Education in Britain, edited by Geoffrey Howson, was the following statement:

The school building must be safe. It must also not be too large and complicated, for children need security of mind as well as body and little ones can be unhappy and overwhelmed in a vast building. Children need light, air and space, but they also need privacy and small corners and enclosed places. The old kind of school with its row of classrooms, each with rows of desks, and perhaps a hall for assembly and indoor physical exercise took no heed of the nature of children. The latest English primary schools have no classrooms or desks. They have spaces of varying size, some designed for special purposes, others for general use. There will be a carpeted library for quiet reading and enquiry, one or two studios with tiled floors for painting, modelling, sculpture and craft-work of all kinds, a music room with a variety of musical instruments of a kind which young children can play, places containing mathematical, scientific, historical and geographical material. Out of doors there will be a paved surface for days when the ground is wet, but also plenty of grass, trees to climb, sand to dig in, pools in which to paddle and quiet sheltered spots in which to sit and talk and daydream. Such buildings, designed in every
detail for children and their learning, are still excep­tional but their number is increasing because this is the kind of building that a growing number of teachers is demanding (1969, p. 6).

Blackie's description of the modern school building was a reality in only a few areas. Even so, older buildings reflected the same aims in the structuring of an environment conducive to child learning. The classrooms reflected the same concerns for providing opportunity for children to explore and discover through the use of materials available in the classroom environment. Hallways as well as classrooms have become work centers. Schools have opened as teachers and heads have reorganized traditional classrooms and buildings by creating work and learning centers with materials which they believed appropriate for young children.

In the infant school classroom and building such areas included some of the following: a library or reading area with a variety of books on a range of reading levels, a writing center with paper, pencils, crayons, a math center with a variety of manipulative materials, a science center including live animals, books for research, and specimens supplied by the teacher and children, an area for painting, an arts and crafts center, a Wendy House (home center), areas for water play and use of sand, a block-building area, and a cooking center. Areas for body movement, music and rhythms were found in an assembly room or open hallway area. Animals and pets were housed in the classroom
or in a special area of the building. Children stayed in one classroom with one teacher, moved to other classrooms, or moved to work areas located outside the classroom.

Curriculum and Instructional Areas of the British Program

Throughout the British literature surveyed stress was placed upon the belief that child learning did not fit into categories. The younger the child the more undifferentiated their curriculum (Plowden Report 1967). The emphasis of the natural relationship of the integrated day and the integrated classroom in descriptions of infant schools and classrooms reflected the belief that the curriculum developed through the relationship of child learning and the learning environment. Attempting to more clearly discuss aspects of curriculum, most British authorities tended to present by traditional subject label those which existed within the structure of infant and junior schools. Examples were given of the ways in which children grew in understanding and in developing skills in these overlapping areas.

A major concern in the concluding section of this chapter was to describe selected areas identified as innovative aspects of the curriculum in infant schools. Areas selected were the related areas of reading and writing and the area of mathematics.
Reading and Writing

In the Plowden Report (1967), the Central Advisory Council pointed out that successive investigations into reading ability taken by the Department of Education from 1948 to 1964 made it clear that the standard of reading in the country as a whole has been going up steadily since World War II. Children of eleven had advanced by an average of seventeen months since the first report was made. The report stated that for this improvement the schools can take much of the credit.

The natural relationship of writing and reading, the opportunity for children to glimpse the pleasures of reading from listening to stories and the development of making books about class or individual interests were identified in most British sources as basic to teaching children to read. In many infant schools, reading and writing were treated as extensions of spoken language.

The Plowden Report revealed that children who did not have the opportunity to grasp the relation of reading and writing at home were introduced to this relationship by everyday events and through the environment in the classroom. The report cited examples requiring reading and writing which included some of the following: "messages to go home, letters to sick children, labels to ensure that materials and tools are returned to their proper places (1967, p. 211)."
Ridgeway and Lawton (1968) stated that progress in reading and writing were closely linked and that both should be closely associated with other activities. They encouraged book making by children from the start of school with no pressure from the teacher to read or write. They recommended placing in the writing corner empty books with attractive exteriors or inviting shapes for individual writing or dictating. Group books should be centered upon the individual and his immediate world. They also suggested that the teacher prepare class books for children to illustrate by pictures and writing. They described scrapbooks made by children in which pictures from birthday cards, Christmas cards, and magazines were cut and pasted.

Ridgeway and Lawton described interest in reading as "similarly simulated with appropriate simple books always available in the book corner (1968, p. 84)." Large picture books as well as all the variety of books which appealed to older children were fully available to younger children. Young children were encouraged to choose books, focus on a wall story or select a group book which would be the subject of special attention by the teacher and children. It was reported that in a family-grouped class the youngest children frequently enticed older children into reading to them. Before long it would become evident to the teacher that some children were ready for more positive help. Such help was given.
The Plowden Report pointed out that books made by teachers and children about the activities of class or of individuals figured prominently among the books children enjoyed. They stated that these helped children to see meaning in reading and to appreciate the purpose of written records. They indicated that "children who showed interest in reading but who were not ready to make steady progress in graduated materials often profited from using teacher-made books and picture books (1967, p. 211)."

In one of his writings, Rogers incorporated the description of the introduction of reading and writing in the modern infant school made by Ann Fryer, a headmistress in Leicestershire. It read (Rogers 1970).

Children are very good at making these books from pictures they collect or draw themselves. Long before they are capable of writing their own stories, they enjoy arranging a sequence of illustration in an imaginative and creative way and recording their stories on a tape recorder. You might ask a child's permission to write his story under the pictures he has arranged, so that it can be chosen as a reading book (p. 106).

Fryer's description continued:

There is no magical formula for teaching children to read. They travel many different paths to achieve the same goal and take varying lengths of time over the journey. We try to smooth the way by removing well-known obstacles with skillful preparation and by relieving unnecessary stress by pacing ourselves to the individual. A well-trodden route is one taken through a child's natural interest in the pictures he has drawn. In talking about his picture, a teacher can invite a child to choose what he would like her to write about his picture, and then they read it together. According to the child's ability he might then go and
trace the words over the teacher's writing or copy the sentence underneath (pp. 106-107).

According to Rogers, Fryer described the use of personal notebooks in developing a class set for placing in wall pockets—one card for each initial letter, one pocket for each card. On these cards were written those words most frequently requested by the children. Regular additions were made to it throughout the term. Children learned to refer to the wall pockets when writing before asking the teacher for a new word. If they could not find the one they needed they brought both their personal notebook and the card to the teacher so that the word could be added in both simultaneously. This activity provided transfer for the later use of dictionaries as well as providing self-motivated incidental learning in that children often became interested in the other words listed on cards. They often asked another child or the teacher what they said.

Several graded readers were available in classrooms as one would have more appeal to some children than others. With some children it was necessary to write their reading books for them in order to capture their interest. Pressures were working for and against children and that it was only knowing children as individuals, catering to their strengths and weaknesses of intellect and personality that teachers could help make children's time in school a creative period rather than a destructive one.

Blackie indicated that "although teachers are free to teach children to read in any manner they choose, most classrooms
reflected a combination of methods and materials (1967, p. 53)." He stated that in practice the majority of infant schools use a combination of look-and-say and phonetic methods. These are applied to the use of written language in the classroom and to the use of books by children selected from a wide range of literature available in each classroom.

Blackie provided an interesting description of a typical class for fives:

In the fives' classroom you would probably see a number of words and sentences in various places in the room. The door would have the word "door" fastened on it and the window the word "window." The sentences might be about the weather, e.g. "the sun is shining" (this would be changed to suit the conditions outside) or about the children, e.g. "Simon has a new baby sister" or about a story that had been read or told to the children, e.g. "The little red hen cleaned the house." If you searched further you would find cards with words and sentences written on them and readers which began with very simple sentences like "This is Peter" under a picture of a little boy, and went on to more extended sentences in later books. You would very likely find books made by the children of previous years containing pictures and words and sentences, and also a good variety of picture books, that is books to look at and learn about things from (1967, p. 55).

Blackie indicated that in such classrooms the children became accustomed to printed words. He stated:

They look at what they "say." The teacher draws their attention to them. In many schools they learn to read them by writing them. This is really only a small extension of what goes on at home. "What does that notice say, mummy?" asks the child and the mother replies: "It says Private - No entry." "What does private mean? Why is it private? What would happen if we went in?" The questions follow in quick succession. No attempt is made to teach them reading but next time
they pass the notice the child says: "There's the private notice" and soon the word private is recognised. In school this process is taken a little further because, though it is informal and may look casual, it is in fact deliberate. The infants' teacher will actively encourage a curiosity about words and, when she thinks the children are ready, will use the cards mentioned above, "flash-cards" as they are called, to give training in quick recognition of whole words and sentences (1967, p. 56).

Blackie described the process of learning to read as a sort of frontier:

... Once a child is over it, the main job is done. He may still need help, but he can read. He can, as teachers say, get on by himself. For some children the approach to this frontier is very slow and some seem to hang about just on the wrong side of it for quite a long time. They need continual help and support. It is possible that some children of this kind have been started on reading too early. They have found it a struggle and have had little pleasure from it. They would perhaps have done better if they had been allowed to remain for longer in the pre-reading stage, getting used to printed words without formal instruction. We know that it is futile to try to teach children to stand or walk before they are ready, when they do it without being taught, and it is very probable that the same thing is true of reading (1967, p. 57).

He continued by describing the use of reading by children in the later years of infant school:

In the Sixes and Sevens classes you will find a quantity of books. They will probably be scattered about the room, on various shelves or sometimes in a little library corner. They will certainly not be locked away in cupboards. The children will be able to get hold of them whenever they need them. Many of the books will be simple, illustrated introductions to a variety of interests and topics - aeroplanes, space-flight, railways, motor-cars, ships, houses, plants, birds, insects. There will also be some rather larger books of reference. Even at this age children often want to know more about a subject than a brief child's book can tell. There will also be story-books, books of poetry, collections of myths and
legends from all over the world, and books about the Holy Land and the Life of Our Lord.

This lavish provision of books and their constant use has perhaps been the most striking change in the English primary school since the war. Until it happened the full possibilities of children using their own initiative could not be realised or even imagined. In every subject teachers have been surprised at how much children will do when given a chance, and the chance is so often a good supply of good books (1967, pp. 60-61).

The Plowden Report reinforced the fact that the method of systematic teaching that follows the introduction of reading is left to the teacher's decision. The report asserted:

The most successful infant teachers have refused to follow the wind of fashion and commit themselves to any one method. They choose methods and books to fit the age, interest and ability of individual pupils. Children are helped to read by memorising the look of words and phrases, often with the help of pictures, by guessing from a context which is likely to bring success, and by phonics, beginning with initial sounds. They are encouraged to try all the methods available to them and not to depend on only one method.

Instead of relying on one reading scheme, many teachers use a range of schemes with different characteristics, selecting carefully for each child: some schemes emphasise sight reading, others phonics; some consist of short books, with a very slow build up of vocabulary, and suit children who need quick success; other schemes help children who are able to advance rapidly and discard primers. Reading schemes should never determine the practice for all children (1967, p. 212).

The Council referred to the use of Initial Teaching Alphabet (I.T.A.). Their report stated that it is not a method of teaching reading. They defined it as an alphabet intended only to get children over the difficult first stage of learning, that children soon transferred from it to a fairly simple primer in
traditional orthography. They indicated it was used along with various methods, and like other instruments, it was used well or badly. The Council encouraged continued research on the value of using I.T.A. with the minority of children who have failed in learning to read by using materials with the conventional alphabet. Research in this area was being carried out by the University of London at the time the Council began the work for this report. The Council reported that during the time of this study (1961-1967) I.T.A. was in use in something like five percent of the infant schools in England.

Blackie indicated that a relevant objection to the use of I.T.A. was that if most children learned to read satisfactorily with traditional orthography the expense of providing books printed in I.T.A. in the interests of a small minority was not justifiable. He reported the sponsors of I.T.A. claimed that "although it is the backward reader who made the most spectacular progress with I.T.A., all children learn to read more quickly and easily with T.O. (Traditional Orthography) and that the time thus saved and made available for other things is worth the expense involved (1967, p. 59)."

During the winter of 1968 the author interviewed educational leaders in the City of London and in the Leicestershire area. In both areas those interviewed reported the phasing out of the use of I.T.A. as a basic approach in reading materials. Local research indicated that children using this form of sound
alphabet in beginning reading and writing were generally equal to and no better than those learning to read and write with the traditional alphabet and spelling.

The Plowden Report (1967) stressed that even if methods were found which made possible an early beginning in reading it did not follow that children's time was best spent in reading. The report stated that the earlier children read and the more time spent on it the more important it became to see that books were worth reading and that their substance did not outrun children's experience and maturity.

Mathematics

One of the promising practices in British primary education has been the attention given to the ways in which children develop concepts in mathematics and an understanding of the application of the use of numbers. Change in the Plowden Report indicated that until comparatively recently a typical "scheme of work" in a primary school could have been summarized somewhat as follows: "'Composition and decomposition of 10. The four rules. The four rules in money. Tables. Vulgar fractions. Simple decimals. Simple programs.' Emphasis was laid upon knowledge of tables, computation and quick and accurate 'mental arithmetic' (1967, p. 235)."

The Council indicated that about twenty years ago the first signs of change appeared. But it was perhaps only in the last five or six years previous to the publication of Children
in Their Primary Schools that the new ideas spread widely enough so as to affect at least a majority of primary schools and to justify the name of revolution in a substantial minority.

The Council indicated that such rapid revolutions are not common in English education. The Council indicated that changes of this nature and magnitude probably occur only when there exists a fairly widespread dissatisfaction with "the current state of affairs and a predisposition to look in new directions." The report included the following statement:

The dissatisfaction had certainly been there for many years and it was not confined to this country. It was associated with the growing need of society for mathematics at an advanced level. Those who supported the accepted ways argued that a sound mechanical foundation was essential before anything more adventurous could be attempted and that children must learn to walk before they tried to run. There was, however, a growing conviction that the accepted approach laid too exclusive an emphasis on mechanical operations, was too little concerned with the practical uses of mathematics, and that the traditional syllabuses included much useless lumber (Plowden 1967, p. 235).

According to the Council report, for many years teachers and textbook writers had attempted to make arithmetic more practical and more interesting. It was not until a mathematical, rather than a purely arithmetical approach began to be made that the whole subject began to take on "a new look." The following reasons for this change were cited by the Council:

1. The various kinds of number apparatus for the use of infant schools, none of which was perhaps essential to the change that has taken place, have helped teachers to think in a fresh way about number and broken down some of the misgivings that many teachers
undoubtedly had about mathematics as distinct from "infant number."

2. More important was the work of many infant teachers, and their advisers, who realised that learning in school and out of school went on all the time and who directed children's attention on the mathematical aspects of their environment and of their play.

3. Many of these teachers came to realise the contribution of experience to the formation of concepts and the limited value of processes learnt by rote.

4. Books, too, had their influence—Piaget's researches, books about the history and nature of mathematics and the Mathematical Association's "The Teaching of Mathematics in the Primary Schools" was a tremendous encouragement to change.

5. The next important move came from the Department of Education and Science. Individual members of H. M. Inspectorate had, since the mid-forties, been encouraging a more mathematical approach and the Mathematical Panel of Inspectors, which had formerly been mainly concerned with secondary mathematics, and for some time taken a greatly increased interest in primary schools. In 1959 one of its members was seconded almost full-time to the task of organising courses and conferences for teachers. As a result, about 15 percent of all primary teachers in England have by now attended courses and conferences organised by H. M. Is., with much valuable cooperation from local advisers, and lecturers in colleges and departments of education. The aim was to introduce teachers to new ideas, to encourage them to set up local groups for further study and exchange of experiences, and to remove the insecurity and inadequacy of which many were all too conscious. These groups were an essential part of the development that took place. Some mathematical specialists from secondary schools took part in all courses. According to the National Survey 26 percent of teachers attended courses in mathematics between 1961 and 1964. The most encouraging result has been the great interest known to be aroused amongst teachers attending, including those who had always thought mathematics beyond them. The collaboration of mathematics from many different institutions has led to an enrichment of mathematical knowledge and to a clearer understanding of each other's needs and problems (Plowden 1967, pp. 235-236).
The Council indicated that *Mathematics in Primary Schools* (1966) greatly influenced the Nuffield Project in primary mathematics. The Nuffield Project had been sponsored by the School's Council and financed by the Nuffield Foundation. At every stage in the development of the Nuffield Guides, teachers have been involved in their production and at every stage ideas have been tried out in primary schools. The materials produced are viewed not as textbooks, but rather as sets of handbooks to be used by teachers in selecting materials and planning activities for helping children develop mathematical ability and understanding.

On *Mathematics in Primary Schools*, the Plowden Report stated:

> A deliberate change in the curriculum has been brought about not by the issue of programmes by states or universities as is often done in the U.S.A., but by pioneer work by teachers, clarified and focused by advisory services to teachers, and diffused on a national scale by in-service training in which self help has played a major and essential part (1967, p. 236).

The Curriculum Bulletin No. 1, *Mathematics in Primary Schools*, the outgrowth of the workshops begun in 1959 sponsored by the Department of Education and Science, reflected the consideration given to how children learn. A summary of the conclusions derived from research included in Chapter 2, "Children's Method of Learning," represented the following considerations:

1. Children learn mathematical concepts more slowly than we realised. They learn by their own activities.

2. Although children think and reason in different ways they all pass through certain stages depending upon their chronological and mental ages and their experiences.
3. We can accelerate their learning by providing suitable experiences, particularly if we introduce the appropriate language simultaneously.

4. Practice is necessary to fix a concept once it is understood. Therefore practice should follow not precede discovery (Curriculum Bulletin 1966, p. 9).

The Curriculum Bulletin presented the following material on Piaget which provided interpretation and use of his research in approach recommended for the teaching of mathematics in the primary schools:

Piaget set himself the task of finding out, as accurately as possible, how the principles of conservation and of reversibility, as applied to numbers and to spatial thinking, develop in the minds of young children. These two principles are fundamental to all mathematical (and logical) thinking. For example, in the field of numbers, conservation means that the number of objects in a group remains the same however the objects are arranged (in a heap, in a long line, etc.). Or if we are considering quantities, a quantity of lemonade remains the same if it is poured, for example, from a shallow dish into a tall, narrow glass. The understanding of reversibility involves a realisation that reversing an action would result in a return to the original state of affairs. (Not all operations are immediately reversible. When we let a bath of water drain away we cannot get the same water back again.) Piaget devised a variety of tests and tried these out on children of pre-school and primary school age (1966, p. 5).

Stages of learning were emphasized, as the Curriculum Bulletin stated:

Although the ages are always quoted in the records, it is the stages of learning to which Piaget draws attention. He was the first to discover that the formation of a concept takes far longer than had been supposed. His findings, and the stages of learning he postulates, are most easily understood in reference to one of his well known simple experiments (1966, p. 5).
The following experiment was the third of a series concerned with one-to-one correspondence. In the test, the child was shown a set of seven egg cups in a row and also a group of eggs (containing more than seven eggs). He was asked to take just enough eggs for the egg cups. These stages were developed:

In Stage I (normally between the ages of four and five) one child made a row of the same length but containing too many eggs. He was then asked to put the eggs into the egg cups to check his answer and was surprised to find there were too many eggs. The extra eggs were removed and the child agreed that now there were the same number of eggs and of egg cups. But when the seven eggs were taken out and put in a heap in front of the egg cups the child said that there were more egg cups than eggs. It was clear from the similar responses of many children that, at this stage, children are not capable, by themselves, of making the one-to-one correspondence and that they would not have discovered it if the relations between the egg and its cup had not forced them to do so. As for the equivalence of the two sets (eggs and egg cups), the child's answers were based entirely on a visual (perceptual) comparison of the length of the rows, even when one-to-one correspondence had been established by the nature of the materials.

In Stage II (normally between the ages of five and six) the child, of his own volition, took seven eggs to correspond to seven egg cups and put the eggs in the cups. When the eggs were removed and spaced further apart, the child said there were more eggs than egg cups. When asked if there would be the right number of eggs to put one egg back in each cup he did not know. Here the child created one-to-one correspondence for himself, but he no longer recognised the equivalence of the two sets once the configuration was changed.

In Stage III (normally between the ages of five-and-a-half and six-and-a-half) the child achieves "operational correspondence and lasting equivalence." Even when the eggs were spread out the child maintained that the number of eggs and egg cups were the same. "Because they all go into the egg cups." It is only at this stage that reversibility is understood, that is, the
child can reverse the thinking process and put the eggs back into the egg cups in imagination. So the child has achieved full operational control of the concept (Curriculum Bulletin 1966, pp. 5-6).

The members of the School's Council indicated that this illustration drew attention to the fact that there were variations in kinds of thinking according to chronological or mental age. British mathematicians and psychologists have provided interpretation to this concept of child thinking in mathematics.

Dr. T. P. Dienes (1969) related Piaget's three stages of forming concepts to different types of learning situations. He called the first stage the preliminary or play stage. He viewed this stage as marked by undirected and seemingly purposeless activity. (In order to make play possible, freedom to experiment was necessary.) The second stage was viewed as more directed and purposeful, but there was not clear realization of what is being sought. At this stage Dienes felt a certain degree of structured activity was desirable, but, because children thought in different ways, he recommended the provision of a number of experiences of varying structure, all leading to the same concept. He viewed the third stage as one which must provide the practice necessary for finding the concept. He referred to such practice as including preliminary games, structured games, and practical games.

Dienes added, "Clearly a practice game for one concept can act as a preliminary game for a later concept. It is
important, however, not to use practice games as preliminary
games for the same concept, a common error in infant schools
(1969, pp. 7-8)."

The Curriculum Bulletin suggested that the often appearing
problems in later abstract mathematics might not present
difficulties if the right learning methods (as opposed to teaching
methods) were employed at an early period. The chapter on
learning in Mathematics in Primary Schools concluded with this
statement:

With discovery methods in mind and encouraged by
Piaget's experiments, let us create a dynamic definition
for the learning of mathematics. To be brief we might
content ourselves with: "Mathematics is a discovery of
relationships." But if we (or the children we teach)
have discovered such a relationship for ourselves we want
to communicate the exciting discovery to others. We may
first describe the discovery in words to a friend or
teachers. Subsequently we may find a more effective way
of expressing the relationship; for example, in numbers
(as in arithmetic), in letters (as in algebra), by a
diagram (as in geometry), or by a graph. Therefore a
more comprehensive definition would be, "Mathematics is
a discovery of relationships and the expression of the
relationship is symbolic (or abstract) form." This is
no static definition but implies action on the part of
the learner, of whatever age and whatever ability. It
is the fact that mathematical relationships can be dis­
covered and communicated in such a variety of ways that
puts mathematics within reach of children and adults of
all abilities (1966, p. 9).

Viewed in the changing trend in the content of mathemat­
ics for primary school children was concern for what children
could learn as they were helped to make their own discoveries
about number and number relationships. Emphasis was shifted
from teaching to learning mathematics. Teachers focused on the
child's experience rather than on their own, on the child's world rather than their own adult world.

In the classroom teachers were encouraged to plan opportunities for experiences where children could think for themselves, be given a knowledge and appreciation of mathematics as a creative subject (in number as well as geometrical form), recognize its vital presence in everyday life and in the environment, not only in man-made things but in material forms as well. Teachers were encouraged to provide opportunities for children to develop facility with number and skill in computation (quantity relationships).

It was recognized that mathematical opportunities which arose naturally, though excellent in themselves as a continuation or extension of earlier experience, were rarely sufficient and broad enough in primary classrooms. The Curriculum Bulletin indicated that teachers needed to provide the right kind of experience to serve as a basis for more systematic learning. In order to do this an examination was made of the mathematical concepts which were possible for most children to learn in the primary years. (Some children would, of course, learn considerably more and others far less, according to their abilities.)

A summary of these concepts, processes, and facts were listed for teacher consideration in planning opportunities for their development.
1. Sorting and classifying objects into sets. Comparing sizes of two sets (i.e., the number of objects in each) by matching; learning the language of inequality (e.g., more than, smaller than, etc.) and later the symbols (< and >).

2. Counting the number of objects in a set conservation of numbers. Composition of numbers up to 20 (i.e., how they are made up of smaller numbers, e.g., 6 is 5 + 1, 4 + 2, 3 + 3, 3 + 2 + 1) without counting on or counting back (i.e., knowing that 16 + 4 = 20 without having to count on from 16, whether the fingers are used or not).

3. The number line, that is the numbers in order up to 100, but, except for a few children, no written manipulation of numbers beyond 20. The understanding of place-value in number rotation, e.g., understanding that the value of each of the three 2's in 222 depends upon the place it occupies, is gradually dawning at this stage, but is not usually firmly established.

4. Measurement, i.e., knowing how to use a ruler and other simple instruments of measurement. Money, i.e., the small amounts of daily life. Conservation of measures. Knowledge of the relationships between one unit and another (e.g., penny and dime, inches and feet, ounces and pounds, pints and quarts, i.e., the common units which are within young children's experiences).

5. Simple fractions: halves, quarters, three-quarters.

6. Shape and size, including some simple proportion, e.g., "twice as big," "three times as long," "half as old."

7. Such aspects of addition, subtraction, multiplication and division as arise in the classroom.

Some children will be able to cope with considerably more than this—and some with considerably less (Curriculum Bulletin, 1966, pp. 88-89).

Blackie listed some of the activities appropriate for use in implementing the seven areas listed above. These included the following:
1. Sorting different objects in a shop (play store) bananas, apples, cakes, etc. Laying a table with the right number of knives for the people and the same number of forks. Arranging things in order, e.g., one pea, two beans, three nuts, four apples, five oranges.

2. Counting all sorts of different objects and writing the number down (this is much better than patterns of dots and dominoes which are static). Weighing in scales to answer such questions as, "How many acorns balance 5 counters?"

3. The number line, or number track as it is often called is what it sounds like, a long strip of graph paper one inch wide and 100 inches long, numbered one to 100 with the 10's marked in some prominent way. This is fixed to the wall horizontally and strips of differing size from one inch to ten inches are prepared, which are used to find the answer to various number combinations or how far it is from one point to another.

4. There are number of ways in which measurement may be learned, some incidental, some with a definite purpose: measuring curves, guessing followed by measuring, measuring with one unit, and with two, and in every case discovering by discussion, trial and error how to do it.

5. Simple fractions are very easily managed by primary children or they understand the expressions: half, quarter, three-quarters, long before the symbols 1/2, 1/4, 3/4 to which they are not introduced until they have had a lot of concrete experiences of dividing things up into the fractions and remainders concerned.

6. Shapes are of great fascination to children and the pattern of tiles or woodblocks on floors and of many wallpaper and fabrics will be scrutinized with interest and can be cut so as to form a flat shape and then built up again, in the course of which the children begin to grasp the connection between a cube and its "net." This is the beginning of much more advanced mathematical work which, until recently, would have had no place in primary school at all, because it would have been introduced by formulas and called "solid geometry."

7. The essential point is that the operations of addition, subtraction, multiplication and division should be performed not at first through symbols but as real materials. Before 3 x 4 = 12 is learned, three sets of
four must be handled and the four sets of three, in a number of different materials or objects. It must be realized that three sets of four oranges make twelve oranges, but also that four oranges and four apples and four bananas make twelve pieces of fruit, just as three oranges, three apples, three bananas, and three pears make twelve pieces. Not until this sort of ground has been very thoroughly explored should the symbols +, -, x, and \( \div \) be introduced, and they should at once be given their proper names, plus, minus, multiply, and divide.

Children who receive this kind of foundation of mathematical experience and knowledge in the primary school can proceed with confidence and ever-widening interest and capacity through the later stages.

They extend their number-knowledge so that they are thoroughly at home with the first 100 numbers and can manipulate them in all sorts of ways. . . . They really understand place-value and they can proceed to the use of other bases than 10, particularly the binary (2) base which is not of importance since it must be used for all electronic computer work. Older people brought up on only the denary (10) base often find it difficult to handle binary arithmetic. Children find no such difficulty (Blackie 1967, pp. 89-90).

In the Plowden Report (1967), the Council stressed the importance of associating appropriate language with the experience. The report stated that studies have shown that the basic concept is more efficiently formed when language and concrete experience appear together. It was emphasized that oral discussion between teacher and a group of children, or between children, served many purposes. It was suggested that the learning of concepts was accelerated by discussion. Children frequently learned by their attempts to put into words what they are doing and what they have discovered. By talking to the children teachers could find out the stage the children have reached in learning a concept. A child could work through an assignment card (activity
card) and answer every question correctly and yet fail to grasp important aspects of the concept. Such a failure was usually revealed only in discussion between teacher and child.

E. R. Boyce (1968) in The First Years in School stated that young people came to school with varied mathematical backgrounds based on situations which had arisen naturally in their day-to-day experience outside and inside the home. They had begun to accumulate the knowledge of number, quantity, and space adults take for granted. Teachers of first year classes made the most of opportunities which arose for introducing mathematical ideas and, more important still, for associating the correct mathematical language with the situations which arose. Numbers were not met in isolation from language or experience as children revealed their understanding through what they said about their world. Teachers listened to children's language and interacted with them repeating their language and extending upon it.

Since British materials indicated that language has such a fundamental part to play in the learning of mathematics, it would appear that children working as suggested were learning English and mathematics simultaneously. The experience provided for mathematics became another means for learning to read. Reading, record keeping, and recording were seen as having an important place in the learning of mathematics in British programs.
This concern in British primary education for developing language with experience has been referred to as a pattern set by the work of Piaget. In *The Child's Conception of Number*, Piaget (1952) stated that conversation with the child is more reliable and more fruitful when it is related to experience with adequate material and when the child instead of thinking in the void is talking about action he has just performed. This statement appeared to characterize the philosophy reflecting the interrelation of children, teachers, and materials in modern British infant school programs.

**Aspects of Reform Causing Greatest Concern**

The reference used to describe British school programs reflected few concerns regarding developing programs and practice. Generally, the British authors described practices considered desirable. Such practices reflected many of the recommendations made by the School's Council in *Children and Their Primary Schools*, Volume I (1967). A review of these recommendations is included in this section to summarize the conclusions made by the Council.

This summary is followed by excerpts from *Perspectives on Plowden* (1969), a volume which included five papers developed by university personnel who made a critical analysis of the content and recommendations included in the Plowden Report. Richard S. Peters, editor of the volume, stated that the authors were not
attacking the recommendations of the report, instead they wished to be viewed as critical about the educational thinking in the Plowden Report.

Excerpts from Sir Alec Clegg (1970) conclude this section. Although he recognized misuse of current practice, he attempted to answer the question "What is a humanizing curriculum?"

Recommendations: The Plowden Report

In the introduction to Children and Their Primary Schools, Volume I, the Council made the following statement:

English primary education has long had a high reputation. We heard repeatedly that English infant schools are the admiration of the world. Were they resting on past laurels? Ought we to be learning by the experiments other countries were trying? We went to see. Between us, we paid visits, though they had to be brief, to many primary schools in Denmark, France, Sweden, Poland, U.S.A., and the U.S.S.R. Our journeyings are set out in Annex C. Our hosts were worried about many of the same things as we were. They were looking critically at curriculum methods. They were considered with such questions as how to provide for children of differing abilities, how to help most effectively children from poor circumstances, and how to recruit and make good use of teachers (1967, pp. 2-3).

The recommendations made throughout Volume I have been considered as reflecting aspects of concern for which change was considered desirable by the Council. The concern reflected was based upon existing programs rather than the changed programs toward which the Council set its goals. Council recommendations included some of the following:

1. Since a child grows intellectually, emotionally, and physically at different rates the teacher needs to take account
of each child's "developmental age." Teachers were urged to recognize individual differences among children as well as to provide continuous learning opportunities for all children.

2. All schools should have a program for contact with children's homes. Steps were suggested for the development of increased community-school relationships through parent-teacher contacts and community use of the school.

3. Parents should be allowed to choose their children's primary school whenever possible. Authorities were advised to take steps to improve schools which are shown to be consistently unpopular with parents.

4. Educational priority areas were considered to be in special need of more teachers to work with fewer children, the development of special programs to help children unable to speak English, the need for improved buildings and additional equipment, expansion of nursery education, increased number of teacher's aides, and research developed to identify which of these measures would have the most positive effect as a basis for planning a longer term program.

5. Continued work and expansion of the development of suitable materials and methods for teaching English to immigrants. A need was expressed for adequately trained social workers who would collaborate closely with schools, would be readily available to teachers, capable of assuming responsibility for cases beyond the competence, time or training of the head or
class teachers, and capable of securing help quickly from more specialized social services.

6. A large expansion of nursery education with nursery education available to children at anytime after the beginning of the school year after which they reach the age of three until they reach the age of compulsory schooling. As soon as there is nursery provision for all children whose parents wish it, for a year before starting school, the normal time by which a child should go to school should be defined as the September term following the fifth birthday for which legislation would be required.

7. There should be a three-year period in the first (now identified as infant) school. The three-year infant school should be followed by a four-year course in the middle (now identified as junior) school.

A major concern included in the Plowden Report (1967) was "the set-back" some children suffered from the change from infant school to the junior school when they were still seven years old. The report indicated that at this age many children were at a turning point in their mastery of reading. The Council stated that evidence from research relating to transfer from infant school to junior school at seven had confirmed that such transfer had disastrous results on some children's later achievement in reading. The Council suggested such research had shown that nearly half of the children in a representative sample of schools
continued to need the skilled teaching associated with the infant school after transfer to the junior level.

The report indicated that except for those children whose experience in the infant school had resulted in disheartenment nothing could be worse than a change at this time, after a long holiday during which their "half-word understanding may have faded away." The report emphasized that even those children who appeared to have failed completely might have fared better in the infant school had their teachers known that the introduction to systematic reading could be left a little later and that there would still be time for progress. (It should be recognized that English children are introduced to the use of writing and reading earlier than in many other parts of the world.)

8. In selection for secondary education authorities should cease to rely on externally imposed intelligence and attainment tests.

9. Mothers and young children should spend some time in the school and class before admission, with mothers staying with children when necessary during the first few days of school. Meetings between staff and parents should be arranged during that period.

10. There should be no sharp break between infant or first and junior or middle school methods.
11. The size for new or reorganized first (infant) schools would normally be 240 children and for middle schools (junior) 300 to 450 children.

12. With the exception of small schools in rural areas and voluntary schools, combined first (infant) and middle schools (junior) are undesirable.

13. There should be recurring national surveys of attainment in reading and mathematics. Primary schools should hear from secondary schools how their children compare over a period with children from other schools.

14. It was stressed that children's learnings did not fit into subject categories. The younger the children were the more undifferentiated their curriculum would be. It was recommended that as children would come towards the top of the junior school and it was anticipated they would be there until twelve, the conventional subjects would become more relevant.

15. Recommendations for organizing primary schools included: combining individual and class work and welcoming the trend toward individualized learning; the class should remain the basic unit of school organization, particularly for the younger children, although children should have access to more than one teacher, and teachers should work in close association, experiments should be tried in associating two or three classes of the older children--up to about one hundred children in the case of three teachers, the maximum size of primary school classes should
be reduced accompanied by experiments to test the effects of small classes and generous staffing, continued unstreaming in the infant school with hopes that it would continue to spread through the age groups of the junior school, flexibility in the school day and spacing of the school year.

Criticisms: Perspectives on Plowden

The authors who contributed to Perspectives on Plowden (1969) included Richard Peters, Professor of Philosophy of Education, University of London Institute of Education; Richard Dearden, Lecturer in Philosophy, University of London Institute of Education; Brian Foss, Professor of Psychology, Bedford College, University of London; Basil Bernstein, Professor of Sociology of Education, University of London Institute of Education; Brian Davies, Lecturer in Sociology of Education, University of London Institute of Education; and Lionel Elvin, Director, University of London Institute of Education.

Peters, editor of this text, indicated that the focus of concern in the contributions to the volume was with the educational thinking of the Plowden Report, its theoretical basis, and its appropriateness or otherwise to the practical needs of the present. Major concern centered around philosophy of education, aims of primary education, other aspects of child psychology, some sociological comments on Plowden and the roles of society and the teacher. Peters suggested that where the Plowden Report
was being treated as an authoritative textbook, the views in Perspectives on Plowden would provide a valuable critique.

In the foreward to the book, Peters stated:

We argue that although the general view of education taken in the report represented a great advance on the more authoritarian thinking that came before it, yet it is theoretically not satisfactory and is far from appropriate to the practical needs of our time. This does not mean that we want a return to the past. Quite the reverse. And we very much respect some of the members of the Plowden Committee and their advisers who have worked for the great improvements that have taken place. We hope indeed that they will not take our criticisms amiss, even when we phrase them a little sharply (1969, pp. ix-x).

Peters presented the first paper entitled "A Recognizable Philosophy of Education: A Constructive Critique." He first pointed to contradiction in aims as stated for the committee.

The Committee were chary of committing themselves to an explicit statement of aims though they perhaps were not quite clear about the reasons which "a number of distinguished educationists and professors of educational philosophy" had for cautioning them about them--namely that they must either be highly general and therefore not very informative, such as "self-realization," or more specific and therefore plural in a society like ours where there are many different convictions about what is important in education. This caution, however, did not save them from blatant contradictions--as when they begin the chapter with a statement of "one obvious purpose," which is to fit children for the society into which they will grow up, and go on to say later that a school is "a community in which children learn to live first and foremost as children and not as future adults (1969, p. 2)."

Secondly, Peters stated that the report summary of a recognizable educational philosophy was proliferated in important half truths that were paraded as educational panaceas. He expressed concern in the following areas:
(a) That the child has a "nature" which will "develop" if the appropriate environment is provided. What will he develop into? Presumably a "mature adult" who can "be himself" and be critical of his society.

(b) Self-direction is very important in this development. "The child is the agent of his own learning." "Sensitivity and observation are called for rather than intervention from the teacher." Children have an intense interest in the world around them together with powers of concentration which will ensure learning if they are provided with materials for which they are "ready."

(c) Knowledge cannot be divided into separate compartments. Self-chosen activity within an "integrated curriculum" is desirable.

(d) The teacher must be a guide, an arranger of the environment, rather than an instructor.

(e) At several places in the report the statement of this dominant ideology was followed by some qualifications, for instance on the importance of "the older virtues" or on the dangers in "discovery methods." But these read very much like attempts to deal with awkward objections while retaining the main emphasis; they do not add up to an attempt to present a properly thought out educational theory (1969, pp. 3-4).

Peters also expressed concern about the use of the concept of development in the report by stating:

How is such development to be conceived? In most books on child-development "development" is divided into physical, intellectual, social, moral and emotional aspects, as if social and moral development were devoid of "intellect," as if morality and the use of the intellect were free from passion, and as if emotional development was separable from thought and social awareness. This indefensible type of classification should surely be scrapped and replaced by a more logical division into forms of thought and awareness, each of which has its affective aspect. This would include scientific, mathematical, moral, historical, inter-personal, aesthetic, and religious forms of awareness; proper attention should also be paid to the developmental aspects of various forms of skills—"basic" and linguistic ones included.
What is urgently needed is a new approach to child-
development in which the logical aspects of these forms
of awareness and the values inherent in them are more
closely related to facts about the learning processes
of young children. This would imply abandonment of the
absurd practice, which is prevalent in Colleges of Edu­
cation, of curriculum courses being taught either by
subject specialists who have little experience of young
children or by education lecturers who have experience
of young children but only an embryonic knowledge of the
subjects. If anything calls for team teaching and the
pooling of knowledge, curriculum courses do. Some of
the more enlightened Colleges of Education are already
moving in this direction (1969, pp. 5-6).

Peters revealed his concern about the stress on self-
direction and self-chosen activities which were closely connected
with the ideal of individual self-development. He stated:

How far are we going to press the value of self-
chosen activities if young people overwhelmingly reject
scientific subjects in a highly industrialized society
which needs increasingly a vast array of technicians
and technologists?

Too little is known about how such autonomy indepen­
dence, and "creativity" is developed. It may well be
that a very bad way of developing this is to give chil­
dren too many opportunities for uninformed "choices" too
young. . . . The implication of all these points is
that it is essential for children to be initiated into
skills and bodies of knowledge which are a part of our
public heritage, before they can sensibly strike out on
their own (1969, pp. 10-11).

Finally, Peters suggested that educators must think seri­
ously about how children should be encouraged to stand on their
own feet and find their own way. He felt that it was not enough
to say that children should learn to be themselves at school;
educators must give them the equipment to find out what kinds of
selves they wanted to be. He felt that a great deal of infor­
manation could be imparted to a child which he could not possibly
discover for himself. Peters felt that too much emphasis on self-chosen activities might lead to a certain type of promiscuity among children. He pointed out that the old Aristotelian notion of the self-originated development of an organism, which was so popular with psychologists in the first part of this Century, has been transformed, especially in Piaget's theory, into a too exclusive stress on intrinsic motivation.

Peters expressed concern for the committee's statements in the report on non-compartmentalization of knowledge by stating:

"The Committee, predictably enough, made its obeisance to the fashionable view that knowledge cannot be split up into distinct slabs and that the curriculum should therefore be undifferentiated though, interestingly enough, little attention is paid to this conviction when in Chapter 17 "Aspects of the Curriculum" were set out in a traditional way with few suggestions for "integration (1969, p. 13)."

Peters concluded his critique with a consideration of the role of the teacher which he saw as the image of the child grower presented in the Plowden Report:

"... a child-grower who stands back and manipulates the environment so that children will proceed from discovery to discovery when they are "ready." There is so much wrong with this image that one scarcely knows where to begin in criticizing it. Most of what is wrong with it can be summed up by saying that it systematically ignores the inescapably social character of thought and language, of processes of transmission, and of motivation. The notion that children can peel concepts off the world without sensitization to selected aspects of it incorporated in a public language, that most of their interests are self-originated rather than caught from others, that children become "ready" by some kind of internal ripening without imitation, identification, and
instruction - all such notions are highly suspect. Most progressive educators such as Susan Isaacs and Dora Russell worked with small classes of intelligent children drawn predominantly from middle-class homes. I suspect that this idealized picture of the learning situation is largely an extrapolation from such special conditions.

. . . . Personally, I always associate the self-chosen type of curriculum with a supermarket, where the teacher stands around benevolently ensuring that the wants of the consumers are satisfied! But more seriously does not the Plowden image of the teacher tend to down-grade the role of the teacher at a time when the teacher should be occupying an increasingly important role? For in a pluralistic society, when there is no unified ideal that can be handed on by the priests, who else is there to stand between the generations and to initiate others into the various aspects of a culture within which the individual has eventually to determine where he stands? If the teachers are not thought of as, to varying degrees, authorities on this culture how effective are they likely to be in a society in which most of the pressures on young people are not in the direction of education (1969, pp. 15-17)?

Peters wrote that he often wondered whether the Plowden Report was not being altogether too idealistic in expecting many of the teachers to teach continuously in informal ways at the junior school level, let alone in the secondary school. He asked why they should subscribe to an either-or view of teaching at any level. His real objection about the Plowden picture of the teacher was its suggestion that there was just one ideal method of teaching which was usually contrasted with what he called the "old formal teaching and rote learning."

Peters concluded his presentation with the following statement:
The moral of all this is not, of course, that we should throw overboard all that has been learnt from "progressive" methods and revert to archaic systems of undiluted mass instruction. It is rather that we should do all in our power to help teachers to develop a critical, empirical, adaptable attitude to methods of teaching and encourage them to learn to think on their feet and experiment with different ways of teaching different types of subjects to different types of children. If only this critical, experimental attitude to teaching could be more encouraged we might soon cease to turn out teachers who thought that if they can only keep talking - or stop talking - then children are necessarily learning something, or teachers who practice something approximately to a free day without keeping a careful check on what in fact each child has learnt. Better still, we might turn out no teachers for whom "teaching" has become a dirty word (1969, p. 20).

Robert Dearden (1969) dealt with aims. He felt that a good statement of aims was lacking in the report. He stated that out of its 555 pages, the Plowden Report devoted just three and one-half to a discussion of aims. He indicated that a substantial part of even that portion was devoted to doubts, not quite as to whether it is right actually to have any aims, but as to whether there is anything to be gained from trying to state them.

Dearden suggested that since the Plowden Report was a work of recommendations it could not avoid assuming that certain things were educationally valuable. He stated, "If it does not state the aims expressive of these values, still it will not have escaped actually having them. They will simply lie, implicit only and therefore unexamined, scattered through the body of its recommendations (1969, p. 24)."

Brian Foss focused on other aspects of child psychology. He stated that psychology was most precise then predicting
behavior in rather artificial controlled situations and much less precise over the everyday behavior with which education is concerned. Foss felt that the report's recommendations could have been arrived at without considering any psychological evidence at all. He remarked:

The authors of the psychological sections have said rather little about teaching and learning, but dwelt rather on some parts of psychology which are relevant to a child's all round development, and specifically to the development of personality. In doing this they have concentrated particularly on the younger children (indeed on the pre-school child) and said almost nothing about, for instance, the social pressures which are so influential on older children in the primary age range. This emphasis is doubtless based on the contention (which may well be correct) that the early years are the formative ones. In theorizing and collecting evidence about these early years, educational psychologists tend to fall into two groups. The larger group favours a Freudian or Jungian or Kleinian framework, tending to take a clinical approach in studying "the whole child," and using ideas such as unconscious processes and family relationships in describing the child's development; while an understanding of cognitive rather than emotional or personality development depends on a study of Piaget's work. In contrast, there are those who prefer a more experimental psychological viewpoint, who look at development in terms of learning (in a wide sense of modification of behaviour through experience), and who may use one or more of the so-called theories of learning as a frame of reference. This kind of psychology is often more rigorous; its main disadvantage is that it does not help the teacher to view the child "as a whole," and indeed gives the impression that the child is a plastic and passive lump moulded by his environment. Despite this, experimental psychology is able to contribute, and the report has underestimated this contribution (1969, pp. 42-43).

Foss concluded that the psychology in the report was disappointing in two main respects--its lack of emphasis on environmental effects and on social motivational factors. He summarized as follows:
By taking the view that the child "must be allowed to develop" the authors emphasize the endogenous aspects of the child, about which the teacher can do nothing. Many children have a wretched home before coming to school, and have goals in life which teachers deplore. Along what lines should the child be allowed to develop? Luckily, when children come to school, their goals can still be modified, through reinforcement and through modelling on the behaviour of others. But at the top of the primary age range, the modelling is likely to be on other children. The writer believes that at this age the major problems in education are caused by inappropriate rather than inadequate motivation. Bruner (1966) has edited a report of a conference on psychology concerned with education, particularly primary education. It covers several areas of psychology which are very relevant to the subject of the Plowden Report. The reader is referred to a chapter by Kagan which presents briefly a useful analysis of the part played by motivation in a child's school learning. He concludes that, for every child who arrives at school with inappropriate goals, the "teacher must salvage this child" before he can learn anything. For this to be possible, we need to try a variety of techniques and keep our minds open to different theoretical approaches (1969, p. 54).

Basil Bernstein and Brian Davies presented "Some Sociological Comments on Plowden." They stated that the report, set out to encompass descriptively a huge field of practice in schools on the strength of its findings arrived at in the light of current evidence, recommended numerous changes. Bernstein and Davies opened their critique with the following statement:

The twin necessities of describing and recommending without offending seem to have induced in the report a lack of analytic rigour not conducive to good sociological explanation, the essential character of which is to "look behind" the publicly acknowledged reasons for our arrangements. To be quite explicit, the report, as Peters and others in this volume are ready to point out, regularly leaps from value to fact in respect of all of its central themes. It can be shown to be committed to a particular horticultural view of child nature and development and to a particular view of the teacher, school and curriculum which this commitment logically entails.
In general terms, this view comes very close to the semi-official ideology of primary education in this country, the most systematic exposition of which may be found in many colleges of education. Even if the manifest intentions for reform in Plowden come to nothing, therefore, its possible latent function as official reinforcement (better still, martyred official reinforcement) for such views must be brought out and the views exposed to examination (1969, pp. 55-56).

Bernstein and Davies suggested that the Council failed to show the interrelationships between the biological and cultural components of childhood. They felt that the recent changes which had taken place in the structure of the family as well as of the processes of socialization were not analyzed and examined in this study. They indicated that Plowden did not present evidence broken down by age, sex, and socio-economic categories which would allow further testing and study of role of class and sex in child development in the school setting.

The roles of society and the teacher were analyzed by Lionel Elvin. Elvin felt that the report failed to consider the positive role of the teacher and of society and the consequential failure to establish a rationale for the primary school as such. He made known his views when he said:

What really matters is the picture that the primary school teacher has of his or her professional self, for this will communicate itself quite surely to the class and the school. It is the plea of this paper that unless the teacher pictures himself as acting positively, yet without the wrong authoritarian note which has happily almost gone, the standards that we want to be transmitted will not be transmitted as well as they might be. An inadequate theory of what you are doing is bound to let you down even though your practice may in some measure remedy the defects in your theory. Our criticism of the Plowden Report (leaving aside, as we
have said, its often wise administrative proposals) comes to this, that in recent years although the practice of teachers has on the whole indeed been better than the theory that has often been given to them, there has been confusion and a resultant loss of power in the schools. By power we do not mean domination in the wrong sense; we mean power in the right sense, of positive educational functioning beyond being merely a catalytic agent.

The Plowden Report, unhappily, has not realized this need. It has left us where we were a couple of decades ago. No doubt, as Mr. Dearden says, school education is a continuum. But if we have divisions according to age, and they are specific enough for us to say a year should be added to the infant school and a year to the junior school in compensation, then what should be the primary school's distinctive "philosophy?"

I would say, very generally, that if the infant school is where the young learn through play, and the secondary school where they learn through work, then the primary school is where the transition from one to the other takes place. This must mean that it is in the primary school that the teacher increasingly acts, not just to put the young in "learning situations," but positively to transmit standards that we want to be passed on to the young. If this is true, then a report that for the most part simply projects the philosophy of the infant school upwards into the junior school is not going to help us very much. This unfortunately is what the Plowden Report has done. An opportunity has been missed (1969, pp. 102-103).

In contrast to the authors of Perspectives on Plowden, Sir Alec Clegg, Chief Education Officer of the West Riding of Yorkshire, Wakefield, England, stated:

Recently a very thorough report was produced on the English primary school, and one of the things that the investigators did was to analyze over one hundred factors which might contribute materially to the effectiveness of a child's education. Their conclusion was summed up in this sentence: "Variation in parental attitudes can account for more of the variation in children's school achievement than either the variation in home circumstances or the variation in schools."
Now if this is true, and I have no doubt that it is, then conditions are worsening not only for children who are obviously deprived and who are easy to isolate but also for a very high proportion of all children, and for two reasons. In the first place the generality of children no longer receive the essential care that they used to get, and in the second place the adult world sets them a worse example than it used to do. The generality of children are less well treated because values are not what they were. The child has to compete in importance with the television set or the car or whatever status symbol happens to prevail at the moment, and on the whole it is probably true to say that the child is talked to, sung to, and cared for, and, in the best sense of the word, disciplined less than his grandparents were when they were children. His parents to salve their conscience give him indulgence when he needs love. As for their example, they have created a world for him to be brought up in which violence, sexual depravity, and false values of all kinds abound (1970, pp. 8-9).

Sir Alec indicated that all of this created immense problems for the schools, and these are not problems of what children know but of how children behave. He asked, "How can changes in curriculum help in so vast a problem? How can they bring about changes in Behavior? Our beliefs in matters of this kind have often been, and to some extent still are, pathetic (1970, p. 9)."

He provided the following examples:

Our great grandfathers believed, for instance, that if one taught arithmetic from the Bible, somehow or other it would produce a moral in addition to a mathematical effect. The result was that children were asked such questions as: "There were 12 patriarchs, 12 apostles, and 12 evangelists. Add the patriarchs and the evangelists together and subtract the apostles, and what is the remainder?" Or perhaps better still (and this is a genuine example), "Solomon had 700 wives and 300 concubines. Add the concubines to the wives and state the result."

In order to make sure of producing the moral effect, we punished with the cane in England or the tawse in Scotland, and in many schools we still do. In England,
also, our understanding of what causes bad behavior in a child diminishes as the child grows older. The teacher who teaches a six-year old and finds him difficult knows the home must be wrong and says, "What a pity." When the same child is 10, his teacher inflicts a penalty. When he is 15, the teacher sees him as an incorrigible layabout. Yet all that has happened is that adverse pressures have worked on him for 10 years, and the facts with which the teacher has filled him have done little to help.

But there are schools which, in fact, not only manage to lay a sound foundation for the child's learning but are virtually without behavior problems, and such schools are to be found in the most drab and dreary and adverse of social backgrounds. What are their characteristics? As one who once taught on the principle, "this is what you have to do; this is how you have to do it; and I'll make it to see if it is right," I find the new approach almost a miracle. I can only describe it as I see it daily in classes of 35 to 40 children; I cannot say by what magic it is done (1970, p. 10).

Clegg asked, "Which school is more humane, the traditional subject-matter oriented school or the informal school recommended in the Plowden Report?" He responded to his question in the following manner:

The problem of educating in this way is that it demands a high quality of teaching and when the quality is not there the school is bad. Such a school may make a fetish of "activity;" there will be few children quietly at their books or pursuing work which demands calculations; children will find it difficult to concentrate for more than 15 minutes at a time; and there will be much mopping up of paint and clay. The teachers may well be sentimental: "We are not a show school. We are a muck and muddle school but we are all happy."

This is to be compared, of course, with the bad formal school where children work from fear, where sensitive children withdraw in the hope, often realized, of being ignored, where the least able are of no account, where memorization masquerades as learning, where only "the best" is on show, and where the pat-on-the-back is given to the brightest child who needs it least and is denied to the weakest who needs it most.
It is perhaps more interesting and more profitable to compare the best formal school with the best informal school. In handwriting, that is to say in actual calligraphy, as in spelling there may be nothing to choose between them, but in the powers of expression the informal school gains every time as it does with all the other expressive activities—painting, clay modeling, and dramatic work. In the mechanical manipulation of figures, there may again be little difference but in tackling a mathematical problem the informal school will be superior. In the memorization of information, the formal school may "have the edge" but in assessing a problem and in finding a solution to it whichever the field, the children in the informal school are likely to be well ahead.

To come back to the original problem, which school is the more humane?

If humane means the ability to memorize facts, to respond at once to a drill or instruction, to do as others do, to accept that some are successful and others are failures, and to behave well under supervision, then the formal schools are more humane. But if humane means the ability to think for oneself, to initiate, to imagine, to work without supervision, to be insensitive to the needs of others, and to conduct oneself with concern and compassion for others whether supervised or not, then the informal schools are more humane (1970, p. 12).

Summary

This chapter dealt with major areas of primary education for young children in England. Significant aspects of the historical development of primary education were identified. The philosophy and rationale which form the basis of reform were identified through description of aspects of the present program. Major theories of learning upon which program development has been based were presented. The role of the teaching staff members and their relationship to the learner were described. Factors which tended to free the teacher and the learner were
identified. Those curriculum and instructional areas of the British program which were considered most innovative and potentially successful were identified and described. Aspects of the existing program which have caused concern and criticism were identified. Sir Alec Clegg's answer to criticisms of British education concluded this chapter.
CHAPTER 3

ENGLISH PRIMARY EDUCATION AS VIEWED
BY AMERICAN OBSERVERS

This chapter includes an analysis of recent literature written by American educators about British education. The content analysis was based upon those areas identified and described in Chapter 2. These included the areas of historical development, philosophy and rationale, theories of learning upon which program development was based, the role of the teaching staff members and their relationship to the learner, factors of the program which tended to free the teacher and the learner, curriculum and instructional areas of the program which were considered as most innovative and potentially successful, and identification of those aspects of reform which have caused American authorities greatest concern or criticism. An additional category was included as a part of the content analysis. This was the area considering elements of the British primary program which American authorities identified as relevant for transfer to early childhood education in the United States.

Method of Analysis

Research examples of content analysis included in Foundations of Behavioral Research by Fred Kerlinger (1964) provided
direction for the method of analysis developed in this study. The selection of content categories was based upon those used as guidelines in the study of British education. An additional category was included in the survey of American writers.

For the purposes of this survey the following procedure was established. Each published article was considered separately. No attempt was made to pool materials published by the same author. Each article or book was surveyed for content. A coding system was used to identify the amount of content included about each area listed for study. The following symbols were used for recording the findings in these areas of study:

(-) not identified by author

(X) identified by author (with little or no development)

(XX) identified by the author (with some development)

(XXX) identified by the author (with extensive development)

No attempt was made to suggest hypotheses or to test hypotheses from the survey of this material. Some conclusions have been drawn from the study based upon the relative frequency of reoccurring aspects considered by authors as well as the extent specific areas were developed by authors.

Kerlinger (1964) stated that whether a researcher's interest is basically theoretical or basically practical he has to steep himself in these materials. He indicated that the first
purpose of the use of available materials was to explore the nature of the data and the subjects to get insight into the total situation.

Although many sources were explored for this study, forty selections were identified as appropriate for inclusion in this survey of British education as viewed by Americans. Several authors listed in the survey had published articles in magazines and bulletins before expanding some of their materials into book form.


The professional roles of the authors included those of preschool teachers, elementary teachers, college professors, professional writers—and in one source, a lay magazine reporter. Some authors reflected deep feelings and reactions, others provided direct observation with little or no personal evaluation. All appeared to suggest that what they had to say was significant, either because of current interest in British education or because of their concern for the state of education in the United
States. The "Survey of Content Analysis of American Authors" is presented in Appendix C. The following is a summary of the content analysis included in the survey.

**Historical Development**

Historical references were less frequent than descriptions of current practice. Even so, eleven authorities made some reference to aspects of the historical development of British education. These authors tended to identify those aspects of history which they viewed as significant in contributing to present programs.

Specific reference was made to the following aspects of historical development: the gradual evolving change in primary education, the ongoing influence of those people responsible for teaching children and training teachers, the publication of state documents supporting certain aspects of education, and the impact of findings in evaluation of young children during World War II.

An interview by Courtney Cazden in 1967 with Miss Susan Williams, headmistress of Gordonbrook Infant School, was transcribed in *Infant School* (1969). (Gordonbrook was recently filmed by Lillian Weber for use in training in the United States). Cazden's initial questions caused Miss Williams to recall infant education when she was a child. She was quoted as saying:

> When I was a child, and until quite recently - in fact, when I went to Gordonbrook in '53 there were still some rooms with stepping. The classrooms have a flat place in front where the teacher walks around in her
little special - apartment, shall we say? That is how it used to be. Then, towards the children - where the children sat - there would be a series of steps. The steps went right across the classroom and they would go up about six inches at a time . . . . and the desks were screwed down onto each of these steps. The teacher stood in front, and she could see the children, because they were all at different levels; she could see the children at the back as easily as those in the front. That was called "stepping." And as you went up and down the rows to see the children, many a time I've stumbled down a step - you're in for a nasty turn on those. Finally we had them all taken away. But I've even done this work in a classroom with stepping and sloping desks. . . . So, there's nothing that people can say we can't manage. It can be done (1969, p. 1).

Dr. Cazden included the reference Miss Williams made to her work as a teacher during the war years where children came and went, yet a learning program continued for the children. Charles Silberman (1970) developed the significance of this period further in the historical review of British education in "The Case of the New English Primary School" in Crisis in the Classroom.

Silberman suggested that throughout their history, British teachers had developed an "instinct" about teaching and learning. This, he felt, was heightened again during World War II when urban teachers and their pupils were evacuated due to the bombing raids. Some teachers had to rethink what they were doing. He asserted:

The rethinking was made all the more necessary by the fact that the teachers found themselves with the children twenty-four hours a day; forced into a new relationship with their students, they began to see them in a different light. Learning was clearly something that went on all the time, not just during school hours, hence the
teachers were persuaded that it is fruitless to try to segment and compartmentalize children or learning. They were even more persuaded when the war ended. Back in their traditional classrooms, teachers found themselves confronting a roomful of children who had been dispersed all over England, some of whom consequently could read fluently, some poorly and some not at all. Faced with a range of backgrounds, knowledge and ability several times the prewar norm, teachers once again found it necessary to improvise (1970, p. 214).

Silberman (1970), Barth (1970a), and Barth and Rathbone (1969) made reference to the evolving changes in primary education in England. All suggested that change had not been sudden, that present practices in informal education really had not been a radical departure from the past. Silberman (1970) attributed evolving change to the people responsible for teaching children. He stated that it had developed gradually over the last half century, out of the insights and experiments of innumerable teachers, "heads" (principals), local and national school inspectors and advisors, and college and university professors. He indicated that the roots went all the way back to the infant school Robert Owen established in New Lanack in 1816.

Silberman quoted Sybil Marshall of the University of Sussex who, like Susan Williams, was asked by an American to look back over thirty or more years of teaching. Sybil Marshall concluded that the so-called revolution came about because:

... the teachers in infant classes everywhere began to act on a professional instinct that told them a happy child actively involved in something he wanted to do was getting more out of his educational opportunities than a passive, bored child politely resisting most of
the instruction dished out to him in 30-minute parcels (1970, p. 214).

Silberman, as others, gave recognition to the official encouragement of this "professional instinct" in the publication of the Hadow Committee Report of 1931.

Identified as most significant in the history of British education by Lillian Weber was that of freeing heads from fixed or prescribed syllabus. In her description of English infant schools in The Center Forum, Weber (1969) indicated that this was confirmed in the Hadow Report as well as in the Primary Schools report of 1959 by the Board of Education.

Lillian Weber indicated that it was significant to report that the only uniformity of practice which the Board of Education desired to see in the teaching of public elementary schools was that each teacher should think for himself such methods of teaching as may use his powers to the best advantage and be best suited to the particular needs and conditions of the school. Weber in both her articles and book gave credit to the heads, the work of local inspectors, and Her Majesty's Inspectors as significant forces creating similarities within this freedom of practice.

Featherstone also made reference to the importance of the changing role of the government inspectors. He made reference to the historical shadow of the I.Q. and achievement tests which lay heavy on British schools in the past where children were required
Evelyn Weber (1970) made reference to the 11+ examinations in her description of the English infant school. She stated that the curriculum revolution going on in the primary schools of England could not be thought of within the theoretical framework which has developed in the United States since other psychological and sociological forces have been at work. She pointed to the graduate elimination of the 11+ examination as a significant step in British education which, obviously, lessened pressures for isolated skill performance in the earlier grades. She remarked:

In the past, primary education has probably been more inflexible than in the United States. For years the insistence that all children take the 11+ examination dominated the curriculum and, indeed, children's lives. For at the age of eleven, children were sorted for subsequent educational experiences. Those who were successful on the examination would enter the grammar school with the hope that continuing success could lead them ultimately to a university education. Children who did not succeed on the examination, sometimes estimated at around eighty percent, could enter secondary modern schools which led either to terminal education at the age of fifteen or to specialized institutions for vocational training. It is obvious that children's concepts of themselves, as well as parental ambitions, were deeply involved. Recognizing the emotional traumas caused for children and the adverse educational efforts of allowing a test situation to set the goals of education, educators have abolished the 11+ examination in some geographical areas. Leicestershire led the way in developing a flexible, personalized education which places stress on the meaning of experiences for children (1970, p. 158).
Reference was made again to the Hadow Report of 1931 on the status of education with recommendations for future change in the article "The British Infant School, A Model for Early Childhood Education" by Wilson, published in the 1971 Claremont Reading Conference Yearbook. In this description of English education, it was stated that the Hadow Report was the force influencing the Education Act of 1944. This act drew attention to the importance of the environment as a major learning factor. It was reported that through the Education Act of 1944 schools were empowered to provide an environment in which children could grow imaginatively as well as intellectually.

**Philosophy and Rationale**

The survey of the British publications reflected philosophy and program rationale based upon the existing structure of nursery and primary education, the nature of the child, and recent literature on how children learn. Repeated reference was made to the belief that the school was a community in which children learned to live as children and not as future adults. The significance of the physical and social environment in providing opportunities for such living was given high priority in all British materials.

Thirty-four of the forty American sources made reference to the relation of the children and learning to the environment around them. The description of classrooms and school programs by American authors included in the content analysis reflected
concern for identifying a philosophy and rationale for teaching and learning. Theories of learning were not always clearly identified or defined. The "structure" and organization of school environments were described in detail by those authors identified as providing extensive development of philosophy and rationale. These included Ronald Barth (1970b), Courtney Cazden (1969) in her selection of responses to an interview with a headmistress, Joseph Featherstone (1971), Beatrice and Ronald Gross (1970), W. P. Hull (1969), Casey and Liza Murrow (1971), Vincent Rogers (1969), Charles Silberman (1970), and Lillian Weber (1971a).

Ronald Barth elaborated on seven statements regarding children's enjoyment of school. All were related to aspects of learning to live with purpose and trust with peers and adults in the classroom. These were:

1. A child's enjoyment of school is related to the number of sufficient options available to him each day.

2. A child's enjoyment of school is related to having significant choice in determining the activity in which he will be engaged.

3. A child's enjoyment of school is related to his being able to pose his own problems and determine the manner in which he will pursue them ... with respect to the materials and activities available to him.

4. A child's enjoyment of school is related to the extent he is permitted to collaborate with his peers.

5. A child's enjoyment of school is related to the extent to which he is trusted by adults.

6. A child is likely to enjoy school to the extent that it has a climate of consistent order.
7. A child's enjoyment of school is associated with the extent to which explicit and implicit comparisons between his performance and the performance of others are minimized (1970b, pp. 196-198).

Family grouping, the practice of placing children of ages five to seven in one classroom and those eight to eleven in another, provided children the opportunity of being members of classroom families. Family grouping was described by Barth (1970b), Cazden (1969), Cook and Mack (1969), Featherstone (1971), Hertzel (1970), Hull (1969), and Silberman (1970). These authors suggested that each child's contribution was considered just as important to the group as those of any other child. Children worked together in groups according to need or interest rather than being placed in groups according to ability.

Featherstone (1971) felt that kindergarten and the first few years used together would afford children an extended time in which to learn to read and write and work with numbers. The multi-level approach to reading, writing, and mathematics provided success opportunities for all children in the group.

Attention was given by those authors checked in the content analysis who gave attention to philosophy and rationale which included the organization of the day and of the activities of children. Observers reported opportunities for learning to live appeared to be built into planning with and for children. Children were provided opportunities to make choices and to establish purpose in the tasks they chose to do.
Cook and Mack suggested that what seemed constant through the various schools was the quality of the relationship between people. They saw every individual treated with dignity and pointed out:

Between teacher and child, teacher and teacher, child and child, teacher and head, head and child, head and educational authority - at any level, the relationship is one of mutual respect. . . . Growth through understanding rather than change by edict, is accepted practice as well as theory (1969, p. 143).

Ruth Flurry summarized her observations and conferences with staffs of infant schools in an article titled "How Else?" She indicated that her impression reinforced a philosophy of early childhood education based on principles of learning which included the following:

Children learn as individuals, at different rates and with different styles.

Children learn from each other.

The drive to grow and learn can be capitalized on through a rich, consciously organized environment which allows for much free choice of appropriate materials and experiences.

Materials and experiences appropriate for young children's learning include much of the concrete and sensory.

Rigid expectations and arbitrary standards do not provide the best motivation for learning.

Respect for the individual and choice within reasonable limits result in a high degree of independence of teaching (1970, p. 158).

Hull's report of his visit to Leicestershire included sharp contrast of American and British school programs. His analysis of what he saw provided direction toward a philosophy
of teaching and learning which was reflected in most descriptions Americans made of British programs. He stated:

The Infant Schools have a valuable heritage which has been growing for a number of years, a heritage which includes a wide range of interesting activities and materials as well as a spirit which gives vitality to what goes on. Such conditions do not come about automatically, but they do seem to be the natural outcome of regarding children as individuals capable of taking an active part in their own learning, instead of as disruptive creatures who need to be managed and guided through series of detailed tasks. We know of a few outstanding nursery and kindergarten classes in this country which are successful largely because of sensitive and skillful teachers, but these teachers must work in opposition to the philosophy which prevails in the grades above them. It was quite significant, we felt, that in Leicestershire the pattern which has proved so successful with Infants has been extended beyond the classrooms of those few, rare teachers who would probably manage to teach well in any framework. It appears that when the educational climate is favorable and a good model is available teachers who are not themselves especially gifted may be able to run a good program (1969, p. 5).

Hull continued his comparison of modern infant schools with traditional schools where emphasis was placed on "Capital T Teaching." He concluded:

The Leicestershire schools have moved away from traditional patterns of class instruction. There is a great deal of interaction among children who may be working together in pairs or in small groups. There are few large group, teacher-directed discussions in which, almost by the nature of things, the game becomes one of trying to guess what the teacher is thinking. If one is genuinely concerned with the intellectual development of children, rather than with preparing them to "look good" on tests, it is necessary to acknowledge that formal class teaching, even by skillful teachers, must have a limited role in the primary school. Learning proceeds much more effectively when the child is actively involved in what he is doing, as the Infant Schools have so clearly demonstrated. Such involvement does not come about when there is an emphasis on Capital T
Teaching any more than it does when children are encouraged to race through quantities of worksheets (Hull 1969, p. 13).

Theories of Learning

Only sixteen of the forty selections surveyed made reference to theories of learning upon which British programs were based. Among these sixteen references, four articles included extensive development of learning theory and the remaining twelve included reference with little or some development.

Ronald Barth (1970b), Joseph Featherstone (1967a, 1971), Beatrice and Ronald Gross (1970), Casey and Liza Murrow (1971), and Charles Silberman (1970) all gave extensive attention to learning theory as a base for program organization. The research of Jean Piaget was identified as providing support for the use of concrete materials and experiences in the classroom. Featherstone indicated, as did others, that children were encouraged to talk in the good British primary schools because, among other things, it seemed that they made better intellectual progress when they could speak freely about what they were doing and when the teacher was ready from time to time with questions and appropriate terms. Further attention to the significance British and American authorities gave to the influence of Jean Piaget upon program development was given extended consideration in Chapter 4 which analyzed the learning theory of Jean Piaget.

Speculation might be made as to reasons American investigators did not give more attention to identifying learning
theory upon which British program development was based as well as recognition of those persons responsible for the development of such theory. Generally, more attention was given to a description of the role of teachers and staff members and their relation to the learner. Also, of interest to most authors were those factors which tended to free the teacher and learner. Perhaps a description of on-the-scene observation was considered more significant than a consideration of why the environment which often was described in detail appeared to be conducive to child involvement and learning.

Role of Teachers and Staff Members--Their Relation to the Learner

Thirty-two of the forty references surveyed included specific reference to the role of teachers, staff members, and their relation to the learner. Of these thirty-two, only eight gave extensive attention to aspects of these relationships. Others provided some or little development. Whether little or extensive development was given to this area, each author included recognition of the importance of these relations in the learning setting.

American authorities who described the British schools tended to agree that children seemed to enjoy what they were doing. Silberman (1970) indicated that in his visits it was evident that children were happy and actively engaged in what they were doing. Barth (1970b) summarized his review of verbal and
written reports of visitors to British schools in an article entitled, "When Children Enjoy School, Some Lessons from Britain." He identified some characteristics of British schools that tended to be associated with children's enjoyment of schools. Among those considered significant was the role of the teacher. Barth indicated that teachers did not pose problems for children to solve. Instead, the child posed his own problems. The teacher's role was one in which he provided the conditions that make a child's exploration likely and fruitful— that would encourage children to ask and pursue their questions. The teacher would respond to the initiatives of children—supplying equipment, answering questions, helping to hold a wire—than forcing children to respond to his directions.

In Infant School, Cazden quoted Susan Williams as she described what she felt to be some of the major differences between traditional classrooms and those at Gordonbrook in terms of the kinds of the things the teacher and children did. Miss Williams was quoted as saying:

The difference, of course—the great difference—is that the teacher doesn't go along saying to herself, "This is what I'm going to teach the children today." She goes to school prepared for anything. Because it's going to come from the children. She doesn't say to herself, "I'll go today and I will teach the children addition,"—shall we say, just for example. She goes to school, and addition might come out of something which the children are doing. A child might be building with bricks, and he'll say to another child, "I want 12 more bricks to finish this." We seize on any opportunity, and then, when counting is begun, we continue with it. You might have the children counting in 2's,
or you might say, "There were two girls here, and two girls over there." But let the children discover it for themselves. "How many girls are here?" "Two." "How many little girls over there?" Adding the two's. Not going along and writing on the blackboard "2 + 2 is __." And then saying to the child, "Copy that down. Now take out your counters. Do you see?" It's not teacher-directed. It is child-directed. It's what happens - it's happening constantly. You can't shut your eyes to it (Cazden 1969, p. 2).

She continued by describing how the teacher might begin to help a child become aware of colors. She stated:

A child comes along and says, "Your coat is the same color as mine." Well, then, what a lovely talk you have about colors. You can - if the child is ready for it - make up a book about colors. You can cut out pictures of ladies dressed in yellow dresses and that can be the yellow page. And the child will really get it established, and the green page, and the red page, and so on. And you can have "My Book of Colors" so that when they want to do creative writing, instead of coming to you and saying, "How do I spell yellow? they go to the color book and the child discovers how to spell 'yellow'." It's a part and parcel of living - learning. The child educates himself, really through his own needs, through what he discovers (1969, pp. 2-3).

Cazden chose to include another response made by Miss Williams to a question about major differences between traditional classrooms and Gordonbrook:

Another difference I would say with this method is that you can see when the child is ready. The method as we used to have it - you took it whether the child was ready or not. But now the children are doing different things in the classroom. They select what they want to do. And they are learning from materials they have selected. From each child, the teacher - the teacher who is aware - can discover something and she can enrich that child's knowledge. But she's got to be aware. I think that is one of the big differences (1969, pp. 3-4).

Casey and Liza Murrow (1971) described the teacher in a good English school as primarily concerned with the full
development of each child. They observed that the teacher hoped to introduce the child to experiences that would help him to think clearly and imaginatively, to discover the pleasure of learning, and to understand himself and others more fully. They saw her as encouraging a creative approach to problem solving and to opening his eyes to the world beyond school. They felt that because the child took an active role in learning he established a firm relationship with the teacher. They observed that issues of order and control were seldom spoken of in good infant classrooms.

Ann Cook and Herbert Mack reflected on their visit to British schools. They felt that what was perhaps most impressive about the English system was its commitment to the individuality of the child. They stated, "The English would no more insist that all children begin to read or to add at the same age than we would expect all children to begin walking or talking at the same age (1969, p. 141)."

Cook and Mack described the teacher as one who helped the child cope with the environment of the class and developed the kinds of disciplines he needed to function effectively. They saw the teacher as one who became a facilitator, a person who exercised discretion regarding the choice of materials he brought into the classroom and the way he helped the child make use of these materials. The teacher set an atmosphere in which children moved forward in inquiry-based pursuits.
Most American authorities stated that the teacher seldom was seen with the entire group before him. The teacher moved around the classroom from one group to another, from one child to another making suggestions, demonstrating, exploring, and asking questions.

Most American educators described the obvious trust the teacher placed in children. Barth indicated that children tended to respond to genuine expression of trust with positive, mature, productive, and constructive behavior. Cook and Mack (1969) suggested that the most difficult task of the teacher was to decide when not to intervene in a particular situation.

Barth emphasized that British schools were not laissez-faire places—"where anything goes." He indicated that the teacher knew and the child knew that an authority was in charge, that the adult—no matter how personal and supportive he might be—was that authority. Barth asserted:

In many classrooms only two rules exist: no destroying of equipment; no destroying or interfering with the work, play and activities of other children. These rules seem sufficient for establishing and maintaining a climate in which learning can flourish. (A common "punishment" for infractions is removal from the privilege of working with materials and with other children until such time as the child has a clear plan for what he will do.) Fewer rules may threaten the minimum order they are doing. But a larger number of rules suggests that an authoritarian rather than an authority is in charge (1970b, p. 198).

Hull reported in his visits in Leicestershire with David Armington in 1964 that they found class after class in which the children had considerable freedom and in which there was seldom,
if ever, any need for the teacher to step in to control behavior. Hull suggested that such an atmosphere presented quite a shock to the American visitor who was accustomed either to the volatility of children who had been given apparent free rein or to the seeming docility of those whose every action had been rigidly controlled. He described the children they saw being purposefully involved in what they were doing, that they were capable of sustaining their interest and energy over long periods of time with little or no reference to the teacher (Hull 1969).

American educators, generally, described the ways in which children talked together freely and often worked together in solving problems. Barth felt that a child's enjoyment of school was related to the extent he was permitted to collaborate with his peers. American educators viewed that in British schools this relationship between peers was considered by adults as a valuable learning experience for the child and his peers. Barth summarized this relationship by stating:

The quite natural desire for a child to make overt what has been a private learning experience has the effect not only of extending learning and conceptual development but also of cross-fertilizing ideas. Because spontaneous cooperation and collaboration are encouraged, one learning experience is always leading to another (1970b, p. 196).

Lillian Weber described her visits to nursery schools and infant schools in England in The English Infant School and Informal Education. One section included a description of the relationships of children and teachers. Weber observed:
Talking was easy, whether between two adults, a child and an adult, or two children, and except at the short group period, always individual. Everywhere I saw adults stopping and talking with this child or that one about his building, or a puzzle, or the construction. A child was encouraged by this immediate personal response to ask questions, to chat. Every lunch table was set up in a small grouping to encourage conversation, and with prior knowledge by the teacher of many details of the children's lives, so that conversation could be supported (1971a, p. 35).

Lillian Weber also observed that listening was encouraged. She suggested that the teacher had an expectation of being listened to. She indicated that children had but little to listen to in contrast to how often the teacher stopped to listen to the children. She felt that teachers considered children as individuals saying important things. Children were "talked at" minimally.

Some of the American reports reflected a consideration of the importance of the tone set by the headmistress. Lillian Weber pointed out that the head was the "mainspring;" through the example of her own activity, she set the standard of relationships--of teachers to other teachers and to student teachers, to parents and to children. Silberman (1970), Wilson (1971), and Weber (1971a) all provided evidence that the headmistress knew each child. The headmistress knew things about the child's family as well as his ongoing school activities. Children had free access to the headmistress as she moved through the school stopping to assist children in their work or stopping to chat with individual children.
Cook and Mack aptly summarized the role of the teaching staff and the learner in the following statement:

What seems constant throughout the various schools, however, is the quality of the relationship between people. Every individual is treated with dignity. Between teacher and child, teacher and head, head and child, head and educational authority - at any level, the relationship is one of mutual respect. A concrete example of this quality is the increased use of "advisors" rather than "inspectors" or "supervisors" sent by the authority to visit classrooms. Growth through understanding rather than change by edict is accepted practice as well as theory (1969, p. 143).

Factors Which Tend to Free Teacher and Learner

Thirty-five of the forty references surveyed included factors which tended to free the teacher and the learner. These appeared to cluster around four specific areas identified as qualities of human interaction and involvement, curriculum and program development, opportunities for pupil involvement and choice, and the movement away from the use of standardized test results in pupil rating and placement.

Qualities of Human Interaction

Most authors made reference to their observations of children freely working and talking together as they participated in activities throughout the classroom and school. Teachers and heads were seen as facilitators for such interaction and in working with individuals and small groups a major portion of the day.

Casey and Liza Murrow described the beginning of a typical school day in infant schools:
The beginning of the morning in infant schools sets the tone for the day. The visitor can sense an open and relaxed atmosphere that makes these remarkable places for everyone involved. In the first minutes spent in such a school, it is evident that the major concern is the development of relationships between child and child, teacher and child, and the teacher and teacher. The sounds of children talking, working, and winging throughout the building are themselves indications of the vibrant life of the school. The morning is soon under way (1971, p. 21).

Ann Cook and Herbert Mack presented this view:

A striking feature of the English classroom is the quality of student interaction. Students talk and help one another throughout the day. Groups of children form, dissolve, and regroup depending on the activity, the interest of the child, and the supportive role of the teacher (1969, p. 142).

Trust of children was given repeated attention in surveyed materials. Hull described his visits to schools in Leicestershire County during which he soon became accustomed to the patterns of organization which allowed children much greater freedom and responsibility than is traditionally granted them elsewhere. He included many descriptions of his observations. The following quotations reflect his feelings about what he saw.

One of the startling experiences which Dave Armington and I had shortly after our arrival in Leicestershire was to watch children coming to morning assembly in an Infant School. More than four-hundred five, six, and seven-year-olds walked into the main hall from their classrooms, alone or in small groups, found places for themselves on the floor, and sat talking with each other during the ten minutes before the start of the short religious service. The children did not come into the hall accompanied by teachers; they did not sit according to classes or any other prearranged plan. The teachers arrived after most of the children and sat on chairs around the outside of the group. Occasionally, during the waiting period, children would move from one place to another. The noise level was low. There did not
seem to be a single word from any of the teachers for the purpose of restraining or controlling the children; there was no need for such measures. The scene reminded me of an adult audience waiting for the beginning of a concert. When it was time for the assembly to begin the children, well aware that something was about to happen, stopped talking, though we could not detect the signal to which they were responding--perhaps it was merely that everyone had now arrived. I had never before seen a community of young children behaving with such freedom and self-restraint. They demonstrated an awareness about the group and a sensitivity to it, together with an ability to control their own behavior. I have never come across this combination of characteristics in a comparable group of American children (1969, pp. 1-2).

Hull continued with his description of the quality of human interaction:

In some schools children mingle freely with each other outside of the classroom, without respect to age. The assumption that children must spend most of the day in a self-contained classroom with other children their age has been fading in the best of these Infant Schools, with the result that children have a sense of belonging to a much larger community than that of the individual class. In a few Infant Schools which we visited children are not assigned to age-groups at all. Rather than forming separate groups of fives, sixes, and sevens, these schools have vertical of "family" groups encompassing the entire Infant age range from five to seven and a half. There is a vibrant quality, reflecting deep involvement in what is going on and contributing to a largeness of spirit in the Infant Schools which we visited (1969, p. 2).

The quality of total staff and student interaction was noted as Hull described the lunch period:

Many infants stay for lunch. At some Infant Schools the older children, seven-year-olds, help with the lunch routines, setting up and putting away chairs, laying out silverware. On occasion there will be too few teachers for all the tables, and the older children may help to serve the younger ones. The kitchen staff will also help around the hall. It is interesting to note that in these schools, and others at both the Infant and Junior levels, the kitchen staff is not isolated. Often the
women will be sought out by children for help with spelling words and other academic problems. Practices such as this seem to have evolved naturally out of an atmosphere in which adults and children alike are accepted in their own right and valued as members of a meaningful community (1969, pp. 2-3).

Lillian Weber (1969) commented on the intense involvement of children in the running of the school—through errands, collecting of milk money and dinner money, marking of the register and helping to prepare material. She felt these became a steady stream for keeping fresh and vital the ways and means of communication.

Curriculum and Program Development

Lillian Weber indicated that each infant head she met spoke of great freedom and regarded, almost with horror, the idea of a "fixed, prescribed" syllabus, the idea of schools functioning in the same way. She stated, "The headmistress felt free of control and free even to interpret aims in her own way. It was not only a feeling of freedom but an active freedom (1969, p. 2)."

Most of the American materials surveyed made reference to the lack of "time-tabling" or rigid scheduling in daily program and specified content to be introduced and covered during a specific period in the child's school life. Lillian Weber observed:

There seems to be no syllabus controlling what work has to be covered nor at what time. The children come in one by one and start doing things. At any number of points in the day, an astonishing amount of writing is going on, or exploration of shape and size. Writing and reading seem to be simultaneous, and standards of
spelling seem to be relaxed. Children are not at all worried about whether they are right or not, they try. There seems to be no prescribed standards of achievement. A child is not competing. He is busy increasing his own growth (1971a, p. 65).

Evelyn Weber in her study of early childhood education observed that the headmistress or headmaster in England had great autonomy, not only in his or her own role, but in making decisions about the curriculum of the school. She stated, "There is an actual freedom for 'heads' and teachers to develop curriculum as it is appropriate for the children in their school. Most repudiate the idea of a prescribed syllabus for all schools (1971a, p. 159)."

Opportunities for Pupil Movement and Choice

All publications starred in the section of the survey (Appendix D) relating to factors which tended to free teachers and learners included descriptions of the wide range of choices for children available in infant school classrooms. Mention was made of the respect teachers gave to the child's choice no matter how frivolous this might appear at the moment.

Ann Cook and Herbert Mack described infant schools and classrooms they visited in much the same way as other authors included in the survey described their visits.

Children move freely from one activity to another (often from one classroom to another), sit in the corridors, or lounge on the floor of a headmaster's office. The classroom is a collage of sand, water, blocks, pretty books, colorful wall paintings, plants, cooking pans and dollhouses (1969, p. 140).
These authors saw children participating in activities which provided opportunity for continuing independent investigation:

... children frequently work in small groups or as individuals exploring, building, reading, listening, or discussing. They wander from one "activity bay" to another, reading a book, writing a story, "selling" milk to classmates in a model shop, designing the sections of a wall mural, or following a series of teacher-prepared task cards (Cook and Mack 1969, p. 141).

According to Lillian Weber, the growth of skills was entwined in this kind of school living.

In the free, self-chosen movement of children through all areas of the school, in the movement of teachers and headmistresses to children to help them in their activities, skills are not precluded; rather the activities seem to foster skills, giving the children something to talk about and something to write about (1971a, p. 65).

Weber continued:

In the majority of schools, even where activity and skills were separated, free movement was characteristic of every activity period, and a good deal of movement existed during a skill period, thought to a lesser degree than were timetabling produced a freer and fuller use of the whole school. Children moved about to exchange apparatus, children talked to each other over their work, or got up to get something or to look at something. They were not assigned to permanent seats which could define their area of function (1971a, p. 101).

Interaction was described by Weber as,

... reflected in both movement and responsiveness, an inevitable outgrowth of organizational adaptations resulting in the free day and the use of the whole school. Movement that had the effect of freeing the children and freeing the teachers was so typical of the infant school that exceptions stand out. Even in schools with little movement of children there was movement of teachers and headmistresses to the children,
since in all schools both staff and children were working simultaneously at different things (1971a, p. 101).

Movement Away From the Use of Standardized Tests

Repeated reference was made to the movement away from the use of standardized test results in pupil rating and placement.

Featherstone gave his viewpoint on this movement:

The shadow of IQ and achievement tests lay heavy on British schools until recently and reform has been linked to a partial lifting of that shadow. The pressure has eased most in the few authorities which have abolished the "eleven-plus" examination which used to separate English children at the age of eleven into goats and sheep; a small number of goats went to a "grammar school" that prepared them for a university, while the large number of sheep were sent to a "secondary modern school" that frequently prepared them for nothing. . . . Most British educators are ready now to admit that the 11-plus was fearfully wasteful of talent and that a test at that age is not a sound prediction of a child's future - except that it becomes a self-fulfilling prophecy with children defined as stupid coming to act stupid (1971, p. 23).

The spread of informal methods of teaching, the focus on individualization, the organization of schools in a more open manner are factors causing the elimination of the use of ability grouping defined as "tracking" or "streaming" in Britain. Among those who reported on this was Featherstone, who wrote:

The Plowden Report which favors "unstreaming" cites a survey of tested differences between formal and informal schools. It suggests that in terms of measurable achievement, children in tracked schools do slightly but not much better than children in informal schools where tracking has been abandoned. These are, as I have mentioned, grounds for discontinuing this finding; formal schools train children to take achievement tests, whereas informal ones teach more important things, and we
have evidence that the differences in test scores wane as the children grow older (1971, p. 40).

Featherstone made note of another defect of tracking when he said:

... it ignores the extent to which children learn from each other, slow children learning from the quick, and the bright ones, in turn, learning from the role of the teacher they must adopt with the slow. This is most evident in the small number of schools that use family, or vertical grouping where there is not only no grouping by ability, but no grouping by age and every class is a mixed bag of older and younger children.

Yet it makes little sense to condemn tracking unless teachers can be shown alternatives to formal classroom teaching. This is where the pedagogical bite to the primary school revolution is so impressive. When a British school stops tracking it is not simply returning to the past; it is shifting to a different definition of the roles of the teacher and student, and setting up a new kind of classroom in which students are trained to work independently. With the blessing of the Plowden Report fewer and fewer infant schools track, and it is more and more common for junior schools to abandon tracking in the first two years, and in some cases in the third. How far this trend will go depends on the impact the primary school revolution makes on the secondary schools. One survey in the Plowden Report shows that teachers who used to be overwhelmingly in favor of streaming as a general policy for primary schools are coming to approve of unstreaming. The reason, clearly, is that they are beginning to see workable alternatives (1971, p. 41).

Lillian Weber included in her book, *The English Infant School and Informal Education*, a section on individual differences--IQ and streaming. She stated that all of the unique individuality of a child could not be defined by a test for intellectual function, and in the infant school the provision for intellectual function was only a small part of the provision for individual difference. No matter what his IQ, the school was
committed to support the continuity and progress in a child's development, its uneven and individual pace and pattern, its wholeness—emotional, social, and intellectual. Weber felt that the organizational adaptations made to support this development led to the truly individualized and flexible infant school program which did not need streaming by IQ to provide for individuality. She concluded:

Acceptance of the fact of individual difference is, indeed, so much a part of present informal school practice that, even without the reminder of this fact from IQ testing, nothing would lead the English to what has been called a "naive" environmentalism, and expectation of a common product, common goal, prescribed as core curriculum, or prescribed standard. In their broad context IQ is only a peripheral tool, basically irrelevant to helpful school organization (1971a, p. 218).

Charles Silberman considered the regard Americans have for standardized tests and stable research when he asked one British educator about valid sources for evaluation. Silberman presented the following as a reflection of Britains who are committed to methods of evaluation other than through the use of standardized tests.

ITEM: An American visitor asks the Education officer of a large English school district, a man known for his passionate advocacy of informal education, whether he has any statistics on student achievement that might permit comparisons between informal and formal methods of schooling. "Here are the statistics," he says, as he opens an enormous leather portfolio lying on his conference table. The portfolio contains samples of paintings, drawings, collages, embroideries, poems, stories, and essays from schools in his district (1970, p. 257).
Curriculum and Instructional Areas
Considered Most Innovative

Twenty-nine of the forty references selected for content analysis gave consideration to innovative aspects of curriculum and instructional areas. Of these twenty-nine references, eight included extensive development of this area.

The following characteristics appeared in most references which described the curriculum observed in British classrooms and schools: (1) each school developed in its own way, (2) the role of the supervisor has changed to one of advisor, (3) the teacher was directly involved in planning her day, and (4) no two classes, even in the same school, were exactly alike since the teacher's skills and the children's interests were drawn upon for the structure of the day.

David Armington (1969), as well as others, indicated that good English schools differed enormously. Even so, he identified a characteristic feature of such schools. This was the degree to which each school and classroom was encouraged to develop in its own way. Because the curriculum was not narrowly specified, each school and class tended to develop its own personality, which mirrored the needs and interests of the children as well as the talents and styles of the teachers. Armington reported that schools and teachers tended to think of themselves as researchers and experimenters, responding to the endless challenge of doing a better job today than was done yesterday.
Armington gave high priority to the way in which teachers and heads assumed responsibility for curriculum development and their relationship to centers providing resource and support for innovation and change. He stated that because diversity and practical experimentation were built into the fabric of many of the British schools, teachers and heads learned to think for themselves as participants in the process of improving education. He described the relationship of the school to sources outside of the school which provided support to curriculum development by stating, "The avenues between schools and the formal centers of educational research are, perhaps, more open than in this country; the distinction between development and implementation is less sharp. Some of the most productive research originates in the classroom (1969, pp. 4-5)."

Armington identified an agent in the growth of the Leicestershire schools which he felt was one of importance. This was the "Advisory Center" which he described as a group of individuals whose sole function was to facilitate change. He described the advisor's role as one for which he felt there was no precise counterpart in American public education.

As facilitators of change advisors have extensive knowledge of the learning process, practical experience as teachers, and familiarity with teachers in curriculum and materials. They have the capacity to work with teachers in unthreatening ways, to be sensitive to the needs and strengths of each school and classroom, and to take account of the social and "political" elements that may affect the forces of change in these situations. The advisor's position is flexible. His style is to work with those individuals who are ready for his
services. His aim always is to help schools realize their own unique potentialities and to help make change self-sustaining (1969, p. 5).

The role of the traditional label of Her Majesty's Inspector has become one in recent years which reflects the qualities of the advisor's role, according to Armington. One of the important characteristics of such people in doing their job is that they are just what this title implies—advisors. They are not supervisors, they are not administrators, nor do they have anything to do with promotion or salary. There is only one thing they do. This is to give advice which is often heeded. The major area of their concern is in providing help to schools and teachers in program planning and curriculum.

Casey and Liza Murrow (1971) spent the school year of 1969-70 visiting primary schools in England to gain an understanding of the ways in which children learn in a variety of settings. In the introduction to their book, summarizing their findings, they revealed that they had learned about a number of American misconceptions about English primary schools while undertaking their study. These ranged from the idea that there is a single dominant method of teaching in English classrooms to the more unfortunate assumption that moving the furniture implies a complete transformation of the learning experience. They felt Americans had wrongly observed that in England the teacher played little or no part in the child's learning. Some educators in the United States used the term "Leicestershire Plan" to describe the
work of English primary schools. This, they felt, had no validity since in their survey they found many different areas in English which could claim success in primary education.

A host of influences have contributed to the success of many primary schools in England. However, these schools do not yet represent a majority. Successful schools demand great commitment on the part of all concerned. A number of primary schools in England provide an education no different than that available forty years ago. Others have changed teaching practices, but not ideals or goals. All of us can learn a great deal, however, from the achievements of schools where the child's experience has been deeply altered (1971, p. 17).

The Murrows described changed infant schools as reflecting the following qualities: the teacher's role in planning, the atmosphere reflecting the classroom day and provisions for instruction, lack of pressure on children, and flexibility of the day and lack of a rigid curriculum which allow the teacher to reorganize a few days or a week around a special goal if it seemed needed. The Murrows stated:

Although there are certain patterns common to infant school classes, the variety of formats used by English teachers in planning their day is vast. No two classes even in the same school are exactly alike because the teacher's skills and the children's interests are drawn upon to structure the day and the work that takes place (1971, p. 37).

Writing and Reading in the Curriculum

The infant teacher was described by most authors as one concerned with helping young children begin to write and read. Authorities agreed that most teachers and heads seldom identified one method as being the best. Most good infant school personnel
provided classrooms where a number of the activities were directly related to the reading process.

In general, American observers indicated that one of the first concerns was in the development of language. The teacher moved to individual children and to groups to talk with them about what they were doing. Children were encouraged to talk to one another about their work. One reporter observed that teachers recognized the importance of increasing fluency in speech in order to read and understand.

The Murrows (1971) saw the teacher's task in teaching reading as threefold. First, she established the atmosphere and materials in the classroom which were conducive to the development of language and individual expression in a variety of forms. Second, she had planned schemes of reading with which she was comfortable and which suited the children. Third, the reading demands made on the children related to their particular level of development.

American authors made common reference to examples of children's personal writing books. When a child first entered school he learned that words stood for things. Mention was made of the variety of labels seen around a classroom, both teacher and pupil made; directions were signs in learning centers. The child's name was placed on his work either by the teacher or by himself. What he said about his picture was recorded on it by the teacher. The child learned that what he said could be
represented in symbols on paper. Casey and Liza Murrow described such practice, "As the child becomes more practiced his sentences grow a bit longer. His teacher will suggest that he try to trace over the words she has written for him. When he achieves this, he will move to copying the letters underneath the words she has written (1971, p. 45)."

Most observers referred to the number of personal books the children developed as they moved through their first infant year. A gradual transition was made from the teacher's recording of dictation to a child writing his own labels or sentences. One observer noted a seven year old boy who wrote completely alone for the first time. The boy carefully referred back to earlier stories in his book for correct spelling of words. His pleasure in finishing was enormous and he was eager to read his story to his teacher and to his friends. The children demonstrated willingness to share their stories with one another.

By the time children in many English infant schools began to write, they had already started substantial dictionaries of their own in which they continued to add needed words. Such personal books were used for reference throughout the infant years. Children were observed finding needed words from child or teacher made lists around the room, from one another, from the teacher, or from an attempt to sound out the words themselves.

It would appear that American observers considered the development of self-expression as integrated with the teacher's
overall scheme for teaching reading. They saw the teacher as constantly teaching some aspect of reading in the infant classroom.

American authorities agreed that they saw in all classrooms a variety of books of all sorts. In the library center were commercial story books, reference books, series of graded readers, and pupil-made booklets, either individual or group produced. Children read together, read individually, or with the teacher. Value was placed on the enjoyment of books both for pleasure and for information getting. Children who produced books were helped to see a relation to commercial stories and reference books. The growing ability of each child in reading his own and other material was seen as being given high value by the teacher. It was noted also that teachers helped children select and use materials to provide success in reading.

Many observers made reference to the quality of writing which emerged from many infant classrooms. They cited the spontaneity, the wide range of language, the deep sense of beauty the children were helped to feel. All had their roots in the kinds of activities which encouraged children to think imaginatively and clearly.

American materials indicated that teachers in infant schools placed a premium on expression and content. These teachers viewed spelling and grammar as developing along with the child's writing.
Lilliam Weber was startled by the amount of writing accomplished so early that it first struck her as pressure.

... but the fact of the amount—not times or forced—seemed to be a tribute to a child's desire to communicate. In this system, experience is communicated either through discussion or writing and eventually, both. The desire to communicate flourished because in this free atmosphere every child was doing something interesting; every child was doing something different. The encouragement to communicate as a product of the diverse activities cannot be too greatly stressed. In such an atmosphere, communication is necessary. How else could anyone know what you've done? And it is made very clear that the headmistress and teacher are tremendously eager to hear, to read, to support the communication.

English reports recommended that writing not be demanded. The English are aware that the too automatic request for recording can be a damper to discovery work (1971a, p. 129).

Lillian Weber made reference to the Department of Education and Science which continued to support a reading approach by stressing "the width and depth of the experiences about which language is employed." She felt that there was particular concern about the use of reading schemes which imposed language on children. She indicated that the School's Council Programme, Breakthrough to Literacy (developed over a six-year period and published in 1970), aimed to promote initial literacy through a child's own listening and speaking vocabulary and within his total experience of language. In this area, Featherstone contended:

However a child picks up reading, it will involve learning to write at the same time, and some write before they can read; there is an attempt to break down the mental barrier between the spoken, the written, and
the printed word. When a child starts school, he gets a large, unlined notebook; this is his book for free writing, and he can put what he wants in it. On his own he may draw a picture in it with crayon or pencil, discuss the picture with the teacher, and dictate a caption to her, which she then writes down for him: "This is my Dad." He copies the caption, writing just underneath. In this way he learns to memorize the look and sound of his dictated words and phrases until he reaches a point where, with help, he can write sentences. Often his notebook serves as his own first reading book (1971, p. 15).

Featherstone mentioned the use of the Initial Teaching Alphabet as he described the range of materials available to young children in infant classrooms:

A range of reading schemes is used: sight reading, phonics, and so forth, whatever seems to work with a child. (Only about five percent of British schools use the Initial Teaching Alphabet—an improved alphabet, not a method of reading—that has proved successful with poor readers and adults both in England and in this country; principals of good schools we visited thought that ITA was unnecessary with a truly flexible reading program, but that in a rigid scheme it gave a slow reader another chance, and thus a break.) Increasingly in the better infant schools, there are no textbooks and no class readers, just books, in profusion. Instead of spending their scanty book money on forty sets of everything, schools have purchased different sets of reading series, as well as a great many single books, at all levels of difficulty. Teachers arrange their classroom libraries so they can direct students of different abilities to appropriate books, but in most classes a child can tackle anything he wants. As a check, cautious teachers ask them to go on their own through a graded reading series—which one doesn't matter (1971, p. 14).

Mathematics in the Curriculum

American authors agreed that the way teachers use materials in England was indicative of the manner in which many of them approached learning. Casey and Liza Murrow (1971) explained
that most English teachers were cautious about new systems or units prepared by curriculum developers. Few such programs existed in England at the time of this study, however. In place of such material were publications which aided teachers in working with children in certain fields. These were reflected in the publications of the Nuffield Foundation in mathematics, science, and second language instruction.

The Nuffield booklets published by the Mathematics Project were the product of cooperation between a foundation and a council supported by the government, local education authorities, and teachers. American authors remarked that the Nuffield booklets provided direction for developing mathematical understanding in primary schools, but did not dictate any one manner of teaching. These materials included many examples of children's work, suggested approaches, possible individual and class projects, and a listing of basic concepts. The mathematics curriculum was left to the skill and planning of the teacher. Casey and Liza Murrow (1971) were of the opinion that one reason teachers rejected many more standard units was that these were usually "restricted to limited subject matter" which called upon the child to handle prepared materials to the exclusion of his own interests.

Most authors described the ingenious use of existing materials for children's use in developing mathematical understandings. Some called this an ordered use of junk. Spools, nuts, bolts, marbles, dried beans and peas, blocks of various sizes of
wood, shells, buttons, nails, leaves, rocks, all were used for labeling, counting, sorting, and classifying. Organizing such materials into sets and subsets, drawing, graphing, and recording findings were a part of investigation in mathematics and science, and related writing and recording.

Lillian Weber declared, "English infant schools have seriously absorbed Piaget's work on children's conceptions of number, with the result that overall school materials are enriched with relevance to supporting this development (1971a, p. 119)."

The work in infant schools was seldom divided into specific curriculum areas of subject matter. The "integrated day" and "integrated curriculum" were used by some authors to title the ways in which classrooms were organized. The overlapping of language development, reading, and writing was acknowledged.

The Murrows (1971) regarded the use of multi-colored spools in one classroom as an interdisciplinary approach to versatile materials. They noted one classroom in which children had painted spools brought from home. The youngest ones in the class built towers and cone-shaped structures, first using haphazard patterns, later distinguishing and grouping the colors or making towers of uniform color. A length of string turned the spools into beads, which could be classified and ordered in a variety of ways. A balancing scale was used for weighing the spools and recording findings.
This example of child involvement with a flexible set of materials was indicative of the complexity of learning that was described by observers of infant classrooms. The Murrows (1971) saw the teacher as being aware that she was arranging and providing a learning environment for up to forty distinct children and that they could be engaged in many different activities all of which were of equal importance.

Mention was made by most Americans of the directional materials available to children in the "math center." Math cards often provided practice work, posed problems to be solved, and directions for children to use material to find out how much, how many, the tallest, the longest, the heaviest, how much more than, how many less. Such cards were often called "activity" cards. Some cards were used by individuals, some by groups. Children were given direction to record their estimates and accurate findings in their personal math booklets.

All who witnessed the use of math materials in the infant classrooms stated that teachers encouraged children to experiment with mathematical ideas, to use objects as counting and measuring aids. Collected objects were as important as the use of Cuisenaire Rods and Dienes Blocks seen in most classrooms.

Featherstone offered his viewpoint of the British approach to mathematics by explaining:

An American visitor is impressed not so much by the amount learned—though that is staggering—as by its fundamental nature. What the children know, they know for sure; they have time in which to establish an
understanding of extremely basic things that are seldom even taught in American classrooms. First-grade teachers in the United States are sometimes astonished when they discover that many of the children successfully solving workbook sums have no appreciation of, say, the conservation of number; too many children in American schools are taught to memorize multiplication tables without ever having had a chance to understand what multiplication means, and what number relationships are involved.

The approach is mathematical—learning to think—rather than arithmetical, mechanical computation. Rote learning and memorizing have been abandoned by good British primary schools, partly because they bore children and teachers, but more because they are poor ways to learn. It is assumed as a matter of course that each child will proceed at a different pace, doing different things. The idea of readiness is seldom used as a justification for holding a child back—a sure sign that Piaget's influence has been creative, rather than restrictive, since these theories could easily be misused. The results in measurable or in less tangible terms are striking. By giving children an opportunity to explore and experiment—play if you will—and by putting teachers in a position where they can watch children and talk to them about what puzzles or intrigues them, good British schools are producing classes where mathematics is a pleasure, and where, each year, there are fewer and fewer mathematical illiterates (1971, pp. 30-31).

Aspects of the Program Causing Greatest Concern

Fifteen of the forty references surveyed included aspects of reform causing concern. Of these fifteen, only three included extensive development of concern, six identified and developed some concerns, and six identified concerns with little or no development.

Those which provided extensive development of concern included Donald Ulin (1969), Vincent Rogers (1969, 1970, 1971), and

In Schools Where Children Learn, Featherstone cautioned:

One point enthusiasts who visit England are apt to neglect is the limits of what has been accomplished in England so far. After thirty years of reform, British teachers are still underpaid, classrooms are more crowded than ours, and school buildings are smelly, antique monstrosities. In some areas the prospects of subtle reform have been wiped out by appalling turnover in staff. There are plenty of wretched schools in England; good English schools tend to cluster in a few local authorities where reform has taken solid roots, becoming itself something of an orthodoxy. As I note in Chapter 1 judged by a governmental study (the Plowden Report) entitled Children and Their Primary Schools, only about a third of the country's primary schools are good, and the change is most widespread in the infant schools; in general, reform faces more obstacles the higher up the educational ladder you go (1971, pp. 3-4).

Rogers, in the preface to Teaching in the British Primary Schools, noted that only about twenty-five percent of Britain's primary schools fitted the model described in the book. He stated that perhaps forty percent could be described as quite traditional, whereas another third or so are in various stages of transition. Nevertheless, he concluded:

... twenty-five percent is a significant number of schools, when one looks at the total size of the educational enterprise in Britain. Even more significant is
the obvious movement toward this new kind of education among schools that cannot as yet be included among the exciting and innovative twenty-five percent (1970, p. v).

Casey and Liza Murrow (1971) alluded that few thoughtful British teachers would agree that the revolution in English primary education was now achieved. Recent estimates showed that one-quarter to one-third of primary school children attended schools which provided them with a good, forward-looking education. The majority of English children, they stated, were not fortunate enough to attend schools that fall into this category.

The Murrows recognized the importance of considering the English failures as well as achievements, as both bore valuable lessons for American teachers. They felt that an informal classroom, run without a complete knowledge of its inner workings and philosophy, was a miserable experience for the children and their teacher.

Although describing a school in which a "stern-faced lady" stated, "We're running an integrated day," the Murrows felt that, in reality, something very different was taking place:

For one thing, these teachers did not understand the value of play for children. The activities kept the children occupied so the teacher could get on with the "basics." Because the teacher did not take an active interest in what the children were doing, their play lacked spontaneity. They had obviously been using the same materials for a long time without any direction. In one room, a large group of children were working on reading. Nine of them stood in line next to the teacher's desk, waiting for her to check the stories. They looked bored and lifeless and the very fact that they had to stand in line suggested a failure in the integrated day.
This teacher felt that if the children were provided with individual writing books, easels, water tubs, puzzles and sand, the classroom would come to life.

These teachers failed to see a great deal that was going on around them. On our visit to the school, we were accompanied by a lecturer from a college of education, a woman who had devoted years to training teachers and trying to encourage their understanding of the development and needs of children. As we left the building she shared our feeling of despair about the school (1971, pp. 241-242).

Although intimating that some colleges of education should bear the blame for "teachers' misunderstandings of education goals and philosophies," the Murrows pointed out that:

... Some colleges teach their students to use gimmicks and set methods without giving them an adequate understanding of the aims that lie behind them. Others treat the students as if they were still children, or pupils enrolled in secondary school. Another cause of poor education occurs when a formal school suddenly decides to opt for informality, but lacks the leadership to guide the staff in the difficult transition. This is a common problem recognized by many in England (1971, p. 242).

Pinpointing a London school as an example, the Murrows continued:

A new head teacher had recently taken over and announced to her staff that they must make use of informal methods. The head herself did not know what she meant when she said this. She wanted her school to follow the lead of others which were successful, but she did not realize that each school had become informal in its own way based upon the children's needs, the teachers' abilities, and the facilities at hand. One traditional teacher panicked when she was told to run an informal classroom with an integrated day. The head's only instructions were to let the children choose their own activities and to permit them to do things when they wanted. To the teacher this meant a removal of the methods which had formerly guided her work with children. When she took away the old structure, she had nothing
with which to replace it, and the children ran circles around her (1971, p. 243).

The area of reading was given attention by Donald Ulin and Solomon Horn. Ulin had spent a sabbatical year teaching and observing in several British infant and junior schools. When he returned home, he admitted that he found himself more critical both of himself and the educational system in which he worked. Although he gave positive description of programs, teachers and their relations to children as well as the use of a wide variety of materials in British classrooms, he expressed concern in relation to reading. His conclusions were based upon his observations.

Reading is seldom taught as a subject per se, and when it is, teachers use the same techniques we use—even the Dick and Jane materials. Good teachers try to listen to each student read once a day, but with 35-40 in a class, they often find this impossible. More so than his American counterpart, the British teacher relies heavily on the child's natural desire to read and write. British teachers are almost always available for children who seek their help. And children constantly come to them. One may ask what a word in his reading book means. Another may want to know how to spell something for a story he is writing or for the personal dictionary he constructs of words he has found useful.

Still, English children are often behind our own in reading. If our problem is worrying too much about reading and spending too much time too early in the formal teaching of reading, the British probably err by doing too little too late. My impression is that the English teacher's reliance on a child's natural inclination to read is not always well founded. For many children, learning to read is difficult—very difficult—and children often find other more appealing things going on in a British classroom (1969, pp. 195-196).
Although confident that they knew when a child was "ready to read" and thus the English teachers started the children at that moment, Ulin contended "there were far too many eight- and nine-year old English children who cannot read and, because of embarrassment and an over-emphasis on sight reading as opposed to phonics, many never read well (1969, p. 196)."

In The Reading Teacher, Solomon Horn reported on his visits to British primary schools from September 1968 through June 1969. He commented, "The 'free-day,' the 'integrated day' has not eliminated all reading problems, and it remains to be seen whether it has substantially reduced them. There are, and may always be, too many students entering secondary school without a proper foundation in reading (1969, p. 26)." Horn balanced this concern by stating:

What came through clearly, however, is a climate in which children learn willingly and happily, grow by exploring their environment and their own capabilities, have some freedom of choice, progress at their own page and experience demonstrable success rather than constant failure (1969, p. 26).

Marilyn Hopgood made a plea for the protection of the open classroom from over zealous friends in the United States. She indicated that one of the problems of the open classroom in America today is that it advocates are too blinded by hope and jargon to see its problems and problems. She was of the opinion that English educators were much more clear-sighted and candid; "it has taken several decades to get as far as they have, and
even now the fully successful open classroom is not a common achievement (1971, p. 68)."

Hopgood gave an account of her interview with an English headmistress:

In England, the headmistress of an outstanding school told me: "The policy of the school is to run a free day when you and your children can. The teachers here are in various stages of doing this." This was true. Within the school there were the several stages of the open classroom, from beginning to advanced. I found the same confident realism in schools that were not yet great. In the face of clear problems that they were the first to acknowledge, their teachers showed a secure sense of purpose and a strong assurance of eventual success (1971, p. 68).

Richard Suchman provided reflection in his thoughts on visiting British schools in October 1969. He listed five major departures from the traditional concepts of education. These were:

1. The students were trusted to make decisions and take actions independently.

2. The students had access to a wide range of materials and freedom to use these materials as they saw fit.

3. There were only minimal constraints on time, movement, communication, and learning outcomes. The students were free enough to permit them to make their goals relevant to their own needs and wants, give each one a chance to learn his own way and remove most of the fear usually engendered by coercion, competition, and the spectre of failure. Yet enough structure remained to give the student a sense of boundaries and assurance that help was available at a moments notice.

4. The teachers have made the very difficult transition from the role of directing a group of conforming learners to that of facilitating individual creative learning.
5. The general tone in the school was that of joy. Play and work merged. The children learned adventurously rather than defensively. I was constantly impelled to jump in with them (1970, p. 9).

Suchman affirmed that all this freedom, contrary to the fears of many traditionalists, did not produce anarchy or disorder. In contrast to Ulin, he stated:

To those who fear a loss of achievement, all I can say is that I saw reading and writing and thinking at a level far in advance of what I have seen in comparable American schools. But even if I hadn't, the overall approach and attitude of the children toward school and their education was far more conducive to growth than one finds in traditional schools (1970, p. 9).

While in England, Suchman interviewed a number of teachers, feeling that this was one area where more work was needed. He found that teachers needed and wanted help in learning how they could introduce important elements of structure—ideas, theory, concepts, existing knowledge—in a way that was compatible with the free learning environment.

Barbara Villet described British schools in an article in *Life* entitled "The Children Want Classrooms Alive with Chaos." She wrote:

Like poetry, the results of discovery learning are difficult to measure objectively. No scientific data exists to compare the later academic performance of discovery graduates with those educated by traditional methods, and even the most enthusiastic advocates conceded that there are problems. Sometimes it is difficult for teachers to know who in a group has been original and who has merely followed someone else's lead. There is also a problem when children arrive at the secondary school (age 11 or 12). Since they progress unevenly in the new primaries, each child is at a different level proficiency, making the transition to formal graded school difficult. Nonetheless the headmaster of a
comprehensive secondary school in Oxfordshire says he finds children from the new primaries "much more alive—much better able to express themselves with such enquiring minds and such good attitudes toward education that this is worth any small loss of particular skills" (1969, p. 56).

Joseph Featherstone and David Cohen provided respective report analyses on Volumes I and II of *Children and Their Primary Schools* (Plowden Report) in the 1968 spring issue of the *Harvard Educational Review*. Featherstone suggested that the unevenness of the English reform was a piece of luck for Americans. He indicated that there were plenty of schools in the middle of the painful process of trying to reform themselves and that there were undoubtedly schools that had made a "fearful botch" of informal teaching. Suggesting that American educators had a lot to learn by studying both, he referred to one aspect, being that of developing thinking along more qualitative lines which would involve doing pathology of schools that fail, as well as anatomy of schools that succeed brilliantly. Another would involve finding out what made some schools in England superb and why others doing the same thing didn't match up. Featherstone asserted:

Often, as David Hawkins has noted, you visit a school in England where the materials and organization seem to be there, but where the teacher is merely coping, managing the room well enough without particularly responding to individual children. Frequently, though not always, such classes are still better than most of our formal classes, but they should not be confused with those classes in which the teacher is watching closely and knows where to intervene or change the pace or make a demand for the greatest pedagogical advantage (1968, pp. 327-328).
Volume II of *Children and Their Primary Schools* included descriptions and conclusions of research studies made on primary education in Britain. Cohen, analyzing this volume, stated that this research supported other studies which indicated the outcomes of schooling were much better predicted by students' social and economic status than by the quality of their schools or teachers. He concluded his analysis by stating that the Council's report invited reflection on the relation between research and policy in this area.

It is that efforts to provide equality of educational opportunity will be enormously costly, in whatever terms we choose to compute cost. In the last analysis it is the low social and political priority assigned to equality of opportunity in both England and America - not the absence of adequate research - which is the chief obstacle to effective policy. The pity is not that the Plowden research was less than perfect, or less than conclusive, for given the constraints of time it is remarkably good and useful. The pity is that were the research much more perfect and conclusive we would be little closer to schools that would remove, rather than reflect, the educational consequences of social and economic inequality (1968, p. 340).

Vincent Rogers (1970) in *Teaching in the British Primary School*, a review of British education, stated that providing criticism of British primary schooling was difficult because he had not attempted to hide his considerable admiration for what he saw happening in the modern British primary school. Nevertheless, he declared, what seemed "good could, no doubt, become better." He raised the following points which he felt might serve to further that purpose.
Need for systematic evaluation: This was not a criticism of classroom practice; rather it was a plea for more systematic evaluation of the achievements of the schools. Rogers pointed out that education had a way of asking questions that could not be answered adequately by referring to one's personal observations.

The school world versus the world of social reality: According to Rogers' description, a classroom was one in which children were well behaved, busy and interested in the activities. He was concerned that these children were existing in the middle of a terribly complex, rapidly changing world - divorced from its realities, protected from its problems, and uninvolved in its conflicts and dilemmas. He felt that if one largely limited the objects of one's study to those found only in the local environment, it was difficult to see how the school could play a significant role in helping children understand the broader world in which they lived.

The free approach not universally appropriate to all disciplines: Here, Rogers suggested, an area of criticism might be devoted to what has been called the "mess around" syndrome. He questioned if children do need more "closure" to their work in order to make it intellectually (as well as physically, socially, and emotionally) satisfying to them.

Insufficient attention to broader concepts: Rogers questioned the degree of curricular egalitarianism that exists in the
emerging British primary school. He felt that even though only the child could know what knowledge, what information, what understanding was important and necessary to him this did not negate the argument that there were some things worth knowing; that some ideas helped to order and explain our lives and the lives of others, while other ideas did not. The great weakness, Rogers observed in both British and American schools, was the lack of knowledge about and understanding of such ideas among teachers.

Concluding his critique, Rogers said:

There is so much that seems magnificently "right" in the British primary schools I know that I hesitate to conclude this chapter on a critical note.

At their best, these schools are nothing short of superb. They do, in fact, offer "another way" to those of us who are willing to listen and examine our own practices - however agonizing such a reappraisal might be (1970, p. 301).

Charles Silberman cautioned that a certain continuing vigilance is needed, "for informal education could be as mindless in its own way as the arid formalism it has replaced (1970, p. 321)." He was aware of a danger, evident in a few of the classrooms visited in England and the United States and perhaps inherent in the approach itself, that the "pendulum of informal- ity and child-centeredness might swing too far, thereby embracing flabbiness and anti-intellectualism that characterized so many of the progressive schools of the 1920's, '30's, and '40's (1970, p. 321)." In conclusion, Silberman stated:
Finding the right balance is never easy; there will always be a certain tension between two groups of educational objectives—those concerned with individual growth and fulfillment, and those concerned with the transformation of specific skills, intellectual disciplines, and bodies of knowledge—and finding the right balance is neither easy nor obvious. In the older American progressive schools, the balance certainly needed to be tipped toward the cognitive, in most American schools today. As Geoffrey Caston of the School's Council, a leading figure in curriculum reform in England argues, on the basis of extensive visits, "the need is to tip it very strongly back toward the affective." In doing so, there is a risk of tipping too far; fortunately, the people in charge of most of the current experiments in informal education seem to be well aware of the danger (1970, pp. 321-322).

Summary

This chapter included a review of recent literature written by American educators about their observations of British primary schools. The American materials selected for study were analyzed according to content. Areas of content included those of historical development, philosophy and rationale, theories of learning upon which program development was based, the role of the teachers, staff members, and their relationship to the learner, factors of the program which tended to free the teacher and the learner, curriculum and instructional areas considered as most innovative and potentially successful, identification of aspects of those reforms which have caused American authorities greatest concern, and elements of the British primary program which American authorities identified as relevant for transfer to early childhood education in the United States.
CHAPTER 4

INTERPRETATION AND APPLICATION OF THE LEARNING THEORY OF JEAN PIAGET

This chapter is concerned with the learning theory of Jean Piaget as interpreted and applied by British and American authorities. Reference is made to studies by American educators utilizing Piaget's theories as related to the cognitive functioning of young children and their application to educational practice. An overview of the theories of Jean Piaget and his work provides an introduction to this section.

In this chapter no attempt is made to include material about other persons who have been recognized as contributing to the understanding of learning theory in the development of programs for young children. In Chapter 2 reference is made to the influence of people such as Rousseau, Pestalozzi, Froebel, Whitehead, Montessori, Dewey, Susan and Nathan Isaacs, Bruner, Lurin, and Vygotsky. It is recognized that they and others contributed to change in innovation in British and American school practice. However, for the purpose of this study major focus is upon the interpretation and application of Piaget's learning theory to early childhood curriculum.
Jean Piaget: An Overview

To provide background to the work of Piaget, a brief overview is presented to set a historical perspective to his studies and the theories representing his research. Interpretation is provided mainly by American authorities.

The preface to an interview with Jean Piaget by Barbara Hall included a sketch of Piaget and his influence in contemporary psychology. Describing her interview with Piaget, Hall said:

It is said that he speaks no English, and it was with some trepidation that we scheduled a bilingual interview. But there was no need for concern. Piaget perhaps does not speak English, but he understands it. Frequently he answered questions before the translator could say a word. On one occasion he interrupted the translation to say that his reply had been expanded but that he agreed with the addition (1970, p. 26).

Hall was of the opinion that Piaget has done more to shake psychologists' faith in the stimulus-response approach to child psychology than all the humanistic psychologists put together. She continued:

Piaget believes that reflexes and other automatic patterns of behavior have a minor role in the development of human intelligence. It is only in the first few days of the infant's life that his behavior depends on automatic behavioral reaction. When Piaget first put forth this view of infancy it was radically opposed to accepted theory. Both Freudian psychology and traditional behaviorist theory emphasized that man seeks to escape from stimulation and excitation, while Piaget maintained that the infant often actively seeks stimulation. Some writers claim that the conflict between Piaget's view of intellectual development and modern behavioral theory is more apparent than real and they point to a compatibility between Piaget's system and D. O. Hebb's neurological theory (1970, p. 26).
Piaget's view of the four major periods of intellectual development through which he believed the child passes were summarized by Hall as:

... sensori-motor (birth to two years); pre-operational (two to seven years); concrete operational (seven to eleven years); and formal operational (above eleven years). It is not until the growing child reaches the two operational stages that he begins to acquire the various concepts of conservation. When Piaget speaks of conservation, he refers to the idea that the mass of an object remains constant no matter how much the form changes. For example, if you give a five-year-old two tumblers, each half-full of orangeade, he will agree that there is the same amount of orangeade in each. But if, before his eyes, you pour the orangeade from one glass into a tall, narrow container, he will say that there is more orangeade in the new glass than in the old one. The five-year-old has no concept of the conservation of substance. A child who does not understand the conservation of length will maintain that a necklace laid out in a straight line is longer than an identical necklace that lies in a circle. The average child acquires both these concepts by the time he is eight. Other important conservations that the child must learn are the conservation of number, of area, of weight and of volume (1970, p. 26).

Piaget tested many of his ideas on his own three children. He watched hour after hour as Lucienne, Laurent, and Jacqueline developed through infancy and childhood. While watching he would carefully record his observations. Although Piaget's theories have received increasingly wide attention, Hall found him a modest man. He rarely granted interviews and avoided, with some effort, Swiss television.

Still, at 73 years of age, he followed a full schedule. Hall summarized Piaget's activities as follows:
... He teaches four hours a week, supervises doctoral candidates, directs both the Institute of Psychology and the International Center of Genetic Epistemology, and edits the Archives de Psychologie. And he writes. Each morning he produces his daily quota of manuscript before most people are awake. In the summer he retreats to the Swiss Alps where he writes in an abandoned farmhouse. During the year he writes in the airports of the world. Always at least two hours early for his plane - and sometimes as much as five - he settles down to work, meerschaum clenched in his teeth, unaware of the bustle about him. Thirty books and more than a hundred articles now bear his name. But he is being surpassed by his admirers--at the current rate of publication there soon will be many more volumes about Jean Piaget than by Jean Piaget (1970, p. 26).

Although this summary over-simplified the work of Piaget it has provided a picture of a man who has become known throughout the world to those concerned with learning theory and young children.

David Elkind, Professor of Psychology and Director of the Graduate Training Program in Developmental Psychology at the University of Rochester, described Jean Piaget as one whose genius for empathy with children, together with true intellectual genius has caused him to be regarded as the outstanding child psychologist in the world today, destined to stand beside Freud with respect to this contributions to psychology, education, and related disciplines. Elkind stated:

Just as Freud's discoveries of unconscious motivation, infantile sexuality, and the stages of psychosocial growth changed our ways of thinking about human personality, so Piaget's discoveries of children's implicit philosophies or systems of belief, the construction of reality by the infants and the stages of mental development have altered our ways of thinking about human intelligence (1970, p. 8).
Edward Chittenden, Research Psychologist, Educational Testing Service, Princeton, New Jersey, recognized the importance of Piaget's work in a presentation on Piaget and elementary science at an annual convention of the National Science Teachers Association. Ideas from this presentation provided a basis for an article written by Chittenden which appeared in Science and Children. He pointed to the "substantial revival of interest" in Jean Piaget in the United States:

This interest probably stems to some extent from the general current concern with questions regarding cognition and the development of intellectual abilities. But it also must stem from a growing awareness that his work represents a major contribution to our understanding of the development of human thought. During 50 years of studies he and his co-workers in Geneva have observed and examined thousands of subjects, ranging in age from the newborn to the adolescent. Some 30 volumes and countless articles on the subject of infant and child thought have been published. As it stands today, Piaget's theory of intelligence is unique in its complexity and comprehensiveness (1970, p. 9).

Chittenden went on to describe Piaget's methods of studying children's thinking as never reflecting interest in depicting, in a normative way, the various responses that may occur at particular ages. One would find few statistical descriptions of children's responses in Piaget's books. Instead, Piaget has attempted to discover the underlying structures which give rise to children's responses. For example, Chittenden wrote:

... When he poses, to a five-year-old child, the task of putting into serial order a set of ten graded sticks, he wants to find out how the child will go about handling the task. He is interested in the kinds of errors the child may make and in the kinds of
groupings he may attempt, rather than only the final result or the final arrangement made by the child. It is not surprising, then, that he dismisses the traditional intelligence tests as mere catalogues of behavior, useful for certain purposes, but not very enlightening if we want to know something about the nature of child thought. These points should be stressed because Piaget's early books, as well as his later books, have sometimes been misinterpreted by people who were looking for normative description. In essence, his books offer theoretical analysis of thought processes, and the data, in the form of children's answers, serve primarily to illustrate and verify this theory (1970, p. 3).

Piaget's concern for theory was identified in the method he used for interviewing. Piaget termed this method a "clinical method" similar to the procedures of psychiatric examination. Chittenden expounded on this:

The interview with the child must be flexible. The investigator, drawing upon theory, must be ready to vary the form of his questions and tasks depending upon the response of the subject. The good interviewer, says Piaget, must combine two seemingly incompatible qualities. On the one hand, "he must know how to observe, that is to say, to let the child talk freely, without ever checking or side-tracking his utterance." And, on the other hand, the interviewer "must constantly be alert for something definitive, at every moment he must have some working hypothesis, some theory, true or false, which he is seeking to check." He notes the child's verbal reaction to the problem and the child's justification of his solution (1970, pp. 9-10).

A final point about Piaget's methods concerned the distinction between typical and maximal performance. Chittenden suggested that the usual procedures for testing intelligence were in obtaining evidence of maximum performance (whether the child could or could not handle a particular problem). On the other hand, he saw in personality assessment concern with typical
performance (whether the child did or did not perform in certain ways). Piaget's interviews seemed much closer to personality assessment, Chittenden felt.

... The interest is in typical or natural behavior. To illustrate, I once observed a five-year-old boy who was methodically breaking up his cracker into small pieces. I asked him why he was doing this and he answered without hesitation "there's more to eat." I quizzed him further, as adults do, trying to get him to admit that breaking the cracker really did not affect quantity. He put up a pretty good argument: "If it's broken up, it takes longer to eat." Finally, after further prodding, he did seem to admit that quantity really would remain unchanged. But in the course of this conversation it became obvious to me that my idea of quantity was not typical of his (at least in the setting of eating). Moreover, he seemed to find this adult concept of quantity to be somewhat puzzling and not terribly useful.

Piaget admits that it is sometimes possible to push children to the point where they express an advanced idea, but such maximal responses told us a lot less about the nature of thought than do the typical responses. It therefore seems misleading to interpret Piaget as saying that children can or cannot think in certain ways: a more accurate interpretation would be that Piaget tells us how children typically do or do not think (1970, p. 10).

It must be recognized that Piaget's theory has been more concerned with understanding, rather than controlling behavior. Intelligence is viewed as a process of organization and adoption. To illustrate this, Chittenden said:

When a child encounters an object, he will attempt to organize the object into his present schema or structure. When schema are present, assimilation will occur. If the assimilation does not take place, the child is at disequilibrium until present schemas are altered or new ones developed. A group of schema that occur more or less at the same time make up a "stage" in Piaget's model of child development (1970, p. 10).
Both Elkind and Hunt described Piaget's work as falling into three more or less distinct periods. The first period was identified as being accomplished between the years 1922 and 1929, according to Elkind.

During the first period (roughly 1922-29), Piaget explored the extent and depth of children's spontaneous ideas about the physical world and about their own mental processes. He happened upon this line of inquiry while working in Alfred Binet's laboratory school in Paris where he arrived, still seeking a direction for his talents, a year after receiving his doctorate in biological science at the University of Lausanne. It was in the course of some routine intelligence testing that Piaget became interested in what lay behind children's answers, correct and, particularly, incorrect. To clarify the origins of these answers he began to interview the children in the open-ended manner he had learned while serving a brief internship at Bleuler's psychiatric clinic in Zurich. The semiclinical interview procedure, aimed at revealing the processes by which a child arrives at a particular reply to a test question, has become a mark of Piagetian research investigation.

What Piaget found with this method of inquiry was that children not only reasoned differently from adults but also that they had quite different world views, literally different philosophies. This led Piaget to attend to those childish remarks and questions which most adults find amusing or nonsensical. Just as Freud found in seemingly accidental slips of the tongue and pen evidence for unconscious motivations, so Piaget found the "cute" sayings of children evidence for the existence of ideas quite foreign to the adult mind (1970, p. 10).

Providing insight into Piaget's first period, Elkind continued:

Piaget had read in the recollections of a deaf mute (recorded by William James) that as a child he had regarded the sun and moon as gods and believed they followed him about. Piaget sought to verify this recollection by interviewing children on the subject,
and he found that many youngsters do believe that the sun and moon follow them when they are out for a walk. Similar remarks Piaget either overheard or was told about led to a large number of investigations which revealed, among many similar findings, that young children believe that anything which moves is alive, that the names of objects reside in the objects themselves and that dreams come in through the window at night.

Such beliefs, Piaget pointed out in an early article entitled "Children's Philosophies," are not unrelated to but rather derived from an implicit animism and artificialism with many parallels to primitive and Greek philosophies. In the child's view, objects such as stones and clouds are imbued with motives, intentions, and feelings, while mental events such as dreams and thoughts are endowed with corporality and force. Children also believe that everything has a purpose and that everything in the world is made by and for man. The child's animism and artificialism help to explain his famous and often unanswerable "why" questions. It is because children believe that everything has a purpose that they ask, "Why is grass green?" and "Why do the stars shine?" The parent who attempts to answer such questions with a physical explanation has missed the point. (My 5-year-old son asked me why we have snow and answered his own question by saying, "It is for children to play in.") (1970, p. 11).

Elkind concluded his description of Piaget's first period by referring to Piaget's discovery of the "clue to the egocentrism of childhood."

In observing young children at play at the Maison des Petits, the modified Montessori school associated with the Institute of Educational Science in Geneva, Piaget noted a peculiar lack of social orientation which was also present in their conversations and in their approaches to certain intellectual tasks. A child would make up a new word ("stocks" for socks and stockings) and just assume that everyone knew what he was talking about as if this were the conventional name for the objects he had in mind. Likewise, Piaget noted that when two nursery school children were at play they often spoke at rather than to one another and were frequently chattering on about two quite different and unrelated topics. Piaget observed, moreover, that when he stood
a child of 5 years opposite him, the child who could tell his own right and left nevertheless insisted that Piaget's right and left hands were directly opposite his own (1970, pp. 11-12).

In 1929, noted as the beginning of the second period of his investigations, Piaget traced the origins of the child's spontaneous mental growth to the behavior of infants, using first his own three children. Elkind wrote of this second period as follows:

Some of the most telling observations Piaget made during this period had to do with what he called the conservation of the object (using the word conservation to convey the idea of permanence). To the older child and to the adult, the existence of objects and persons who are not immediately present is taken as self-evident. The child at school knows that while he is working at his desk his mother is simultaneously at home and his father is at work. This is not the case for the young infant playing in his crib, for whom out of sight is literally out of mind. Piaget observed that when an infant 4 or 5 months old is playing with a toy which subsequently rolls out of sight (behind another toy) but is still within reach, the infant ceases to look for it. The infant behaves as if the toy had not only disappeared but as if it had gone entirely out of existence (1970, pp. 12-13).

The third phase of Piaget's work began about 1940, continuing up to the present. Elkind had this to say about this "major phase of Piaget's endeavors."

During this period Piaget has studied the development in children and adolescents of those mental abilities which gradually enable the child to construct a worldview which is in conformance with reality as seen by adults. He has, at the same time, been concerned with how children acquire the adult versions of various concepts such as number, quantity, and speed. Piaget and his colleagues have amassed and processed in the last twenty-eight years an outstanding amount of information about the thinking of children and adolescents which is only now beginning to be used by psychologists and educators.
Two discoveries made during this last period are of particular importance both because they were so unexpected and because of their relevance to education. It is perhaps fair to say that education tends to focus upon the static aspects of reality rather than upon its dynamic transformations. The child is taught how and what things are but not the conditions under which they change or remain the same. And yet the child is constantly confronted with change and alteration. His view of the world alters as he grows in height and perceptual acuity. And the world changes. Seasons come and go, trees gain and lose their foliage, snow falls and melts. People change, too. They may change over brief time periods in mood and over long periods in height, hair coloration, or fullness. The child receives a static formal education while living in a world in transition (1970, pp. 13-14).

Since 1940 Piaget's investigations concentrated mostly with the child's handling change, his distinguishing between the permanent and non-permanent, and between how a thing appears and what it is in reality. Elkind recalled an incident which no doubt prompted Piaget to incorporate this line of investigation.

He (Piaget) took his son for a drive and Laurent asked the name of the mountain they were passing. The mountain was the Salève, the crocodile-shaped mass that dominates the city of Geneva. Laurent was in fact familiar with the mountain and its name because he could see it from his garden, although from a different perspective. Laurent's question brought home to Piaget the fact that a child had difficulty in dealing with the results of transformations whether they are brought about by an alteration in the object itself or by the child's movement with respect to the object.

The methods Piaget used to study how the child comes to deal with transformations are surprisingly simple and can be used by an interested parent or teacher. These methods all have to do with testing the child's abilities to discover that a quantity remains the same across a change in its appearance. In other words, that the quantity is conserved (1970, pp. 13-14).
The recognition of the "importance of reason" in the child's spontaneous construction of his world was one of the major discoveries of Piaget's third period, according to Elkind. He interpreted Piaget as demonstrating that "much of our knowledge about reality comes to us not from without like the peal of a bell but rather from within by the force of our own logic."

Elkind continued:

It is hard to overemphasize the importance of this fact, because it is so often forgotten, particularly in education. To those who are not philosophically inclined, it appears that our knowledge of things comes about rather directly as if our mind simply copied the forms, colors, and textures of things. From this point of view the mind acts as a sort of mirror which is limited to reflecting the reality which is presented to it. As Piaget's research has demonstrated, however, the mind operates not as a passive mirror but rather as an active artist (1970, pp. 15-16).

A child does not copy but reconstructs in his image of reality what is given to his senses, Elkind elaborated.

... It is only by reasoning about the information which the child receives from the external world that he is able to overcome the transient nature of sense experience and arrive at that awareness of permanence within apparent change that is the mark of adult thought. The importance of reason in the child's spontaneous construction of his world is thus one of the major discoveries of Piaget's third period (1970, pp. 15-16).

Elkind recognized a second major discovery in this third period which had to do with the nature of the school child's "reasoning ability."

... Long before there was anything like a discipline of child psychology, the age of 6 to 7 was recognized as the age of reason. It was also assumed, however, that once the child attained the age of reason,
there was no longer any substantial differences between his reasoning abilities and those of adolescents and adults. What Piaget discovered is that this is not the case. While the elementary school child is indeed able to reason, his reasoning ability is limited in a very important respect—he can reason about things but not about verbal propositions (1970, p. 16).

As an example, Elkind demonstrated:

If a child of 8 or 9 is shown a series of three blocks, A, B, C, which differ in size, then he can tell by looking at them, and without comparing them directly, that if A is greater than B and B greater than C, then A is greater than C. When the same child is given this problem, "Helen is taller than Mary and Mary is taller than Jane, who is the tallest of the three?" the result is quite different. He cannot solve it despite the fact that it repeats in words the problem with the blocks. Adolescents and adults, however, encounter no difficulty with this problem because they can reason about verbal propositions as well as about things.

This discovery that children think differently from adults even after attaining the age of reason has educational implications which are only now beginning to be applied. Robert Karplus, the physicist who heads the Science Curriculum Improvement Study at Berkeley has pointed out that most teachers use verbal propositions in teaching elementary school children. At least some of their instruction is thus destined to go over the heads of their pupils. Karplus and his co-workers are now attempting to train teachers to instruct children at a verbal level which is appropriate to their level of mental ability (1970, p. 17).

Through his years of research into children's thinking, Piaget has developed a theory of intellectual development. Elkind compared this theory in its scope and comprehensiveness to Freud's theory of personality development. Piaget proposed that intelligence (adaptive thinking and action) developed in a sequence of stages related to age. He viewed each stage as the elaboration of new mental abilities which set the limits and
determined the character of what could be learned during that period. Elkind acknowledged Piaget's beliefs that the order in which the stages appear holds true for all children and that the ages at which the stages evolved would depend upon the native endowment of the child and upon the quality of the physical and social environment in which he was reared. Piaget's theory, Elkind felt, was both a nature and nurture theory.

**Piaget's Stages of Intellectual Development**

The stages of intellectual development constructed by Piaget were described by British and American authorities to include the following periods.

**Sensori-Motor Period**

This period (usually 0-2 years) is concerned with the evaluation of those abilities necessary to construct and reconstruct the place objects have as they are moved or changed. The child learns by doing and trying, by constantly varying and extending his experimental activities. The child's own response to the activity varies further responses. Reconstruction in thought is accomplished with the aid of an elementary form of reasoning. Such reasoning is accomplished without the aid of language and by means of mental images.

**Pre-Occupation Stage**

This period (usually 2-7 years) has been described as the elaboration of the symbolic function and those abilities which
have to do with representing things. The presence of these new abilities is observed on the gradual acquisition of language, first indications of dreams, the beginning of symbolic play and first attempts at drawing and graphic representation.

In the beginning of this stage the child tends to identify words and symbols with the objects they are intended to represent. For example, he is upset if someone tramps on a stone which he has designed as a turtle (Elkind 1970). The child believes that names are as much a part of objects as their color and form. By the end of this period the child can clearly distinguish between words and symbols and what they represent. He recognizes that names are arbitrary designations.

Concrete Operations

Concrete operations enable a child to think about things. This period (usually 7-11 years) is described as one in which the child utilizes internalized actions that permit him to do "in his head" what before he would have had to accomplish through action. Elkind illustrated this period very aptly when he said:

Piaget presented 5-, 6-, and 7-year-old children with six sticks in a row and asked them to take the same number of sticks from a pile on the table. The young children solved the problem by placing their sticks beneath the sample and matching the sticks one by one. The older children merely picked up the six sticks and held them in their hands. The older children had counted the sticks mentally and hence felt no need to actually match them with the sticks in the row. It should be said that even the youngest children were able to count to six, so that this was not a factor in their performance (1970, p. 19).
The relation among "classes of things" was made easier for children during concrete operations. Elkind told of another example:

... Piaget presented 5-, 6-, and 7-year-old children with a box containing twenty white and seven brown wooden beads. Each child was first asked if there were more white than brown beads. Then Piaget asked, "Are there more white or more wooden beads?" The young children could not fathom the question and replied that "there are more white than brown beads." For such children classes are not regarded as abstractions but are thought of as concrete places. (I once asked a pre-operational child if he could be a Protestant and an American at the same time to which he replied, "no," and then as an after-thought, "only if you move.")

When a child thought of a bead in the white "place" he could not think of it as being in the wooden "place" since objects cannot be in two places at once. He could only compare the white with the brown "places." The older children, who had attained concrete operations, encountered no difficulty with the task and readily replied that "there are more wooden than white beads because all of the beads are wooden and only some are white." By the end of the concrete operational period, children are remarkably adept at doing thought problems and at combining and dividing class concepts (1970, pp. 19-20).

Formal Operations

This last stage (usually 12-15 years) is one which is described as gradually emerging. It permits adolescents to think about their thoughts, to construct ideals, and to reason realistically about the future. Formal operations enable teenagers to reason about "contrary-to-fact propositions." If a child is asked to assume that coal is white, he is likely to reply, "But coal is black," whereas the adolescent can accept the contrary-to-fact assumption and reason from it, said Elkind. No new
mental systems emerge after formal operations which would be considered a common operation in adult thinking. Providing an example of "formal operational thought as making possible the understanding of metaphor," Elkind indicated:

It is for this reason that political and other satirical cartoons are not understood until adolescence. The child's inability to understand metaphor helps to explain why books such as "Alice in Wonderland" and "Gulliver's Travels" are enjoyed at different levels during childhood than in adolescence and adulthood, when their social significance can be understood (1970, p. 21).

Elkind suggested that the impact which Piagetian discoveries and conceptions have had upon education and child psychology has come as a shock to many educators and psychologists. He contrasted Piaget's approach to psychological research in America which relied heavily upon statistics, electronics, and computers. In many of Piaget's research papers his conclusions have supported simply with illustrative examples of how children at different age levels responded to specific tasks. Critics of Piaget have expressed concern about what appeared to be a "casual methodology." They have argued that while Piaget has arrived at some original ideas about children's thinking, his research lacks scientific vigor.

The opposite view has been taken by other critics. Elkind pointed to Jerome Bruner as one who has done so much to bring to the attention of American social scientists, and who has acknowledged the fruitfulness of Piaget's methods, modifications of which he has employed in his own investigations. Even
so, Bruner argued against Piaget's theoretical interpretations. Elkind referred to this opposition when he stated:

Bruner believes that Piaget has "missed the heart" of the problem of change and permanence or conservation in children's thinking. In the case of the orangeade poured into a different-sized container, Bruner argues that it is not reason, or mental operations, but some "internalized verbal formula that shields him (the child) from the overpowering appearance of the visual display." Bruner believes that the syntactical rules of language rather than logic can account for the child's discovery that a quantity remains unchanged despite alterations in its appearance (1970, p. 22).

Many of Piaget's studies have been repeated all over the world by investigators other than those trained at the Geneva Institute. The results of such work tended to be consistent with Piaget's findings. Attempts are currently underway to develop an intelligence scale on the basis of Piaget's tests. The Piagetian type tests have already become a source for evaluative procedures in many educational settings.

**British Applications of Piaget's Studies**

John Blackie (1967), author of *Inside the Primary School*, indicated that the theory of learning which has received the most general acceptance in England is that propounded by Jean Piaget in Geneva. Blackie described Piaget and his chief assistant, Barbel Inhelder, as having conducted an immense number of investigations into the ways in which children learn. Blackie felt the best summary of Piaget's findings and views was presented by J. McV. Hunt (1961) in *Intelligence and Experience*.
In attempting to describe the basic theory, Blackie felt the relation between the theory and the best primary school practice became reasonably clear even though the theory was briefly or baldly stated. He summarized the theory as follows:

Piaget describes learning as being composed of two processes, assimilation and accommodation. Assimilation is what is done to what has to be learned in order that it can be learned, and accommodation is what the learner has to do, as it were, within himself in order to learn. A very simple example may make this clearer. In order to learn to open a door a child has to manipulate the handle, find out whether the door needs pushing or pulling and what the weight of the door is. This is the process of assimilation. But he must also do the right things, turn the handle the right way, push or pull with appropriate force and thus accommodate himself to the experience of door opening. There is thus established a pattern of behaviour that Piaget calls a schema (pl. schemata) which is something that can be repeated and generalised. Each time the door is met with the schema is repeated. But not all doors are the same. There are different kinds of handles. Some doors have latches. Some open out, some inward. Some are heavy, some are light. These unfamiliar features will each require assimilation and accommodation. The original simple schema will have to be modified. Modifications will always be needed whenever a new experience is encountered. An elderly man who thinks he knows all about opening doors will have to assimilate and to accommodate when he first meets one which opens "by itself," i.e. by a photoelectric cell, as he approaches it. His experience will be momentarily disconcerting, and with a glass door which looks as if it were not there it may even be painful (1967, pp. 26-27).

Of assimilation and accommodation throughout life, Blackie had this to say:

... The schemata (the generalisable and repeatable patterns of behaviour) increase in number, grow more and more complex and interact between each other. In the early stages learning is in the sensori-motor field. This is to say that children must see, hear, feel, smell or taste things in order to learn what they are. They cannot learn by being told. They cannot
form abstract or imaginary concepts. They learn too by their own movement. They find that they cannot touch everything that they see. They must stretch out or crawl in order to reach the desired object. Only later can they judge a distance, and, much later on still, understand what is meant when they are told of a distance ("It is five miles from here"). As they grow older the pattern of behaviour begins to include patterns of thought. They can assimilate abstractions and accommodate themselves to them. A new theorem, a new mathematical process, a discussion of a 17th century political issue, a debate on the existence of God—the process remains essentially the same. But by the time that this stage of learning is reached the individual has undergone an immensely complex transformation. Each new experience, however slight, has had to be assimilated and the resultant accommodation has slightly modified the whole system of schemata which add up to the individual as he is. No one perhaps ever stops learning altogether, but as the total experience increases it may become more difficult to assimilate and accommodate to further experience. A state of equilibrium or ossification is reached which would be too much disturbed by new experiences of any depth and these are therefore rejected. Some people reach the stage quite early in life. Few escape it altogether (1967, p. 28).

Two points about the schemata were cited by Blackie. "First they need exercising," associated mainly with the adult stage and referring to "matters of marginal importance;" however, he pointed out, with young children "everything is important." The second is that "the exercise is pleasurable." Backing up his convictions, he reported:

Piaget has collected a lot of evidence that this is so, and indeed common observation would confirm it. Anyone who has watched a 2 year old trying to fit two things together will have noticed the smile and the crow of delight when the task is accomplished. But many parents do not regard that sort of thing as learning. They think of it as play and as the child grows older and goes to school they contrast it with something different called work and sometimes grumble if, when he gets to school, the child is still "allowed" to play (1967, pp. 27-29).
Throughout Volume I of the Plowden Report reference is made to Piaget and application of his theory. In the chapter, "The Children: Their Growth and Development," one section devoted to the development of behavior included the four stages in mental development as distinguished by Piaget: "sensori-motor," "intuitive thought," "concrete operations," and "formal operations."

They were defined as:

Sensori-motor phase: the child moves from apparently unco-ordinated reflex responses to successively more complex patterns of activity and establishes a rudimentary sense of the persistence of permanent objects, inanimate and human.

Phase of intuitive thought: a transitional phase when children may perceive only one relationship at a time, actions are not reversible, judgments are often based on intuition and dominated by perception.

Phase of concrete operations: a prolonged phase during which children become able to perceive stable and reversible relationships in concrete situations.

Phase of formal operations: children become capable of logical thought, based on symbolic and abstract material (Plowden 1967, p. 18).

In considering these stages, the Council cautioned:

... a child does not switch suddenly from one stage to another, just as he does not suddenly walk. At first he supports himself for brief periods and mostly crawls; then he walks half the time and, later still, he walks as his principal mode of progression. So also with learning to think and to feel. The stages, too, are not irreversible; though a child (or an adult) may operate most of the time in the stage of concrete operations or formal operations, he may relapse into an earlier mode of behaviour in play, or regress into it in confusion or under stress.

Just as a child cannot learn to walk before he has learned to stand, in cognitive development the reaching
of successful phases depends upon an adequate level of development in the earlier phase. A child cannot learn to read, for example, without having learned to discriminate shapes. Not all individuals reach the same level of development. Mentally sub-normal individuals never fully attain the later stages or may do so only long after the average child. The creative and powerful thinkers in our society go far beyond the stage reached by the average adult (Plowden 1967, p. 18).

In the process of growth and development each child differs as to rate and size; so do the acquired neuro-muscular skills vary.

Some children by the age of five have fine hand control and can cut with scissors and draw straight lines and circles; others are clumsy at these activities for several further years. Advancement or retardation of these skills is the result of the interaction of a hereditary tendency and environmental factors such as encouragement or discouragement, training and practice or the lack of it, but in what proportion is not clear. The "self fulfilling prophecy" may operate here as throughout so much of the educational process. The advanced and well controlled children may be given the most interesting and demanding tasks, and may claim more of the teacher's time. They thus advance even further. Meanwhile a clumsy child may sit neglected, falling farther and farther behind. It is as though we made a point of giving tall children better food and starving the short children. If we did this, we would certainly see a greater variation in height in the adult population than was necessary on purely genetic grounds (Plowden 1967, pp. 18-19).

All nursery schools and many infant schools put the role of "play" as the central activity. However, the Council stated:

This sometimes leads to accusations that children are wasting their time in school; they should be "working." But this distinction between work and play is false, possible throughout life, certainly in the primary school. Its essence lies in past notions of what is done in school hours (work) and what is done out of school (play). We know now that play - in the sense of "messing about" either with material objects or
with other children, and of creating fantasies - is vital to children's learning and therefore vital in school. Adults who criticise teachers for allowing children to play are unaware that play is the principal means of learning in early childhood. It is the way through which children reconcile their inner lives with external reality. In play, children gradually develop concepts of causal relationships, the power to discriminate, to make judgments, to analyse and synthesise, to imagine and to formulate. Children become absorbed in their play and the satisfaction of bringing it to a satisfactory conclusion fixes habits of concentration which can be transferred to other learning (Plowden 1967, p. 193).

The Council stressed the importance of the use of materials in play as facilitating child learning:

From infancy, children investigate the material world. Their interest is not wholly scientific but arises from a desire to control or use the things about them. Pleasure in "being a cause" seems to permeate children's earliest contact with materials. To destroy and construct involves learning the properties of things and in this way children can build up concepts of weight, height, size, volume and texture (Plowden 1967, p. 193).

A description of the kinds of materials and their uses by children was interpreted by the Council:

Primitive materials such as sand, water, clay and wood attract young children and evoke concentration and inventiveness. Children are also stimulated by natural or manufactured materials of many shapes, colours and textures. Their imagination seizes on particular facets of objects and leads them to invent as well as to create. All kinds of causal connections are discovered, illustrated and used. Children also use objects as symbols for things, feelings and experiences, for which they may lack words. A small girl may use a piece of material in slightly different ways to make herself into a bride, a queen or a nurse. When teachers enter into the play activity of children, they can help by watching the connections and relationships which children are making and by introducing, almost incidentally, the words for the concepts and feelings that are being expressed. Some symbolism is unconscious and may be the means by which children come to terms with actions or thoughts which
are not acceptable to adults or are too frightening for the children themselves. In play are the roots of drama, expressive movement and art. In this way too children learn to understand other people. The earliest play of this kind probably emerges from play with materials. A child playing with a toy aeroplane can be seen to take the role of both the aeroplane and the pilot apparently simultaneously. All the important people of his world figure in this play: he imitates, he becomes, he symbolises. He works off aggression or compensates himself for lack of love by "being" one or other of the people who impinge on his life. By acting as he conceives they do, he tries to understand them (Plowden 1967, p. 193).

The Council felt that Piaget's observations supported the belief that children have a natural urge to explore and discover, that they find pleasure in satisfying it and that it is therefore "self-perpetuating." There was good reason for allowing young children to choose with a carefully prepared environment in which choices and interest were supported by their teachers who had in mind the potentiality for future learning. The skills of reading and writing or the techniques used in art and craft could best be taught when the need for them is evident to children. The report indicated that a child who has no "immediate incentive for learning to read is unlikely to succeed because of warnings about the disadvantages of illiteracy in adult life."

The report continued:

... When the children are learning new patterns of behaviour or new concepts, they tend both to practise them spontaneously and to seek out relevant experience, as can be seen from the way they acquire skills in movement. It takes much longer than teachers have previously realised for children to master through experience new concepts or new levels of complex concepts. When understanding has been achieved, consolidation should follow.
At this stage children profit from various types of practice devised by their teachers, and from direct instruction (Plowden 1967, p. 195).

The Council stated that at every stage of learning children needed rich and varied materials and situations. The pace at which they should be introduced would vary according to the children. If children should be limited to materials they would tend to solve problems in isolation and fail to see their relevance to other situations.

Language and Learning

The focus on the relation of language and learning was emphasized in all British materials. The Plowden Report as well as others included references made by Piaget to this relationship.

... Verbal explanation, in advance of understanding based on experience, may be an obstacle to learning, and children's knowledge of the right words may conceal from teachers their lack of understanding. Yet it is inevitable that children will pick up words which outstrip their understanding. Discussion with other children and with adults is one of the principal ways in which children check their concepts against those of others and build up an objective view of reality. There is every justification for the conversation which is a characteristic feature of the contemporary primary school. One of the most important responsibilities of teachers is to help children to see order and pattern in experience, and to extend their ideas by analogies and by the provision of suitable vocabulary (Plowden 1967, pp. 196-197).

Lewis (1963), a British psychologist, in his study Language Through Personality, indicated that Piaget has made clear how much a child's progress in the development of ideas of
causality depended upon his intercourse with other people. Lewis felt that he did not, perhaps, sufficiently stress that in a child's early questions "his nebulous and enchoate ideas of causality" were made more explicit by "his imitations of the language" which the adults around him used to express causality. Lewis agreed with Piaget in that ideas of causality become clarified only in the course of communication with other people.

Lewis pointed to the contribution made by Piaget toward understanding the general trend of the child's developing reasoning by showing how for the elaboration and refinement of reasoning concepts of conservation and reversibility may be helpful and how language may promote these concepts. He stated:

He has reminded us that in dealing with a new situation, a child performs dual, complementary, tasks. He assimilates the present to the past and he accommodates the past to the present. Piaget has brought detailed evidence and close analysis to show that it is through the verbal symbolisation of perceived relations to be carried forward into new situations that children normally advance in abstract reasoning. He has shown that there is normally a regular succession in which each advance in non-verbal problem-solving is followed by verbal symbolisation, by means of which a child is better able to reason (1963, p. 122).

The relationship of language and concrete thought was developed by Lewis. He was of the opinion that the main guide to the understanding of cognitive development was the work of Piaget, modified by the qualifications of other workers. Lewis suggested that as a child spent more and more of an ordinary day in playing with others in the classroom, it became evident that
language played an even more important part in his concrete thinking than in his intuitive thinking. Most problems were brought to him by the acts of others, mostly through the medium of language, Lewis stated.

This, of course, is particularly true of the very situations on which Piaget's account of children's concrete thinking is based. In speaking to the child, the experimenter uses language in a number of ways: he draws the child's attention to the situation—the lemonade in the glasses or the string of beads; he names some of its features; he describes a change in the situation—"You see, I have now poured the lemonade;" he states the problem; in doing this he indicates and names relationships—"Are there more brown beads or more wooden beads?" and at the same time he invites the child to formulate a solution. What the child is called upon to do—whether he physically manipulates the objects in front of him or performs an operation in his mind—is to make a statement in words.

Something of the same kind, though not so systematic, happens again and again in the course of a child's everyday life; and it would be strange if such highly a verbalised interchange were not accompanied by considerable verbalisation in his concrete thinking. Piaget is, of course, well aware of this: he says that concrete ideas are internalised actions. From this one would have expected him to consider the precise functions of language as one of the chief means of internalisation in this process of concrete thinking. But although he discusses in detail the place of language at the earlier stages—the sensori-motor and the intuitive—and again at the subsequent stage of formal thinking, on language in concrete thinking he speaks only in the most general terms (1963, pp. 178-179).

Lewis indicated that Piaget stressed that language came to the child carrying an already prepared system of ideas, classifications and relations. From this collection the child borrowed only as much as suited him remaining "superbly unaware" of everything that is beyond his mental level. The importance of
the danger of premature verbalism would be eased if opportunity for activity and construction were the basis of primary education not only to close the gap between actual thinking levels and the stereotyped use of language but to provide a naturally developed foundation for the more abstract thinking of adolescence.

Leonard Marsh also affirmed that the words spoken by a child do not necessarily reveal the real extent of the child's personal experience. The work of Piaget is a "fundamental contribution to present knowledge about language and thought," Marsh asserted.

Our discussion of some aspects of language development should serve as a framework for the more detailed discussion of Piaget's investigations into concept development and should remind us of the dangers involved in any piecemeal view of the mother tongue. It should also make clear the implications of this in any investigation that must rely upon "talking over" the child's experiences with him (1970, p. 14).

Learning, Language, and Mathematics

Much of the British material on the role mathematics played in the primary school referred to the work of Piaget. The Curriculum Bulletin No. 1, Mathematics in Primary Schools (1966) reviewed the work of Piaget concerning the learning of mathematical concepts by young children. This set the base for what these findings ought to have on teaching in the early stages of mathematics. Nathan Isaacs provided interpretation on the work of Piaget in New Light on Children's Ideas of Numbers (1968), Piaget: Some Answers to Teachers' Questions

The School Council Curriculum Bulletin, *Mathematics in the Primary Schools* (1966), devoted a section to research on children's method of learning. In it the relationship of Piaget's studies and learning was made—the attention of teachers was directed to the importance of the environment. The Council indicated that Piaget in his experimental methods set a pattern for use in planning learning situations in the classroom. Reference was made to Piaget's preface to *The Child's Conception of Number* (1952) where he wrote that conversation with the child was more reliable and fruitful when it was related to experience with adequate material, and when the child, instead of thinking in the void, was talking about actions he had just performed.

The Bulletin placed importance on the use of the spoken word, as did Piaget in his experience with children. The issue of the place of language in children's learning was studied by a Mrs. J. Tough while working on her thesis. With a limited number of English children between the ages of 5.3 and 5.9 she
investigated the contributions made by "relevant experience and language to the formation of number concept by five-year-old children." The investigation was summarized in the Bulletin as follows:

Of the four groups considered, the group with whom the appropriate language was introduced at the same time as the experience made significant progress in the learning of the concept under consideration. Half the children in the group having experience without appropriate language had made some progress but in two control groups very little progress had been made. In Mrs. Tough's own words: "Of the three situations explored, the basic concept is more efficiently formed when language and concrete experience appear together. For the schools this means the provision of good concrete experience together with active teacher-participation and the stimulation of discussion." Although this experiment involved a relatively small number of children the results are decisive and merit much further research. We are therefore left with the following questions. Are we sufficiently aware of the concepts basic to later mathematical understanding? Do we provide the right kind of concrete experience during the early years? Do we provide at the same time language which helps efficient organisation of the experience (1966, p. 7)?

According to the Council, this investigation showed the significance which one aspect of Piaget's work could have for teachers. Reference was made to the work of Dr. E. A. Lunzer at Manchester University who indicated that the principal field for the application of Piaget's methods and results in educational practice was that of curriculum and methods. Of children's understanding of numbers, such understanding could not be taught nor did it come by itself, independently of experience. Two conclusions were drawn: (1) understanding of mathematical concepts could be promoted by providing experience of the right sort and
(2) providing experience or activity was not an end in itself although planned to arouse interest; it was devised with the declared purpose of stimulating spontaneous discovery by the child.

The Nuffield-Mathematics Project summarized the contributions of Piaget as follows:

Recent work in the field of development psychology has thrown light on certain aspects of intellectual growth and development. Although there is valuable research going on in many parts of the world, it is the contribution of Jean Piaget and what is called the Geneva School of Psychology which will be mentioned here.

Piaget describes his method of research as "clinical." Test situations and materials have been devised to determine the stages in the building up of the basic frameworks of thought, described as "mental structures." The situations are play situations, and throughout the research clear instructions are available to enable testers to deal with any kind of response, in word or action, that the child might give.

This work in Geneva and elsewhere has indicated that although these "mental structures" are built up gradually there seem to be certain stages through which all children pass (1967, p. 9).

Two of these stages were developed, one being that of intuitive thinking, and the other, concrete operations. Elaborating in these stages, the Project report continued:

The research indicates that children of about five years of age - the age when they enter school in Britain - are probably still thinking intuitively, that things are what they seem not what they are. If a thing seems bigger it is bigger.

Psychologists working in quite different fields have described what they call the borderline between fantasy and reality, and speak of the slow growth of the fantasy/reality adjustment. The Geneva research has shown the slow growth, and the many interim stages that
exist, as the child passes from the stage of intuitive thinking to the stage of concrete operations.

Through a wealth of different experiences the child is enabled to establish the "invariance" of such things as number, substance or liquid. He will realise that however he arranges his collection of five pebbles there will still be five. The "invariance of five" is established. An amount of liquid poured into containers of differing shapes certainly appears to change, but eventually the child will realise that the amount actually remains the same. "Invariance" of liquid has been established. Once invariance has been established the child is in a position to approach, with confidence, any real problem that arises from the use of concrete materials. The majority of children seem to enter this stage of "concrete operations" at approximately the age of seven (1967, p. 9).

The Nuffield Project also gave attention to the significance of language and the relationship of communication to learning. The following statements were made in relation to early growth of language:

In the early stages speech is largely imitative, and occurs within the framework of the mother/child relationship. The mother says something and the child attempts to imitate the sound pattern.

Later the adult will be beset by questions from the early "What's that?" to the later "Why?". In answering the question "What's that?" the adult is helping the child to name some specific object in his immediate environment. Once the object has a name it will assume a new significance for the child. In answering the question "Why?" the adult is fostering the growth of the idea of causation, and the beginning of reasoning.

Research in England in this field seems to indicate that this is a vital stage of growth, and that there is a significant relationship between the quality of the language heard, and therefore used by the child, and his present and future intellectual development (1967, p. 10).
The knowledge a child already has of language when he begins school was a great factor in determining how the teacher should plan for the individual child's language growth.

Some young children arrive at school with a considerable command over language. They have a wide-ranging vocabulary and surprising powers of description. Others are barely articulate and have great difficulty with any kind of communication. These varied starting points are dependent upon the quality of the child's pre-school experience. The role of the teacher is to determine the starting point, and to provide the opportunities necessary for language growth to meet the needs of each child.

... This stage of experimentation can sometimes last for a considerable period, but the time comes when the children feel the urge to communicate. They need to tell somebody. Sometimes words come spilling out to fulfill this desire to communicate, but sometimes they get stuck for lack of an adequate vocabulary. Here the role of the teacher is quite clear. He must so infiltrate the necessary vocabulary into his responses that the child hears these words in the context of an enjoyable experience (1967, p. 10).

The place of discussion was analyzed in the development of concept development.

The understanding of what is meant by discussion in the primary school is intricately bound up with an appreciation of classroom relationships. The primary school teacher has the inestimable advantage of really knowing the children in his care, for in all probability they will spend most of the school day together. When authoritarianism prevailed, such discussion as existed almost inevitably took the form of question and answer—the teacher asking the question and the children supplying the answers. There is obviously still a place for this kind of activity in certain circumstances, but it does not constitute what is today recognised as discussion. In any event it must be acknowledged that, although the children who supplied the answers gained a degree of self-satisfaction from the activity, there were always children who suffered acute embarrassment (1967, p. 10).
"Only through real contact with each other through speech" can children have a complete all-round development. To verify this belief, this example was given:

... The role of the teacher today is not to stop children talking but rather to ensure that there is something very worthwhile for them to talk about. In this kind of atmosphere there is a place for lively class discussion, and the quality of the discussion will be directly dependent upon the quality of the teacher/class relationship. It has to be accepted that every person in the room has something to offer and is entitled to hold an opinion. Where mutual trust and tolerance exist, then confidence grows, and confidence plays a considerable part in the growth of fluent speech.

... (Another) kind of discussion is that which takes place between child and child. Children frequently gossip or chat. Socially no doubt this kind of talk is valuable but it makes little contribution to intellectual development. However, when class and group discussions play a significant part in the school programme, then there is a noticeable carry-over. Children will be observed and overheard in classroom, playground or street carrying on earnest discussions.

Real discussion, wherever it appears, is provoked by experience. Sometimes a situation arises spontaneously or it may in some way be contrived by the teacher. The situation supplies the starting point; the discussion that ensues should widen the child's horizons and open up many new avenues of exploration (1967, p. 10).

Molly Brearley developed applications of Piaget's learning theory. She felt that the main function of the first school in relation to mathematical development was to provide children with the "environment and help" which would enable them to bring about a "match between the personal psychological learning structures which they have been developing since birth and the logical
structures of mathematical knowledge." Focusing attention on the role of the teacher in the use of language, Brearley stated:

Discussion, question and comment provide opportunities for a teacher to give accurate language appropriate to the level of understanding reached by a child and can promote further thinking. At first school stage, precise language is particularly important in bringing about the move from perceptual to conceptual thought, for it is by language that abstracting and generalizing activity is brought into conscious awareness by a child and that the "crystallization of relationships" is made possible.

However, the genuine use of language must not be confused with rote verbalism in which the words used are not the outcome of understanding. This can happen in mathematics where terms such as "inches," "pounds," "sixpence," etc. can be learned and used by children without any understanding of what is meant. It is such spurious knowledge which can contribute towards later failure in mathematical development.

In first school it is not only through language that attention may be focused on mathematical attributes but also through the provision of appropriate equipment. For example, younger children may pay attention to the "redness" of a bucket which makes the largest sand pie, and in such an instance the provision of an assortment of coloured buckets of the same size would encourage them to focus on the aspect of size. Similarly with older children the provision of balance scales could make it possible for them to refine their knowledge of units of weight.

The contribution of a teacher is therefore to provide both materials and language which are appropriate to the level of thinking reached by a child, but which also provoke the quest for further clarification and extension (1970, pp. 98-99).

Since integration of curriculum areas in providing learning opportunities for young children was emphasized in all British materials, it has been assumed that the development of mathematics served as a model for other areas of curriculum.
Piaget's studies indicated that the urge to find out (to learn) appeared to be present in every young child. Nothing should be more important than to find the means to retain this natural urge to learn. Implications for such measures have been included in all British reports of promising current school practices for young children. Such practices have been based primarily upon interpretation of the research of Jean Piaget.

**American Applications of Piaget's Studies**

This section includes two major areas. One is concerned with the American authorities who described British education. The other is concerned with the interpretation and application of education other American authorities have made to Piaget's theories.

**American Authorities Included in the Survey**

Of those forty selections describing British primary education which were surveyed for content analysis (Appendix D), only eighteen made reference to theories of learning upon which British programs were based. Among these eighteen references, four articles included extensive development to learning theory. All of these made reference to the influence and use of Piaget's materials. The ways in which these authorities viewed the British use of Piagetian theory reflected common elements.

Featherstone contended that much of the British teachers' practical work intersected with this theoretical concerns.
According to Featherstone, the characteristic innovations of the primary school revolution first appeared in nursery schools influenced by followers of Montessori, Susan Isaacs, Dewey, and Piaget. Featherstone suggested:

It would be helpful, too, if Americans—and especially the social scientists and academics dominating our discussions of schools—understood something of the relationship between theory and practice in the English reform. As I explain, developmental theory, particularly the work of Piaget, the Swiss psychologist, provides theoretical justification for some of the methods of the infant schools, notably in mathematics. Part II of the Plowden Report, The Growth of the Child, shows this theoretical influence at work in its impressive arguments for the proposition that each child develops at a separate pace and that this ought to be reflected in patterns of teaching. Behind the new view of what constitutes a proper primary school curriculum (see Part V of the Plowden Report, the heart of the document) there is a definite theory of teaching. It lays a special stress on "... individual discovery, on first-hand experience and on opportunities for creative work. It insists that knowledge does not fall in neatly separate compartments and that work and play are not opposite, but complementary" (1971, p. 5).

Piaget's studies have had greatest impact in the area of mathematics, noted Featherstone. He felt, too, that assumptions stemming from Piaget's work were beginning to prevail classrooms and shape the direction of educational innovation which he identified as a "revolution in primary education." Featherstone provided this example:

Among their more important assumptions are that a great majority of primary school children can't just be told things, that they learn basic mathematical concepts much more slowly than adults realize, and that the patterns of abstract thought used in mathematics ought to be built up from layer after layer of direct experience—seeing, hearing, feeling, smelling (1971, p. 25).
Referring to the sequence of development, from intuitive thinking to concrete reasoning to abstract thinking, Featherstone concluded:

... He (Piaget) has assigned these stages to definite chronological ages. Some teachers question any scheme that pretends to be able to predict what a six- or a seven-year-old can learn, just as some critics have argued that Piaget pays too little attention to the social context of learning—the child's feelings, the expectations of the teacher, and more important, those of the parents. And yet the experience of teachers with mathematics has led to a growing respect for Piaget's general outline of the stages of a child's development. Whether or not his theories are ultimately accepted as true, he and other developmental theorists have pushed British schools in directions that are pedagogically sound, toward an understanding that abstract concepts and words are hard for children, that children learn best from their own activity, and that they need time in which to grow (1971, pp. 26-27).

Featherstone agreed that children learned best from their own activity and that they needed time in which to grow thereby supporting the belief of the good infant schools where play was viewed by adults as a principal means of learning in childhood. He suggested that this belief became more plausible when a consideration was made to how much children had learned without formal instruction in the years before they came to school. Featherstone explained:

... Hence the sand and water tables, the variety of number apparatus, the clay, the wood, the geometric shapes to arrange, the weights and balances, the Wendy House, and the dress-up clothes (to explore adult roles, as well as the materials that make up the world). Hence, too, the conviction that a classroom should offer myriads of activities to choose from, that allowing children to repeat activities is often good, and that language and experience should like together in conservations among children and with the teacher (1971, p. 27).
Beatrice and Ronald Gross suggested that Piaget's books based on his research on how children learn proved that it was a waste of time to tell a child things that he cannot experience without his senses.

... The child must be able to try things out to see what happens, manipulate objects and symbols, pose questions and seek their answers, reconcile what he finds at one time with what he finds at another, and test his findings against the perceptions of others his age. Activity essential to intellectual development includes social collaboration, group effort, and communication among children. Only after a good deal of experience is the child ready to move on to abstract conceptualizations. Piaget is critical of classrooms where the teacher is the dominant figure, where books and the teacher's talking are basic instructional media, and where large group instruction is the rule, and oral or written tests are used to validate the whole process. Clearly from his findings, traditional teaching techniques are ineffectual. But for children who must depend on the school environment as the richest they are to encounter, it can be downright damaging; denied a chance to grow, their minds may actually atrophy (1970, p. 84).

Casey and Liza Murrow reported in their work in Britain that teachers were intrigued with the work of developmental psychologists because it tended to confirm what they had already discovered about children. Of the many developmental psychologists whose writings were available to teachers in England, the Murrows acknowledged that the most often mentioned name was that of Jean Piaget. They stated:

Although Piaget has never directed his work toward education in the traditional sense, his theories on stages of development and the unique growth of each child have been attractive to educators. Some of his work has centered on learning tests that relate directly to work in schools. Although few teachers with whom
we spoke had read any of Piaget's work, a number were familiar with interpretations aimed at teachers. An interest in applying Piaget's work to primary education has been evident in England since the late 1950's, and a large number of books and articles have appeared, dealing with applications of his work to the classroom (1971, p. 158).

The link between English educators and the researchers in Geneva where a team under Piaget's direction was preparing "Check-up Guides" for the Nuffield-Mathematics Project was identified by the Murrows. Such work would provide "check-ups" on the child's progress since the traditional tests were not constructed to reflect growth in the new atmosphere of individual discovery. Indicating that this relation to developmental learning, with Piaget's name in the forefront, has been in keeping with ideas that have been fostered in English education as early as the late 1920's, the Murrows reported:

... English educators have not been captivated by behaviorist theory as many Americans have. One indication is that various forms of behavioral objectives have attracted almost no attention in England. These objectives, requiring predetermination of the behavior, or response, expected from the child, have interested many American educators over the last six years.

Among other objections, educators in England with whom we talked believed that it would be very difficult to design behavioral objectives suitable for use in an informal setting. We also encountered the argument that a behavioral objective presupposed a teacher-directed classroom with little or no chance for the child to set objectives on his own. A situation such as this would be contrary to the aims of a number of schools in England (1971, pp. 158-159).

Charles Silberman was the only American authority describing British education who chose to sketch out in summary
form the theories which form and justify informal schooling before providing a detailed description of the schools themselves. It was Silberman's feeling that the change in British education grew out of the pragmatic responses of a great many teachers, that it was backed by a substantial body of theory about the nature of children and the ways in which they grow and learn, as well as about the nature of knowledge, the process of instruction and the aims of education. Teachers' intuitive responses had strong theoretical support in the writings and work of people such as Rousseau, Froebel, Montessori, Dewey, Susan Isaacs, Bruner, and, most importantly, Jean Piaget whose forty-odd years of study in the development of children's mental processes are just beginning to be appreciated in the United States: Describing Piaget's contribution, Silberman declared:

So far as educational practice is concerned, Piaget's most important contribution has been his demonstration that the child is the principal agent in his own education and mental development. To be sure, mental development occurs through an enormously complex and continuous process of interaction between the child and his environment that begins at birth. But the critical factor is the child's own activity in assimilating his experiences and accommodating to them; the child is continually forming mental images or structures within his mind corresponding to his experience of the world outside, and continually modifying these structures as a result of new experiences (1970, p. 215).

To use Piaget's phrase, what "actualizes these possibilities," Silberman concluded:

... what enables the child to progress from one stage to another--is his own activity. Learning, indeed the development of intelligence itself, is a continuous
process of assimilating the external facts of experience and integrating them into the individual's internal mental structures. The activity is crucial: the child, or for that matter, the adult, must discover understanding for himself. He must actively invent and re-invent what he wants to understand, for understanding, as Piaget puts it, is a transformation of reality. To know something is not merely to be told it or to see it but to act upon it, to modify and transform it and to understand the process, and consequences, of the transformation. In the words of an old Chinese proverb,
I hear, and I forget;
I see, and I remember;

Silberman intimated that this did not mean that the child developed in isolation, but reflected Piaget's contention that the human being is immersed from birth in a social environment which affects him just as his physical environment and that social life affects intelligence. Silberman stated:

... Thus, Piaget insists on the fundamental unity of the cognitive and affective domains; feeling is an aspect of thought. The infant's egocentricity, for example, is a function of the crudity of his mental structure; it is "nothing more than a lack of coordination, a failure to 'group' relations with other individuals as well as with other objects"—an inability to distinguish between what is internal and what is external (1970, p. 217)

According to Silberman, teaching meant providing young children with an abundance of concrete materials they can explore, manipulate and handle—materials they can play with. He reaffirmed the conviction that "play is a child's work and is the principal means of learning in early childhood."

The emphasis on play and on the individual child's activities and interests in no way implies anarchy; quite the contrary. "When I say 'active,'" Piaget declares, "I mean it in two senses. One is acting on
material things. But the other means doing things in social collaboration, in a group effort . . . where children must communicate with each other. This is an essential factor in intellectual development. Cooperation," he adds, "is indeed cooperation" (1970, p. 219).

Silberman called attention to David Hawkins' contention that the teaching-learning process in the informal classroom could best be understood in terms of a triangular relationship consisting of the child, the teachers, and the concrete materials in the classroom. Silberman referred to Hawkins' analogy that this corresponded to Martin Buber's "I," "thou," and "it" as the child (I) became involved with the stuff (it). The teacher shared his involvement, so that it became "we" confronting "it." Silberman concluded that the process never could be involving the child's confrontation of the materials alone.

Ronald Barth expanded this concept in his concern for teaching the way it is and the way it could be. It would appear that his assumptions were based upon the learning theory developed by Piaget. Barth suggested that knowledge was "unique to each individual" and that a child learned from the "direct personal exploration of his environment." He represented child learning in the classroom with the following model:

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Child  Real World
\|/                    ↓
Teacher
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As described in the above diagram, learning occurs during the interaction between the child and the real world. The real world may be an idea, a person, a gerbil or a can of paint and a brush. The teacher's place
is somewhere outside the learning process. Her role is
to help provide the conditions which will make a child's
active exploration both likely and fruitful. There is
a mutual interchange between the child, the world and
teachers, but it is the child who is the foremost agent

Barth identified this as an open education model. In
this model he pointed out certain assumptions about learning and
education which would underlie this model. These included:

**KNOWLEDGE**

1. The quality of being is more important than the
   quality of knowing; knowledge is a means of education,
   not its end. The final test of a man is what he is, not
   what he knows.

2. Knowledge is one part of an individual's per­
   sonal experience and cannot be divided into nearly sep­
   arated categories or disciplines.

3. The structure of knowledge is personal and idio­
   syncratic and formed by each individual's experience
   with the world.

4. It is questionable whether there is a minimum
   body of knowledge which is essential for everyone to know.

5. It is possible, even likely, that a person may
   learn and possess knowledge and yet be unable to display
   it publicly. Knowledge resides in the knower and not in
   its public expression.

**CHILDREN'S LEARNING**

1. Children are innately curious and display ex­
   ploratory behavior quite independent of adult interven­
   tion.

2. If a child is engaged in active exploration, im­
   portant learning is taking place.

3. A rich environment which offers a wide array of
   manipulative materials encourages exploration and facil­
   itates learning.
4. Play is not distinguished from work as the predominant mode of learning in early childhood.

5. Children have both the competence and the right to make significant decisions concerning their own learning.

6. Children will be likely to learn if they are given considerable choice in selecting the materials they wish to work with and the questions they wish to pursue.

7. When more than one child is interested in exploring the same problem or the same materials, they will often choose to collaborate in some way.

8. Children learn and develop intellectually not only at their own rate but also in their own style.

9. Children pass through similar stages of intellectual growth, but each in his own way, at his own rate and in his own time.

10. Intellectual growth and development occur through a sequence of concrete experiences followed by abstractions.

EVALUATION

1. The preferred source of verification for a child's solution to a problem comes from the materials he is working with.

2. Errors are necessarily a part of the learning process; they are to be expected and often desired, for they contain information essential to further learning.

3. Those qualities of a person's learning which can be carefully measured are not necessarily the most important.

4. Objective measures of performance may have a negative effect upon learning.

5. The best way to evaluate the effect of the school experience on a child is to observe him over a long period of time.

6. The best measure of a child's work is his work (1970b, p. 99).
Barth viewed the teacher responsibility as one creating the condition which would make children active in exploration of the real world likely and fruitful. The teacher would become a clinician observing what each child is doing, what questions he is asking, what problems he is having, what path he is choosing. The teacher must diagnose, prescribe and help, not only by encouraging exploration, but by sustaining it.

American educators have become increasingly interested in the interpretation and application of Piagetian principals. Increased focus has been upon British primary education and open education. Published reports of studies along Piagetian lines have been so numerous only selected publications which seemed applicable to this study are included in the following section. These deal mainly with implications for interpretation and application of the research of Piaget to the education of young children.

American Educators' Views of the Application of Piaget's Theories to Educational Practice

The materials surveyed indicated that Piaget did not consider himself an educator and did not principally concern himself with problems of education. His work was primarily designed to provide a theory of knowledge based upon empirical evidence. Even so, Piaget's work has had great impact upon education and educators. Today his work is regarded by American psychologists
not only as contemporary but even avant garde. David Elkind remarked:

The past decade has borne witness to a phenomenal growth of interest in Piaget's work and thought. While this interest is widespread among psychologists, psychiatrists, pediatricians, sociologists, and philosophers, it is particularly prominent among educators. As a consequence, books and articles dealing with Piaget's work and directed toward educators are appearing in ever increasing numbers (1970, p. 81).

Elkind identified general principles for education implicit in Piaget's image of the child. He felt first it implied that the foremost problem of education was communication. Elkind interpreted Piaget as viewing the child as having a host of ideas about the physical and natural world, but that these ideas differ from those of adults and are expressed in a linguistic mode different than that of adults. "The first prerequisite, then, for educating children, is developing effective modes of communication with them. That is to say we must learn to comprehend what children are saying and to respond in the same mode of discourse (1970, p. 84)."

The second implication as viewed by Elkind was that the child was always unlearning and relearning as well as acquiring entirely new knowledge. The child came to school with his own ideas about space, time, causality, quantity, and number. These ideas were considered by Elkind to be incomplete in comparison with those of adults. Indicating this second principle of education, he stated that "The concept of education must, therefore,
be broadened to encompass aiding children in the modification of their existing knowledge in addition to helping them to learn new material (1970, p. 84)."

The child "is by nature a knowing creature" was the third implication for educational philosophy in Elkind's opinion.

... If the child has ideas about the world which he has not been taught (because they are foreign to adults) and which he has not inherited (because they change with age) then he must have acquired these notions through his spontaneous interactions with the environment. This means that the child is trying to construct a world view on his own and is limited only by his abilities and experience. Education need not, then, concern itself with instilling a zest for knowledge within the child since the desire to know is part of his makeup. Rather, education needs to insure that it does not dull this eagerness to know by overly rigid curricula that disrupt the child's own rhythm and pace of learning (1970, pp. 84-85).

Elkind and Flavell (1969) edited a series of essays in honor of Jean Piaget in Studies in Cognitive Development. The contributors addressed themselves principally to the analysis and explication of Piaget's conceptualizations, some to research problems and possibilities raised by the Genevan investigations, and some to the practical application of Piaget's work. The editors declared that this was a special tribute to Piaget that so many psychologists who did not speak his language and who had never attended his classes or seminars, nevertheless considered him their teacher.

In this publication Irving Sigel attempted to apply the studies included in the text to the Piagetian system and the world of education by stating:
Piaget's theory is a theory of intelligence, where intelligence is broadly conceived as an adaptation to the social and physical environment (Piaget 1963). Intelligence is that set of actions and processes by which man assimilates knowledge and makes the necessary accommodations to this new knowledge. The actions taken in such acquisition reveal that Piaget's system of intelligence includes the processes of thought as well as the products of thought. Thus, his is a functional, not a psychometric view. More important perhaps, for the educator, is that intelligence is developmental, and describes the acquisition of knowledge in terms of defined stage sequential behaviors (1969, pp. 465-466).

In addition to the aforementioned, Sigel continued, Piaget concerned himself with the mental processes when knowledge is being acquired.

... Specifications of the processes involved in learning substantive concepts extends our understanding of how knowledge is acquired. In essence, Piaget's conceptualization of the psychology of intelligence is developmental in formal, substantive in content, and operational in behavior. These characteristics make the theory eminently germane, if not essential, for education.

The congruence rests, of course, on a conception of the educational endeavor as guiding a developing organism through the stages of intellectual growth, providing him with appropriate organization of subject matter (curriculum), introducing information at appropriate time levels (spacing and sequencing), in an appropriate manner (teaching strategy) (1969, pp. 465-466).

Sigel indentified the relationship between Piagetian theory and teacher awareness of development. He felt teachers must have a "conceptual framework" within which and by which to establish programs, devise teaching strategies, and embark on innovations.

... A conceptual framework provides the basis for a coherent and rational program. Working within a
coherent system, the educator is in a position to estab-
lish criteria by which to assess the child's development
level and to establish relevant levels of curriculum
content. Innovations can be established more ration­
ally and integrally, since bases for innovation can be
derived within the system (1969, p. 467).

Sigel also felt that knowledge of some of the principles
of intellectual development from a Piagetian framework would en-
able the teacher to define the level at which children were
functioning and thereby give the content and most of the instruc-
tion appropriately. Sigel identified the following Piagetian
propositions which he felt were highly relevant for the educa-
tional endeavor:

(1) intellectual development is dependent on con-
frontations with the social as well as physical environ-
ment; (2) intellectual development proceeds by orderly
invariant sequences (stages) with transitions from
stage to stage; (3) acquisition of new knowledge comes
about through appropriate assimilations and accommoda-
tions resulting in equilibrated cognitive structure;
(4) language is a facilitator varying in significance
as a function of the developmental level of the child

Teaching strategies derived from Piagetian conceptualiza-
tions were discussed by Sigel. He defined a teaching strategy as
one reflecting the teacher's conception of the learning process,
the nature of the learner, and the nature of the subject matter.
"If a teacher believes that maximum learning occurs through drill
and repetitions, his teaching strategy will reflect this belief.
If he is convinced that learning is enhanced through discovery,
he will use such techniques to effect that goal (1969, p. 472)."
Sigel thought of the teacher as being in a strategic position to influence the child's school environment. Creating a facilitating physical and social environment from a Piagetian point of view, required attention to and consideration of the setting, he emphasized.

Detailed specification of the ecology of the classroom needs to be done, with such specification dependent on the cognitive level of the children. Since activity is a significant requisite for the growth of cognitive structures, opportunities to manipulate objects and ideas in active interaction situations with others is necessary. Of particular importance is the kind of material available. Use of activity may occur, for example, with the teacher working in small groups, guiding the children's interaction with objects (1969, p. 474).

The use of language and interpretation of language in the socio-educational context provided additional experiences which fostered cognitive growth according to Sigel. Thus, he expressed his view on this area:

The teacher must be sensitive to the child's capacity for assimilating verbal language as well as be aware of the relationship between the child's language and his thought. . . . The child's correct contextual use of a term is not necessarily indicative of his comprehension of that term or an accurate reflection of the child's ability to understand the logical basis of the concept. The comprehension depends on the particular stage of the child, e.g., sensori-motor, concrete, or formal. For example, a child may use such terms as "brother" and "metal" very early. The child at the concrete stage as well as the adolescent at the formal stage will use the terms correctly. But the comprehension is not equivalent. For the concrete-stage child the word brother is defined as a boy "who lives in my house." For the adolescent, brother is a relational term defined in terms of kinship and interrelationship. To comprehend the concept of brother in all its relational significance requires the child to be able to employ the mental
operations of reciprocity. Not until the child can deal with reciprocal relations can he understand the true nature of the concept "brother" since it is a term denoting reciprocal relationships. Thus, the limited definition of brother given by young children is due to immaturity in cognitive processes not just limits of vocabulary (1969, p. 475).

Sigel concluded that the teacher had to be cognizant of Piagetian theory to evaluate the degree to which children were able to assimilate material and accommodate correctly. He felt that the teacher was not able to "force new cognitive structures" as such, but rather would "provide the atmosphere in which optimal growth" could take place.

Mary Ann Spencer Pulaski identified teacher training as making a difference in that teachers needed help in understanding and applying Piagetian concepts in their teaching framework. She stated, "The problem of teacher training is, then, the key problem upon whose solution the fate of the schools depend. Piaget has shown us how this problem must be solved--by giving teachers more initiative, more freedom, and a better foundation in child psychology and research (1971, pp. 204-205)." Pulaski went on to describe the British infant schools where Piaget's theories had helped to support change. It was only in this kind of setting, where a child's innate curiosity and desire to learn was tapped which reflected the Piagetian concept of learning, would change be successful.

In the 1972 Association for Supervision and Curriculum Development Yearbook, the results of a study on "progressive
education" were presented. Willis Overton contributed a section on Piaget's theory of intellectual development. He noted:

... at a recent meeting Piaget was asked to discuss his views concerning the educational implications of his work. He replied that the single most important aspect of his theory for education was the recognition that knowledge is not a copy of the external world but a construction based upon the interaction of individual activity and external influences. Further, he noted that the schools might establish either of two educational goals. First, they might view education as the acquisition of a body of ready-made facts in memory. Second, they might view education as the process of building individuals to create new forms of knowledge. Clearly both Piaget's work and the principles of progressive education have been devoted to the realization of the latter goal (1972, p. 114).

Detailed descriptions of the use of Piagetian techniques in assessing children's thinking with implications for education continue to become more available in professional literature. Among those found especially applicable for programs, especially to early childhood, include Young Children's Thinking by Millie Almy, Edward Chittenden, and Paul Miller (1966), Piaget's Theory Applied to an Early Childhood Curriculum by Celia Lavatelli (1970), Studies in Cognitive Growth by Jerome Bruner, Rose Oliver, and Patricia Greenfield (1966), Logical Thinking in Children, Research Based on Piaget's Theory edited by Irving Sigel and Frank Hooper (1968), Piaget for Teachers by Hans Furth (1970), as well as a number of selected articles included in magazines and professional journals.

Throughout these materials common elements were identified. These included the clinical approach used in posing
questions for the child's consideration, the use of materials for manipulation in solving problems, the respect and acceptance given to the child's response, the focus on providing lift and extension to the child's thinking through the use of appropriate language and further questioning the recognition to the concept that learning is coextensive with life processes, and that learning is an ongoing activity for every child at whatever stage of development he might be.

David Elkind (1970) suggested that the teachers' true dedication to growth involved a commitment to helping every child find his own abilities in his own way and in his own time. In addition, this involved the recognition that growth, like life in general, involved conflict, constant change, and no end of problems. Elkind concluded that the teacher who reflected in his own behavior a dedication to growth and the courage to live will by example provide a model for young children as they are helped to reach out to investigate, explore, experiment, and learn as a "try on life."

Summary

This chapter was concerned with the learning theory of Jean Piaget as interpreted and applied by British and American authorities. Reference was made to studies by American educators utilizing Piaget's theories as related to the cognitive functioning of young children and their application to educational
practice. Major focus was placed upon the interpretation and application of Piaget's learning theory to early childhood curriculum.
CHAPTER 5

INFLUENCE OF BRITISH EDUCATION ON AMERICAN EARLY CHILDHOOD PROGRAMS

This chapter described programs for young children in the United States which reflected aspects of British primary education. These aspects have been considered as some of those transferred from British practice in the development of programs in the United States. Further considerations were made for possible utilization of British reforms in American programs for early childhood education. Problems in change which might be encountered in the development of such programs were identified. A model for early childhood programs was presented in the conclusion of this chapter.

(1971) were among those authors who offered descriptions of open education and alternative schools in the United States.

Reflected by many authors was the question posed in an article in Nation's Schools, entitled "Can British School Reforms Work Here?" In this article open education was defined as referring to an approach to elementary school teaching which had spread widely throughout the British infant school since World War II and which had been cropping up in a variety of American classrooms over the past four or five years. This report described open education in the following manner:

Based on an impressive body of research and theory on how children do - and do not - learn, the approach discards the usual elementary classroom set-up and the traditional roles of teacher and student for a freer, more informal, and highly individualized learning experience.

Although there is a world of difference between British and American schools working with open education, characteristics common to classrooms using the approach on both sides of the Atlantic are:

Classrooms are decentralized and the familiar rows of desks and chairs replaced with separate "learning areas."

Children are free most of the time to move throughout the room, talk to each other, and choose their own activities. Children from different grades frequently work together in the same classroom.

Teachers work mostly with individual children or groups of two or three.

Heavy stress is placed on designing a classroom environment rich in learning resources, including plenty of concrete materials as well as books and other media (1971a, p. 47).
Three of the Follow Through models are summarized to provide description of changed programs illustrating ways in which current early childhood programs chose to pattern after British infant school programs.

One such program which reflected such transfer of British practice was the Open Door Program in New York City which Lillian Weber, New York University, helped to develop. In 1971 Open Door was still relatively new. The "Open Door Report," published by the Center for Urban Education, described the early experiences of the first two schools in the program which began in 1968. In the school year 1969-70, four more schools instituted the program and in 1971 six additional schools were included. In the foreword to this report it was stated that Open Door was bringing new life to the schools which had adopted it.

Professor Weber is an authority on the English approach to early childhood education, and her own program is built on some of the same theories. Yet OPEN DOOR is not an attempt to replicate an English design. Its importance stems from its focus on specific needs and problems in urban public schools in this country. Its potential for success lies in its ability to undercut the tensions in such schools--tensions that are only touched upon in the body of this report--and to engage fully teachers and administrators in the process of deepening the in-school learning experiences of young children.

Mrs. Weber is a master of strategy. Her use of the corridor outside the classroom as a highly visible "noninstructive model" is simple but ingenious. Her approach to grade mixing is a new and positive use of vertical organization in the elementary school. Her respect for individual teaching styles and her attempt to involve all teachers in the making of program decisions have resulted in a staff commitment independent of her presence at any given school in the program (1971b, p. ii).
Lillian Weber (1971b) described the Open Door Program as "a school within a school." One school in the program operated for the most homogeneously grouping children on grade level where they received traditionally structured lessons in their "self-contained classrooms." In one corner of this school things were different. There, five classes—a prekindergarten, two kindergartens, a first and a second grade—were grouped in an L-shaped corridor. For an hour and a half, three mornings and two afternoons a week, a visitor to this part of the school would find the doors of the five classrooms open, children moving from one room to another, and a great deal of activity in the corridor outside.

The atmosphere of Open Door at another school was similar, but the arrangements differed. Here the use of the corridor was more limited than in the first school described. The program relied more on internal changes in four contiguous kindergarten and first grade classrooms. The teacher-pupil relationship had been revised and reformed. The teacher no longer expected to receive continuous attention; she no longer considered the entire class a homogeneous unit. Children worked in four or more separate small groups, while others worked by themselves. A description of the visits was written:

Here the use of the corridor is more limited than PS 123; the program relied more on internal changes in four contiguous kindergarten and first grade classes. In these classes, the school has drastically revised and reformed the teacher-pupil relationship: the
teacher no longer expects to receive continuous attention; she no longer considers the entire class a homogeneous unit. This is how the same observer described a first grade class in PS 84:

Children worked in about four separate small groups, while others worked by themselves. There was a math lesson going on directed by the teacher. A visiting parent was reading to three girls. An aide sat among a gathering of five children showing them how to know. A fifth grader who had dropped by for a visit was showing two of the first graders how to clean a rabbit cage. Children were building boats, shaping clay, painting. A reader came up to the teacher to ask a question, listened for a minute at the math table and decided to stay and participate. When the teacher excused herself to talk to a visitor, one of the children took over the task of leading the group in a game involving mathematical relationships. A high level of enthusiasm continued throughout the day. Children, on their own, left their groups and helped themselves to various pre-reading games set up in large envelopes along the blackboard ledge. These included games that required putting together parts of sentences or words to make complete sentences or words, as well as lotto games. Other children worked from similar set-ups on opposite walls for number and measurement activities, science, and perceptual discrimination practice. Most of the material had been designed and constructed by the teacher. None of the children or the adults working in the room seemed in the least bit put out by the level of noise. Voices adjusted to the immediate group. The teacher was in continual movement, stopping sometimes five minutes, sometimes fifteen minutes, to work with a group or a child. In the course of a week, she explained, she would check on the progress of all the children at least once to insure the ground she wanted covered was indeed being covered (Lillian Weber 1971b, p. 13).

The report indicated that the reason for change in the traditional learning environment of these New York City schools was based upon the observation of children who had entered public school classes after participating in Head Start programs. During the early days of the Head Start programs it was found that most gains achieved during the eight-week program of sensory
and language enrichment disappeared when the Head Start child entered first grade. In Head Start he was exposed to enrichment materials and individualized instruction; interaction with other children and adults encouraged him to discover things by himself. The typical urban elementary school had no enrichment materials, insufficient individualized teaching, and inadequate interaction. Lillian Weber explained the problem in the following terms:

The usual classroom has prescribed standards of accomplishment, a preplanned curriculum, almost total emphasis on verbal learning, limited environment, very little interrelating of one area of learning with another, very little small group instruction, and a widespread use of homogeneous grouping. The teacher's presentation rarely recognizes differing levels of development, accomplishment, motivation, pace or mode of learning. Failure for some is built into such a setting (1971b, p. 15).

In the spring of 1967, the U.S. Office of Economic Opportunity proposed limited funding of Follow Through programs that would seek to retain Head Start gains in the elementary school. A number of educators, Lillian Weber among them, believed that a successful Follow Through would entail structuring the normal school and classroom in a manner similar to Head Start. Weber believed that such restructuring called for a major overhaul of current teaching methods and administrative practices, as well as of classroom structure and behavior. She believed that the self-contained classroom isolated teacher from teacher and perpetuated the whole-class mode of instruction in which the
teacher had been trained. Such isolation and the size of the school, Mrs. Weber observed, were "serious obstacles to change."

Other Follow Through programs reflected similar purposes in providing similar continuous experiences for young children. One of these was the Morgan Community School Follow Through Program. The instructional program was described as one modeled after the English infant school. In 1968, the program was being implemented in seven classrooms of thirty children each. These rooms were divided into two units; three rooms on one floor, four on another each constituting a unit. Classrooms were ungraded, with sixteen five-year olds and fourteen six- and seven-year olds in each. Each classroom had one teacher and two community interns.

After study and observation of British infant schools was made, Follow Through started at Morgan in September of 1968. It modeled the ages 5-7 and 6-8 groups after English informal education. However, the program has been modified and changed since it began. A description of the 1970-71 program was included in The Morgan School report by program analysts Sol Gordon and Doris Kassin:

The school still operates according to a nongraded cooperative teacher format. Eight adults work with about 100 heterogeneously grouped children, using four rooms (25 children per teacher with an intern assigned to each room). In the younger teams, classrooms are now self-contained, with the same staff throughout the day. In the older teams, each teacher selects one area of specialization, depending on her own special talent or interest, and then operates a learning center in
that subject. In both the learning centers for older children and the self-contained classrooms for younger children, students work in loose groups or clusters on different activities or various phases of a subject. This informal organization is modelled on the British Infant School.

One teacher on each team is a coordinator for the larger group. At team staff meetings after school hours, the coordinator works with other adults on curriculum, activities, and individual problems. Except for general aims and goals and course planning, which emanate from the principal for older students and from the principal and Follow Through director for younger students, the teachers function as more or less independent agents (1971, pp. 26-27).

Training for people working in this school was given top priority. School leaders were dissatisfied with some of the teachers' interpretations of the British infant school methods. From observation and talks with Mr. Norman Precious, headmaster in a Leicestershire School in England, it was decided that something had been lost in translation from a rural English school to an American ghetto school. Arrangements were made for Precious to direct a two-week seminar during the summer of 1970. The seminar included several evening sessions for purposes of interpreting the infant school philosophy to the community. The daytime program consisted of morning lectures and discussion for teachers followed by afternoon workshops and demonstrations. A summary of Norman Precious' talks was included in the report.

In his talks, Mr. Precious pointed out that the process of informal education is very gradual, in which there are steps that may appear very traditional yet are not, if only because of the teacher's attitude. He maintained that personal commitment and continuity are essential if people are to implement such a program;
obstacles and setbacks must be accepted without aban-
donning the program concepts.

Mr. Precious stated that teachers cannot give stu-
dents the benefits of experience and knowledge without
giving them proper guidelines, modeling behavior pat-
terns and standards, and making clear the discipline
involved in work. These aspects of learning should be
interpreted in an individual way, with each child help-
ing to formulate the rules and understanding the reasons
for them. "We cannot expect children to come into this
world and develop their own rules and standards." He
maintained also that a child must not be allowed to re-
main uninvolved (Gordon and Kassin 1971, p. 31).

Since that period internal problems both in the community
and the school have caused changes in the original design. Board
and teacher turnover contributed to philosophical differences in
how Morgan School should be organized. The teachers' local union
in Washington strongly favored ability grouping. At the time of
publication of the Morgan School Report the following situation
was described by Gordon and Kassin:

In the Morgan School and community, two points of
view highlight the split between two approaches to learn-
ing. Those who stress immediate academic gains talk
about structure, sequential learning, and grade level.
Others, like Mrs. Young, the assistant principal, talk
about creativity, confidence, and ego building—all
the humanistic values that they consider necessary in
order to achieve the academic goals (1971, p. 37).

The analysts reported that regardless of emphasis, qual-
ity education was the accepted goal. As with all conflicts in
philosophy for some providing basic skills teaching was the way.
For others, human relations, the artistic, imaginative, and ex-
citing alternatives that exist in life were the sources of
positive educational values that would be sustained far beyond more obvious but transitory academic gains.

The use of group testing in the Morgan School Program was reported not only to be unreliable but actually misleading. The report stated:

... In testing the lower grades at Morgan School, there was such a wide spread that a group average would have been a distortion. The only way to evaluate what was actually happening was to consider the number of children reading at grade level as against those who were not.

Observations and traditional notions of what constitutes a successful classroom also are not reliable. The noisiest, most bustling classes in the lower grades are the very groups that made whatever academic gains there were. While it is obvious that the school cannot be considered adequate unless skills are taught, better methods are needed to formally evaluate the results.

Although no one is really satisfied that a large majority are reading, writing, and doing arithmetic successfully, teachers, interns, and administrators who have been in the school for some time believe that the children are learning more than they did in the past. There is still interest in a child's initiating much of his activities, but this academic year he is doing it in a more planned environment. There is more direction from the teachers and there are more books and materials that are being used more effectively. One aspect of the informal British Infant School, which was formerly neglected but is not taken seriously, is the recording of a child's progress and work (1971, p. 40).

A third Follow Through model, "A Plan for Continuous Growth" presented in 1969 by David Armington, appeared to be related to the British model. Armington reported that the program drew much of its inspiration from his eight-year association with the revolution in English primary schools. He expressed reluctance to label the program he directed as a "model." He
felt that English primary schools did not represent a system, program, or package since the schools he visited differed widely in style and quality. Armington pointed out that English primary schools had evolved over many decades and fit the English landscape.

We do not claim that the best of English primary school education can or should be transplanted to this country in a mechanical or simplistic way. In the need for continuing change and growth in education, however, both countries share a common concern. We believe that certain fundamental elements of the English experience are applicable to our situation (1969, pp. 5-6).

Those fundamental elements included in the Armington model were the key elements of the open classroom, the teacher as researcher-experimenter, and the use of the advisory team patterned along the lines of the Leicestershire Advisory Center. These were considered all important in the implementation of the model. Armington viewed open classrooms and open curriculum as overlapping when he stated:

In this age of the "knowledge explosion" it is difficult to generalize about the subject-matter content of the curriculum. There is probably no sacred body of information that all children everywhere must be exposed to. What is taught in any particular school or classroom will be strongly influenced by local conditions and objectives. How it is taught and the conditions under which children will be permitted to learn are our major concern (1969, p. 7).

The Plan for Continuing Growth Program reflected a belief that the skills of literacy, reading, and writing developed more surely if they were not treated as academic exercises in a vacuum but were taught in rich environments which stimulated children's
imagination and thought and fostered their desire to communicate.

Common characteristics were seen in this model of the open classroom by Armington. These included:

1. There is a rich environment of materials for children to explore, and there are abundant opportunities for learning through experience.

2. Children's responses to the environment provide many of the starting points for learning. Activities most often arise from the needs and interests of the group rather than from a prescribed curriculum. When commercial materials and programs are used, they must be made available in ways that protect the children's responsibility for their own learning.

3. With guidance from the teacher the children plan their own activities, drawing from a range of relevant choices.

4. Each child is free to explore an interest deeply and is also free to disengage when an activity no longer seems appropriate.

5. Typically, there is a variety of activities going on simultaneously, each child working in ways best suited to his interests, talents, and style.

6. There are few obvious barriers between subjects, and much of the children's work is, in fact, interdisciplinary.

7. There is minimum dictation by the clock. A flexible schedule permits children to learn according to their individual rhythms of engagement and disengagement.

8. The children talk with each other about their work and often work together. Their learning is frequently a cooperative enterprise marked by dialogue.

9. All forms of expressive representation—in the arts and in movement as well as in language—are considered valid and important.

10. Groupings are not based on fixed criteria such as I.Q. or reading level, but are kept flexible, shifting with the changing needs and interests of the children.
11. The teacher serves in a supportive, rather than a didactic role, guiding the children, provisioning and structuring the environment. She is both a sensitive observer of and an active participant in the life of the classroom (1969, p. 9).

Curriculum objectives or educational aims were stated by Armington in the form of questions, such as the following:

- Do the children initiate activities? Are they self-directing? Do they take responsibility for their own learning?

- Are they capable of intense involvement? Does their curiosity often lead to concern, and beyond concern to commitment?

- Do they continue to wonder and to imagine, and do they bring their sense of humor into the classroom?

- Are they willing to face uncertainty and change, and to tackle complexities that they have not been taught how to manage? Are they unafraid of being wrong?

- Do they challenge ideas for the purpose of reaching deeper understandings? Are they open and honest with themselves, with adults, and with each other?

- Do they respect themselves, others, and the environment? Are they learning responsibility as an integral part of freedom (1969, p. 8)?

The role of the teacher in this Follow Through model was seen as "researcher-experimenter" as Armington reported:

The concept of teacher as authority figure and supreme dispenser of knowledge must be changed. Not, more than ever, learning requires that teachers, as well as children, adopt the spirit and style of the experimenter. Because of recent developments in learning materials and technology, it is now possible to provision the school environment richly, to put the world of man and nature at the fingertips of each child. We now have the capacity to produce a varied and truly flexible learning environment responsive to a wide variety of backgrounds, interests, and talents. In such an environment the teacher must be, first of all, an investigator of his
students, diagnosing their strengths and weaknesses, making decisions appropriate to their individual growth. Secondly, he must have the opportunity, indeed the responsibility, to continue his own learning. The classroom environment we envision makes it easy for children and teachers to be collaborators in learning (1969, pp. 9-10).

The final key element in this model was that of the role of the advisor. The advisory team was described as one established to help school systems, teachers, and administrators who were attracted to this philosophy of education and who wished to take first steps in pulling it into practice. Specific activities of the advisory team were listed as characteristics of some of the major kinds of activities advisors were involved in:

1. Conducting orientation courses for teachers and administrators in the philosophy of the open classroom and in techniques for making it work.

2. Visiting classrooms on a regular basis (currently four advisor-days per month at each site, the advisors working in pairs).

3. Conducting teacher workshops in reading, mathematics, science, and art within the context of the open education classroom.


5. Conducting seminars for teacher-aides and community helpers.

6. Conducting evening programs for parents, including film and slide presentations, and classroom workshops in which the parents have a chance to explore, understand and contribute to the learning materials available for their children.

7. Arranging for outside consultant services in response to specific needs and requests.
8. Carrying on a continuing dialogue with individual teachers about their own situations, working out with each one some appropriate next steps for the development of her classroom.

9. Writing letters to teachers as follow-up to oral discussions. Such letters typically contain suggestions custom-tailored to individual needs and capabilities.

10. Providing books, pamphlets, and articles in response to general need and as part of continuing in-service education.

11. Providing special curriculum materials on a custom-tailored basis.

12. Providing assistance to teachers in securing free and inexpensive materials to enrich the classroom environment.

13. Developing learning materials, often in response to particular classroom needs, and often from ideas that originate in the classroom.

14. Developing prototypes of various kinds of instructional equipment and attempting to arrange for their replication in quantities needed for classroom use.

15. Providing the facilities of a design laboratory so that a teacher's promising idea for a piece of classroom equipment can be developed.

16. Trying to arrange for adequate discretionary funds to be made available to teachers, so that small purchases of materials can be made in response to needs as they arise. A teacher should not need to pay for the "extras" out of her own pocket, since these "extras" are so often essential.

17. Arranging for teachers to visit each other's classes, both within and between school systems.

18. Developing a communications system based on printed material: for example, classroom vignettes of children's learning; brief commentaries on the use of learning materials; monographs dealing with learning and curriculum; and extracts from worth books and articles on education.
19. Trying to find out from the appropriate school administrators why certain classroom materials might not have been ordered or, if ordered, why not delivered.

20. Maintaining communication with appropriate administrators, bring to their attention ways in which they can lend further support to teachers and to the program in general (Armington 1969, pp. 13-14).

This listing would suggest three aspects of the advisory concept as developed in this Follow Through model: strategy for change, the advisory way of working, and the functions of a comprehensive advisory service. These were seen as different from the traditional role of supervisory personnel who used methods of introducing teachers to new materials characteristic of "our syllabus oriented culture."

The Armington-directed Follow Through model, "A Plan for Continuing Growth," utilized the advisory services of the Educational Development Center in Newton, Massachusetts. Advisors from this center worked in pairs and spent several days of each month in school districts where they provided services. As they continued to work in specific areas it was recognized that long-distance advising by such a group could not be effective without active and sustaining participation by the local school district. This meant that local personnel, in addition to administrative staff, were available to provide continuing support to teachers. It was felt that local advisory services must be established within each school district, if open and flexible forms of education were to develop.
The aspect of early childhood education at the Educational Development Center at Newton was described by Armington:

Head Start proposed to get children ready for schools as they are. The existing institutions were regarded as "givens" in the situation. There was widespread recognition of the fact that most schools, even those in poverty areas, have a strong middle-class bias, and it was felt that if so-called disadvantaged children could be given compensatory training to offset the meagerness of their home backgrounds they would then be ready to succeed in these middle class schools. Experience has demonstrated the fallacy of this premise. The widespread failure of Head Start children to prosper once they entered regular school testifies to the profound inability of these schools to meet the real needs of the children. But these schools are not solely to blame. Schools in more favored surroundings also fail, and on a grander scale than most educators care to admit. There is a general sickness that afflicts much of American education, in the suburbs as well as in the big cities. This sickness can be described most simply as the dehumanization of the educational process.

Fundamental change in the climate of the American school is necessary if children are to find there the challenge and the sense of personal fulfillment and commitment that lead on to a life of learning and purposeful endeavor. The EDC Follow Through Project is not trying to provide compensatory training. Nor is it trying to shore up specific weaknesses in the curriculum or in the children. The educational system does not need minor adjustments. It requires major overhaul. When we recognize in all seriousness that education begins with individual human beings, we shall have made a significant beginning (1969, p. 22).

The Open Classroom

Beatrice and Ronald Gross referred to the open classroom as one reflecting a new approach to teaching—a new approach to teaching that discarded the familiar elementary classroom setup and the traditionalized roles of teacher and pupil. These were
replaced by a far freer, highly individualized child-centered learning experience. They suggested that this approach was one for which the open classroom seemed the most useful label.

This approach is based on a body of new theory and research on how children do and don't learn, but its attractiveness for educators is even more directly attributable to the fact that it is highly effective under a variety of circumstances for children between the ages of five and twelve. It has spread widely throughout the British school system since World War II, and in the past five years it has been introduced in a variety of American schools, ranging from rural Vermont and North Dakota to inner-city classrooms in Philadelphia, Washington, Boston, and New York.

This year the Office of Economic Opportunity sponsored twelve Open Classroom training centers in nine cities as part of Follow Through, its program for continuing the social and intellectual growth of "deprived" children graduating from Head Start programs. The Open Classroom movement has also won the support of the Ford Foundation, which is funding several efforts to encourage its dissemination in public schools (1970, p. 71).

Assumptions in relation to learning were described by the Grosses in the following manner:

The teachers begin with the assumption that the children want to learn and will learn in their fashion; learning is rooted in firsthand experience so that teaching becomes the encouragement and enhancement of each child's own thrust toward mastery and understanding. Respect for and trust in the child are perhaps the most basic principles underlying the Open Classroom.

From the application of these principles derive the most notable characteristics of learning in such a classroom: a general atmosphere of excitement; virtually complete flexibility in the curriculum; interpenetration of the various subjects and skills; emphasis on learning rather than teaching; focus on each child's thinking and problem-solving processes, and on his ability to communicate with others; and freedom and responsibility for the children (1970, pp. 71-72).
Beatrice and Ronald Gross felt that the theoretical base of the open classroom was found in the work of Jean Piaget, as they stated:

Piaget is best known for his finding that intelligence—adaptive thinking and action—develops in sequence and is related to age. However, the ages at which children can understand different concepts vary from child to child, depending on his native endowment and on the quality of the physical and social environments in which he is reared.

... Piaget is critical of classrooms where the teacher is the dominant figure, where books and the teacher's talking are basic instructional media, and where large group instruction is the rule, and oral or written tests are used to validate the whole process. Clearly from his findings, traditional teaching techniques are ineffectual. But for children who must depend on the school environment as the richest they are to encounter, it can be downright damaging; denied a chance to grow, their minds may actually atrophy (1970, p. 84).

Referring to three of Piaget's books, The Origins of Intelligence in Children, The Psychology of Intelligence and The Construction of Reality, which proved that "it is a waste of time to tell a child things that the child cannot experience through his senses," the Grosses continued:

... The child must be able to try things out to see what happens, manipulate objects and symbols, pose questions and seek their answers, reconcile what he finds at one time with what he finds at another, and test his findings against the perceptions of others his age. Activity essential to intellectual development includes social collaboration, group effort, and communication among children. Only after a good deal of experience is the child ready to move on to abstract conceptualizations (1970, p. 84).
In reports about open classrooms in the United States a common question has been raised, "Can the open classroom approach transform American primary education as it has appeared to be doing in England?" The Open Door model in New York expanded in three years to include thirty-seven classrooms. Such classrooms were used as training centers by Lillian Weber who said, "When I started placing student teachers, after coming back from England, there wasn't one classroom in New York City that I could put a teacher into where she had the slightest chance of being able to apply the theories of how children learn that she was studying at the college [New York City College] (1970, p. 84)."

Philadelphia was another large city providing support to open classroom approaches. Mark Shedd, administrative head, put himself behind this approach as one element of reform which might "turn on the system." In 1970 eighteen teachers were using the open classroom approach in five schools and twenty more were trying it on their own.

On the national level the Educational Development Center, a non-profit curriculum development agency in Newton, Massachusetts, sponsored a workshop which provided advisory and consultant services and which developed materials under grants from the Ford Foundation and the federal government's Follow Through program. To spearhead the movement in this country, EDC imported experienced British educators, such as Rosemary Williams, who
directed the Westfield Infant School. Through these activities, EDC advised teachers in more than one hundred classrooms in eight states.

The Follow Through model, "A Plan for Continuing Growth," described in the first section of this chapter served as an example of the role of the Educational Development Center in providing support and help in developing changed programs.

Problems in Change

What are the problems in change? One of the problems cited in most materials was the quick acceptance of the fad for educational reform. Beatrice and Ronald Gross suggested that, "an innovation comes roaring in on a wave of rhetoric, there is a bustle to get on the band wagon, things seem to be burgeoning, and then suddenly disenchantment occurs when reality falls short of the glowing press releases (1970, p. 85)."

Problems relating to sudden and extreme change were identified in the description of the Morgan School Follow Through Program. Community and internal problems developed as the program developed. Program analysts indicated that open classroom projects often were not given sufficient time to evolve and mature. Developing understanding and talent to make them work was time-consuming and required trust on the part of parents, community, and teachers themselves. A statement made by Beatrice and Ronald Gross reflected this concern:
The Open Classroom seems precariously based on a kind of trust little evident in education today. Teachers must trust children's imagination, feelings, curiosity, and natural desire to explore and understand their world. They also must learn to trust themselves—to be willing to gamble that they can retain the children's interest and respect once they relinquish the external means of control: testing, threats, demerits, petty rules, and rituals. School administrators, in turn, must trust teachers enough to permit them to run a classroom that is not rigidly organized and controlled but, rather, is bustling, messy, flexible, and impulsive. Parents must trust school people to do well by their children, without the assurance provided by a classroom atmosphere recognizable from their own childhoods and validated, however emptily, by standardized tests.

Much recent experience suggests that the basis for trust such as this may not exist in American education at present. But perhaps the existence of classrooms where learning based on such trust is taking place will itself help create the beginnings of a new climate (1970, p. 85).

Lilliam Weber, in an interview reported in Nation's Schools, recalled, "... time was the essence in the development of any child, in the development of any human being, and in the development of any program that 'isn't just a gimmick'... but I wonder if we're willing to give anything time to develop in the United States. We tend to demand instantaneous results (May 1971b, p. 59)."

Another concern was with test results of children in open classroom programs. Dr. Sol Gordon of The Center for Urban Education and program analyst for the Morgan School report was quoted in Nation's Schools as saying:

In the climate of our times (demands for accountability, militant community preoccupation with control
of the public schools) no educational program will survive - no matter how exciting the ego-enhancing and humanizing aspects - unless it teaches children to read, write and do arithmetic at functional elementary school levels (May 1971b, p. 51).

Most descriptions of open classroom programs reported that so far the available evidence indicated that open classroom children progress normally in reading and arithmetic skills as measured by standardized tests. In some centers, there were indications of an increased desire to read and write among those children and of somewhat higher scores in mathematics comprehension. Program analysts suggested that further time and later testing would furnish more accurate data. Even so, program advocates suggested that, since traditional classrooms concentrate almost exclusively on basic reading, writing, and mathematics skills in the first two years, these initial test results must be considered significant since open classrooms accord equal status to activities including painting, block building, working with sand and water, and play house activities.

Open classroom theorists felt that standardized tests were obsolete. They agreed that more alternative tests must be developed. Testing centers have been given the charge to develop tests which measure the kinds of gains made in open classrooms on such things as feelings, attitudes, original thinking, creativity, problem-solving, self-direction, and independence.

Another concern voiced by critics of open classrooms was that of whether this kind of education adequately prepares
children for life. Alvin Hertzberg and Edward Stone suggested the need for a relevant curriculum patterned along open classroom integrated curriculum lines as they considered the needs of children in the "now and now future." Since the five-year old in the 1971 classroom would be thirty-five years old at the dawn of the Twenty-First Century, the authors asked, "Is there really a set body of knowledge that he must cover and be able to cope with life in the year 2000? Is it more important that he know how to learn, rather than what to learn (1971, p. 38)."

The traditional classroom has been organized on the unduly concept of a fixed scope and sequence in curriculum. It has been based upon the assumption that all children must be exposed to a set body of knowledge and that there is a basic amount of information to cover, that there are required skills which must be taught in a certain order, and that all children should learn the same things in the same way.

Scope and sequence have often been determined by agencies outside the school, such as textbook publishers, governmental agencies, as well as state and local boards of education. In recent years technology has assisted educators in introducing into classrooms hardware, software, multi-media kits, programmed learning and computer-assisted instruction in which a range and sequence of activities (inputs) are designed to move children toward measurable educational objectives (outputs).
Hertzberg and Stone suggested that this approach was often based on adult notions of learning patterns that are more idealized than real. They observed:

... Just as the textbook sequence will not fit each child, the programmed sequence will not fit each child. At its worst, this mode of instruction pays little attention to principles of child development; at its best, it directs its energies to the realization of an achievement goal without taking into account many other vital interests and attitudes of the child, and without proper concern for the many individualized ways of learning (1971, p. 38).

**A Model for Early Childhood Education**

Most authorities agreed that the British model of an open curriculum was not the model for American education. It was the spirit of this model which has been important in its application in American classrooms. This placed emphasis on creativity, spontaneity and self-development of children. It has been concerned more with how children learn and less with a fixed, predetermined learning product. It has moved away from traditional scope and sequence and has emphasized the active participation of the child in developing his own curriculum. This included an openness by adults guiding children, a great variety of experience, a synthesizing of these experiences, and a genuine concern in individual progress.

Advocates of open classroom philosophy indicated that this approach provided a concept of curriculum that not only emphasized the acquisition of basic skills but at the same time
stressed the growth of independent thinking, a sense of responsibility, and a humanistic view of the world. The open curriculum was seen as one providing a relevant educational program for each child.

In the open classroom, teachers and children shaped the curriculum together. Teachers provided inspiration and guidance for children, created many opportunities for using and learning skills in a natural manner, developed a wide range of opportunities and activities to meet diverse interests, needs and developmental levels of children in the group, and individualized the progress for each child. The curriculum for children in the five to eight year levels emphasized movement and variety so that the child's day included many opportunities for examination, experimentation, discovery, and interaction with materials, ideas, and people. The curriculum was related to the present, the reflecting now.

Teachers were seen as actually custom-making a curriculum for each child. They helped each child achieve a sense of order and progression by keeping accurate records of his growth, by re-examining annotated samples of the child's work, filed in individual folders. These were used in conferences with both children and parents. Continuity and cohesion could be assured by this stress on the individual progress of each child.

A model for early childhood education is depicted in Figure 1.
Figure 1. A Model for Early Childhood Education
The total Learning Environment was viewed as encompassing the immediate and extended environment of the child's world. The survival of changed school programs has become increasingly dependent upon family and community understanding. The understanding and acceptance of how a child learns through interaction with other human beings and the materials in his environment appeared to be crucial in local, state, and national support of changed programs reflecting concepts of open classrooms and open curriculum.

In the model presented (Figure 1) the following elements were included as integral parts of the total Learning Environment:

I. The Individual Child, Children (including peer group relations, family grouping, and cross-age helpers), Teacher and Other Adults reflect the overlapping union of human interaction in the classroom and school environment.

Cutting across the major field are the areas influencing and providing direction for the learning of young children. These include: II Theories of Learning, III Parents and Family, IV the materials and activities utilized in Developing Curriculum, and V the Community including resources and people within the community structure.

Each of these fields reflect dynamic interaction with one another as well as generating forces which influence the behavior of those identified in the central overlapping area.
II. **Theories of Learning** represents the theoretical base for human interaction as well as the base for the developing of curriculum. The curriculum would be based upon an understanding of stages in child development as well as how a child perceives and appears to understand his world. Such perceptions differ in the different stages of development identified by theorists reflecting Piagetian principles. In the diagram, learning theory is shown as cutting across **Human Interaction**, directly influencing the selection of learning materials and activities which are incorporated in the Developing Curriculum.

III. **Parents and Family** reflect direct involvement with the central field of **Human Interaction**, with the **Developing Curriculum**, and the influence of **Learning Theory**. The interrelation of **Parents and Family** as an aspect of the **Community** cuts across the major area of **Human Interaction** in the classroom.

IV. The **Developing Curriculum** reflects all facets of **The Learning Environment**; curriculum including learning materials and activities which, in turn, reflect the content for learning emerging from the interrelation of children with the social and physical world of which they are a part.

V. **Community** interaction with the people in the school setting (the child, children, teacher, and adults in the classroom) as well as the interaction of parents in the school and community is pictures as providing direction for curriculum content. **Community** interaction with the school, the understanding
of both learning theory and methods of curriculum development are the major forces for strengthening local, state, and national support to such developing programs.

Summary

This chapter included descriptions of programs for children in the United States which reflected aspects of British primary education. These aspects were considered as some of those transferred from British practice in the development of programs in the United States. Further considerations were made for possible utilization of British reforms in American programs. Problems in change which might be encountered in the development of such programs were identified. A model for early childhood programs was presented in the conclusion of this chapter.
CHAPTER 6

SUMMARY OF THE STUDY, RECOMMENDATIONS, AND CONCLUSION

Summary

This study included an analysis of recent curriculum and instructional reforms in British primary education with specific focus on the infant school. The study was theoretical and descriptive. British and American published materials augmented by field notes collected through observation and participation were used as sources of data. Consideration was given to aspects of transfer of British programs to programs designed for young children in the United States.

Chapter 1 offered an overview of the study, including the significance of the study, sources of data, and method of analysis. The relation of the infant school to British primary education was the emphasis of Chapter 2. An analysis of recent literature by American educators reporting their views on British education was developed in Chapter 3.

The first three chapters, each in relation to its individual subject of study, included information and analysis in the following areas: (1) historical development of British primary education, (2) philosophy and rationale which formed the basis of
reform in British primary education, (3) theories of learning upon which program development was based, (4) the role of the teaching staff members and their relationship to the learner, (5) identification by authorities of those factors of the program which tended to free the learner and the teacher, (6) identification of those curriculum and instructional areas of the British programs which were considered by British and American authorities as most innovative and appeared to constitute high potential for success in Britain, (7) identification of those aspects of the reform which have caused the greatest concern or criticism, and (8) identification of elements of the program which were relevant for transfer to early childhood education programs in the United States. The content analysis outline including the ranking of data in each of these areas is illustrated in Appendix D.

Chapter 4 included an analysis of the learning theory of Jean Piaget as interpreted by British and American educators. The synthesis of the British and American use of Piaget's theory of child development was used as a major criterion for the formulation of a model of early childhood education in the United States.

Chapter 5 included descriptions of selected programs for young children in the United States which reflected aspects of British primary education. An analysis of these programs was made in relation to methods of development, problems encountered in the development of such programs, and resources necessary for
the maintenance and expansion of such programs. A model for early childhood education programs was presented.

Recommendations for Further Research

In reviewing this study the following areas appeared to be most significant for further research:

1. Learning theory including research in social psychology relating to individual and group perception, socialization and self-concept development.

2. Curriculum and instructional programs including evaluation and measurement.

3. Research in administration, public relations, supervision, costs, use of materials, buildings and equipment, the curriculum structure of primary grades reflecting open classroom-open curriculum versus traditional middle grade structure.

4. Teacher education including pre-service and in-service, the training of paraprofessional aides, volunteer aides, and cross-age helpers.

Learning Theory

In category one, learning theory, including some aspects of social psychology, the following areas for further research seemed significant:

2. Further research on the theories of Jean Piaget.

3. Identification of factors which make a difference in the learning of young children.

4. Investigation of how a knowledge of learning theory tends to affect and influence teacher behavior toward the learner in the classroom setting.

5. An analysis of levels of student interaction in extending intellectual concepts and understanding as reflected in open classrooms.

Curriculum and Instructional Programs
Including Evaluation and Measurement

In this category the following areas appeared to be significant for further research:

1. Measurement as related to children evaluation and measurement of effectiveness of open classroom-open curriculum programs in terms of pupil attitudes; comparison and contrast between children in open and traditional programs, self-concept and attitudes toward others, concept development, and classroom control.

2. A comparison of scope and sequence development of traditional classrooms as contrasted to open programs.

3. A comparison and contrasting of aspects of individualization in open and traditional classrooms.

4. Longitudinal studies of children who have experienced open classrooms in their primary years.
5. A study of standardized evaluation for academic and social adjustment as compared to other types of evaluation procedures.

6. A study of the kinds of materials common in open classrooms which appear to influence pupil growth.

7. Identification of British school programs which have been used as models for school programs other than those described in this study.


Research in Administration and Supervision

The following studies appeared to be significant for research in this area:

1. The use of performance objectives and accountability procedures in open classroom programs.

2. Types of consultant and supervisor services deemed desirable in the development of open classroom programs.

3. Building and equipment costs of such programs.

4. Staffing costs for such programs.

5. Levels of parent and community involvement in open classrooms as well as parent and community attitudes toward open classrooms.
Teacher Education

Research in the following areas appeared to have some significance in teacher education:

1. Factors influencing teacher role perception.
2. Developing measures for teacher attitude change.
3. Factors which inhibit or restrict transition to open education programs.
4. Types of pre-service and in-service programs deemed to be effective in the development of open classroom programs.
5. Factors which tend to change teacher attitudes toward children and learning.

Conclusion

For American educators who were not a part of the progressive education movement in the United States examining the reforms in British education is not rediscovery but an exploration. The emphasis on freeing the teacher and the learner for the purpose of achieving maximum growth has long been sought. It seems incongruent that open education had its emergence within a society whose structure and stratification would tend to inhibit such experimentation. That it did emerge in such an environment and survive as it has suggests that it carries a power stronger than tradition.

It was not the intent of this study to suggest irrational transfer to these shores. The purpose of this paper was to
provide clear insights into a movement which is still relatively dormant in the United States, but where the roots of its possibilities were planted in the developing phases of American education prior to World War II.

The turn of this Century will not only be chronological but ideological. If open education provides freedom and individualization of learning it may be one of the reforms that will be recognized as a major power for educational and social change in the Twentieth Century.
APPENDIX A

COMPULSORY EDUCATION IN INFANT SCHOOLS
UNDER PRESENT ARRANGEMENTS*

<table>
<thead>
<tr>
<th>Month of Birth</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Junior School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Age of Child in Autumn Term</td>
<td>Age of Child in Spring Term</td>
<td>Age of Child in Summer Term</td>
<td>Age of Child in Autumn Term</td>
</tr>
<tr>
<td>Sept.-Dec.</td>
<td>—</td>
<td>5</td>
<td>5 to 6</td>
<td>6</td>
</tr>
<tr>
<td>Jan.-April</td>
<td>—</td>
<td>5</td>
<td>5</td>
<td>5 to 6</td>
</tr>
<tr>
<td>May-Aug.</td>
<td>—</td>
<td>—</td>
<td>5</td>
<td>5 to 6</td>
</tr>
</tbody>
</table>

The above shows that:

(a) There is a considerable difference in age and in the length of time children have been at school when they are promoted to the junior school. Either annual admissions, or termly promotions, would remove one or other of these differences; it is the combination of the two which imposes a double difference.

(b) The number of pupils in the infant school varies greatly from term to term: a school which has about 240 children in the summer term may have less than 200 before Christmas.

APPENDIX B

MAINTAINED PRIMARY SCHOOLS, ENGLAND:
NUMBER OF SCHOOLS OR DEPARTMENTS
ACCORDING TO NUMBERS OF PUPILS
ON THE REGISTER, JANUARY 1965*

<table>
<thead>
<tr>
<th>Category</th>
<th>Up to 25</th>
<th>26 to 50</th>
<th>51 to 100</th>
<th>101 to 200</th>
<th>201 to 300</th>
<th>301 to 400</th>
<th>401 to 600</th>
<th>601 to 800</th>
<th>801 to 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants</td>
<td>52</td>
<td>127</td>
<td>502</td>
<td>2,021</td>
<td>1,786</td>
<td>399</td>
<td>60</td>
<td>1</td>
<td>—</td>
</tr>
<tr>
<td>Junior with Infants</td>
<td>835</td>
<td>2,237</td>
<td>2,324</td>
<td>2,213</td>
<td>1,904</td>
<td>1,080</td>
<td>567</td>
<td>47</td>
<td>5</td>
</tr>
<tr>
<td>Junior without Infants</td>
<td>2</td>
<td>27</td>
<td>138</td>
<td>853</td>
<td>1,459</td>
<td>1,199</td>
<td>713</td>
<td>39</td>
<td>1</td>
</tr>
<tr>
<td>All-age</td>
<td>8</td>
<td>5</td>
<td>15</td>
<td>66</td>
<td>59</td>
<td>25</td>
<td>20</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Total</td>
<td>897</td>
<td>2,396</td>
<td>2,979</td>
<td>5,153</td>
<td>5,203</td>
<td>2,703</td>
<td>1,360</td>
<td>87</td>
<td>6</td>
</tr>
</tbody>
</table>

APPENDIX C

SURVEY OF CONTENT ANALYSIS OF AMERICAN AUTHORS

The following is a bibliographic listing of those American authors whose works have been surveyed. The results are shown in the charts on succeeding pages by author and year identification.


Barth, Ronald S. "Teaching the Way It Is, the Way It Could Be," Grade Teacher, Vol. 87 (January 1970a).


Ulin, Donald S. "What I Learned from the British Schools," Grade Teacher, Vol. 86, No. 6 (February 1969).


<table>
<thead>
<tr>
<th>(H)</th>
<th>(G)</th>
<th>(F)</th>
<th>(E)</th>
<th>(D)</th>
<th>(C)</th>
<th>(B)</th>
<th>(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>British Program Elements</td>
<td>Reform Aspects Causing Greatest Concern</td>
<td>Areas Most Innovative Curriculum/Instruct</td>
<td>Theories of Learning</td>
<td>Role of Teachers/Staff and Learners</td>
<td>Their Relation to Learners</td>
<td>Philosophy and Rationale</td>
<td>Historical Development</td>
</tr>
<tr>
<td>Relevant Transfer to U.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Major Areas of Study**

- \( \text{identitied (extensive development)} - (\text{XXX}) \)
- \( \text{identitied (some development)} - (\text{XX}) \)
- \( \text{identitied (little or no development)} - (\text{X}) \)
- \( \text{not identitied by author} - (-) \)

\( \text{KEY:} \)
<table>
<thead>
<tr>
<th>(A)</th>
<th>(B)</th>
<th>(C)</th>
<th>(D)</th>
<th>(E)</th>
<th>(F)</th>
<th>(G)</th>
<th>(H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Featherstone, September 2, 1967b</td>
<td>XX</td>
<td>X</td>
<td>XXX</td>
<td>X</td>
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