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**The Historical and Psychological
Implications of the Project Method.**

by

Mary J. Gallahue.

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of the requirements for the Degree of
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Table of Contents

Introduction

Chapter I. The Historical Development
of the Project Idea.

Chapter II. Present Ideas Concerning the
Project Method.

Chapter III. The Psychological Implications
of the Project Method.

Chapter IV. The Place of the Teacher in the
New Psychology of the Educative
Process.

Chapter V. Some Conclusions

Bibliography.

Chapter I.

The Historical Development of the Project Idea.

1. Contributions of Rousseau

- (a) The natural development of the child through interaction with the environment.
- (b) Recognition of the natural tendencies of a child.
- (c) Emphasis on the individuality of the child.
- (d) Recognition of the powers of the child.
- (e) Emphasis upon environment.
 - 1. The immediately useful
 - 2. Industrial activity
 - 3. Scientific method
- (f) Neglectful of:
 - 1. Child's tendency to act with the group
 - 2. Child's social inheritance

2. Contributions of Basedow

- (a) Education by state
- (b) Practical content
- (c) Education through play

3. Contributions of Pestalozzi

- (a) His psychology of the child
 - 1. Natural development
 - 2. Child's natural equipment - the basis
 - 3. Dependence of total development upon interaction of natural endowment and the environment.
 - 4. Non-interference with child's growth
 - (a) Interference necessary
 - 5. Later special interference
 - (a) Tactful direction of social situations by instructor
 - 6. Dependence of method and subject matter upon the needs of the child
 - 7. Analysis of subject matter
 - 8. Encouragement of child initiative and child purposes.

9. Emphasis on sense training and industrial education.

4. Contributions of Froebel

- (a) School as society
- (b) Development from within

5. Contributions of Herbart

(a) Social psychology

- 1. Education for all
- 2. Morality - the ideal

(b) Educational Psychology

- 1. Development of child through interaction with the environment.
- 2. Non-interference with natural processes.
- 3. Relation of motor reaction and play to the problem of development.
- 4. Recognition of individual differences.

(c) Application of the scientific method to education.

1. Emphasis on need of analysis of:

- (a) The learning process
- (b) Subject matter
- (c) Relation of subject matter to the learning process.

(1) Importance of interest.

6. Transfer of these principles to America in the 18th Century.

(a) Influence of Rousseau

- 1. Socialization of school activities.
- 2. Democratization of school activities.
- 3. State control and support.

(b) Influence of others in the 19th Century.

- 1. Copying and formalizing of Pestalozzi's methods by normal schools.
- 2. Froebel and the kindergarten movement.
- 3. Scientific method applied to education as result of influence of Herbart, Rousseau, Pestalozzi, Froebel, Spencer and Darwin..

(c) Reconstruction period.

1. Changes in method of organization and administration of education.

(a) From questionnaire to laboratory.

(b) Facts of observation

1. Natural endowment of child

(a) Instincts, impulses, and tendencies at birth and progressively appearing through life.

2. Process of development of child.

(a) Tendency to conform

(b) Tendency to solve problems.

3. Problem of individual differences.

(a) Endowment and environment.

(b) Need of better measure of native intelligence.

7. Contributions of Dewey

(a) Asynthesis of the best preceding him.

1. Tendency to socialize and psychologize modern American educational thinking and method.

(a) Use of scientific experimental psychology as basis of study.

(b) Reduction of problems to lowest terms.

2. Emphasis upon practical content for interpretation of life.

3. Encouragement of natural and effective child development through the unification of school with life.

4. Use of education as a remedy for social ills on the basis of a;

(a) Definite social program

(b) Definite social philosophy

(c) Definite democratic ideal

(d) School as society

1. Aim - Social efficiency through social participation of child in social situation.

2. Child conformity and variation through social participation.

3. Encouragement of initiative and originality by knowledge through action.

4. Method of attacking problems.

5. Use of this method in meeting social situations.

(b) Dewey's contribution to method

1. Provision for individual differences.

2. Pupil interests.
3. Development of attitudes.
4. Balance of social and individual interest.
- (c) Dewey's original contribution
 1. "How We Think"
- (d) Dewey's ideas of a curriculum
 1. Usefulness
 2. Practicality, culture and flexibility
 3. Provisions for training in personal responsibility of the child.
 4. Growth through child experience and race experience.

8. Dewey's debt to Rousseau

- (a) Basis of education not adult preconception of child.
- (b) Child's endowments the basis of education.
- (c) Gradual non-forced development of child.
 1. Interaction of child with environment and experience of the race.
- (d) Use of books to interpret race experience.
- (e) Organization of experience for the direction of the child toward a democratic ideal.
- (f) Non-interference with natural development.
- (g) Respect for individuality of the child.
- (h) Use of motor activity and play.
- (i) School - the place for active pupil participation.

9. Summary of principles borrowed by modern progressive schools from the past.

- (a) Child must be kept directly in contact with life.
- (b) Child participation reveals to him the ideals of a democratic society.
- (c) Aim to make school real life.
- (d) Education is development through social participation.
- (e) The child's instincts, impulses, and tendencies must be recognized in solving problems.
- (f) The child develops naturally through his interaction with his environment.
- (g) Books are to be used as the interpreters of experience - not substitutes for experience.
- (h) Guidance is necessary for worthy development.
- (i) School is a place for working rather than for listening.
- (j) Make contact with the environment through excursions.
- (k) Prepare subject matter in a psychological manner.
- (l) Individual differences must be given full play.
- (m) The individual child's interests must furnish the drive.

- (n) Solve problems.
 - (o) Subordinate the individual to the social ideal.
 - (p) The curriculum must be unified and made practical upon a broad cultural basis which interprets modern practical life and makes schools a part and parcel of it.
 - (q) "Learn to do by doing" - Dewey.
10. The Project Method in this country.
- (a) Its use in Massachusetts in the field of agricultural education.
 - (b) Its introduction into home economics and manual arts.
 - (c) Its extension into academic education.
 - 1. Promoters
 - (a) Kilpatrick, Stevenson and others.

Chapter II.

Present Ideas Concerning the Project Method.

1. The Project

- (a) Dictionary meaning.
- (b) Differences of opinion among educators:
 - 1. In Vocational Education
 - (a) Points of emphasis:
 - 1. Concrete construction
 - 2. Complete act
 - 3. Natural setting
 - 4. Worthwhileness
 - 5. Complex situation
 - 6. Largely manual
 - 7. Application of theories
 - 8. Length of time
 - 2. In General or Academic Education
 - (a) Points of emphasis:
 - 1. Wholehearted purposeful act.
 - 2. Purpose - the most vital element.
 - 3. Complete unit of activity
 - 4. Solution of a concrete situation.
 - 5. Worthwhileness.
 - 6. Natural setting
 - 7. A problem.
 - 8. Complex social situation.
 - 9. Larger unit of subject matter.
- 3. Wrong meaning for the project
 - (a) Objections by Kilpatrick.

2. The meaning and significance of the Complete Act.

(a) The opinions of:

1. Heald
2. Jackson
3. Woodhull
4. Kilpatrick
5. Heinmiller

3. The meaning of the Complete Act of Thought.

- (a) Dewey's meaning.
 (b) Kilpatrick's meaning.

4. The Project Method.

(a) The interpretations of:

1. Stockton
2. Hsieh
3. Branon
4. Bowden
5. Lobingier
6. Woodhull
7. Stewart
8. Kilpatrick

5. A summary of the main points of emphasis.

Chapter III.

The Psychological Implications of the Project Method.

1. Modern psychological principles and their bearing upon the project method.

(a) The native equipment of every child worthy of consideration.

1. Social instinctive tendencies.

- (a) Parental
- (b) Gregariousness
- (c) Desire for approval and display.
- (d) Rivalry
- (e) Imitation
- (f) Play

2. Non-social instinctive tendencies.

- (a) Exploratory and manipulative.
- (b) Food getting and food hunting.
- (c) Teasing
- (d) Ownership and collecting
- (e) Fighting

- (f) Fear
- (g) Curiosity.

3. Emotions and readiness.

- (b) Human beings always active.
 - 1. Physiological nature of man.
- (c) Learning to do by doing (Trial and error)
- (d) The psychology of learning.
 - 1. The meaning of learning.
 - 2. The physiological basis of learning.
 - (a) The structure of a neurone
 - (b) The synapse and its relation to learning.
 - 3. Conditions of learning.
 - 4. The Laws of Learning.
 - (a) Readiness
 - (b) Exercise
 - (c) Effect
- (e) The place of wholehearted purposing in the learning process.
- (f) The purpose and reflective thinking.
- (g) The purpose and the formation of habits.
- (h) The strengthening of memory through purposing.

2. Types of learning.

- (a) Primary-Example-making a dress.
 - 1. The conditioning of the learning process by the set.
 - 2. The fixing of bonds determined by set plus satisfaction with success.
 - 3. The purpose conducive to acquiring high degree of skill and knowledge.
- (b) Associate-response not entering into the making of the dress but out of it.
 - 1. Results of wholehearted purposing.
 - (a) Wealth of ready marginal responses.
 - (b) Connections of thoughts and experiences.
 - (c) Control of attending leads by means of the purpose.
 - (d) Satisfaction with connections seen.
 - (e) Better memory of learned facts.
- (c) Concomitant - by-products or other things learned.
 - 1. Better attitudes toward school and work.
 - 2. Methods of attacking problems.
 - 3. Habits of work.
 - 4. Ideals of values.

3. Summary.

Chapter IV.

The Place of the Teacher in the New Psychology of the Educative Process.

1. Necessary preparation.

- (a) Appreciation of the type of character needed by society.
- (b) Ability to use subject matter as a means of developing character.
- (c) Ability to see and use method in and for growth.
- (d) Ability to see and use psychology as an aid to growth.
- (e) Ability to see and understand the process of growth in school.
- (f) Ability to guide the process of growing in pupils---
Kilpatrick.
- (g) The study of the subject matter from the standpoint of the control of actual life-problems.
- (h) The planning, managing and carrying through of the project to be launched.--Bronson.

2. The functions of the teacher.

- (a) A guide in the making of choices by the pupils.
- (b) A guide in the pursuit of an aim on the part of the pupils.
- (c) A builder of morale.
- (d) A promoter of good purposes, and attitudes.
- (e) A controller of the situation.
- (f) An encourager of creative power and initiative in the pupil.
- (g) Helper of child to help himself.
- (h) Use of race experience as a basis for steering present experience and for choosing possible experiences.--Kilpatrick.

3. Duties of the teacher.

- (a) McMurtry, C.
 - 1. Sifting and resifting of types of projects.
 - 2. Attention upon facts related to purposive activities.
 - 3. Reorganization of school material into large units.
- (b) Briggs.
 - 1. Teaching that everybody is his brother's keeper.
- (c) Hotchkiss
 - 1. Provision of situations operating the laws of learning.

**Outline of the Thesis:- The Historical
and Psychological Implications of
the Project Method.**

Introduction

1. Purpose of this Thesis

**(a) A critical study of the
Project Method.**

- 1. The historical background
of the project concept.**
- 2. Present ideas concerning
the Project Method.**
- 3. The psychological impli-
cations of the Project Idea.**
- 4. The place of the teacher in
this new method of education.**
- 5. Some conclusions.**

2. Adaptation of subject matter to pupils' needs.
3. Spirit not technique most vital.
4. Readiness to take advantage of every opportunity for launching projects.
5. Sketching of a preplan.
6. Definite plan for judging project.
7. Avoidance of too much help to pupils.

(d) Branom

1. Direction and rapidity of growth.
2. Establishment of proper relations between child and successive situations.
3. Understanding of child interests.
4. Avoidance of too difficult situation.
5. Approach to subject matter from the standpoint of the child.
6. Arousal of a strong initial interest.
7. A stimulator of activity in the study period.

(e) Stevenson.

1. Gauge of pupils' capacities.
2. Need of survey of whole field of subject matter.
3. Logical organization of subject matter.
4. Psychological approach for pupil.

(f) Kilpatrick.

1. Utilization of child purposes worth study.

(g) Downing.

1. Providing of many opportunities for experiences.
2. Developing of problem - solving attitude of mind in science.
3. Avoidance of errors in thinking of pupils.
4. Ideals of accuracy.
5. Facts for fertility of suggestion.
6. Training in withholding hasty conclusions.
7. Selection of material of:
 - (a) Interest
 - (b) Social value
 - (c) Within ability of child
8. Organization of course to increase in difficulty.

(h) Nolan.

1. Initiator of projects.
2. Arouser of interest.
3. Director of pupil activities.
4. Organizer of minor projects in solution of complex projects.

4. Summary.

Chapter V.

Some Conclusions.

1. The project method not new.
2. The project method an expression of modern philosophy and psychology.
3. The teacher a guide.
4. Philosophical ideas illustrated in the project method.

Introduction.

In "Democracy and Education", on page 94, Dewey describes the changing emphasis in education as follows: "To say that education is a social function, securing direction and development in the immature through their participation in the life of the group to which they belong, is to say in effect that education will vary with the quality of life which prevails in a group. Particularly is it true that a society which not only changes but which has the ideal of such change as will improve it, will have different standards and methods of education from one which aims simply at the perpetuation of its own customs."¹ If what Dewey says is true, then our present method of education is a reflection of the life in society today. But ideas and ideals of some social groups vary, according to Dewey, and their education varies also. From a scientific point of view for every variation there must be a contributing cause. What causes have brought about the present ideals and psychology and philosophy of education? This leads to the purpose of this thesis which is to trace the historical events in education that have helped to build the present concept of the project method in education and the present psychological principles which seem to be the basis of the project method. Furthermore, since the teacher is the agent through which the principles of psychology must function, it is necessary that her place and importance be made clear. This is likewise one of the aims of this thesis.

1. Dewey, John. Democracy and Education. Page 94.

This thesis is but a preliminary study of the project method in education. It is simply a means of laying the foundation for a more extensive and a more comprehensive study and evaluation of the project method at a later date. It is hoped that it will be possible to make an objective and experimental study of the project method in an effort to determine its advantages, disadvantages, weaknesses, and difficulties as well as its effectiveness in the classroom as a mode of behavior in the learning process.

For the present this thesis is limited to four phases of the project idea, namely, its historical development, its present meaning, its psychological implications and its demands upon modern up-to-date teachers. As hinted before, this study will be completed in a thesis in partial preparation for a doctor's degree.

Chapter I.

The Historical Development of the Project Idea.

Dr. Kilpatrick, the latest and most ardent advocate of the project method, acknowledges that the project method is nothing new - only a new emphasis. If this is true, then it is right to assume that the project method must have developed from the educational movements of the past. But, how did the idea originate? A hint as to its probable history is expressed by Bagley and others who claim that the project method is a synthesis of past methods. What then are the past methods to which they refer, and from whence did they come?

In order to answer this question it will be necessary to review the history of education and to note the policies and aims of educators who preceded our present leaders.

The first to contribute to modern ideas of method was Rousseau. But there were others who stood for the principles embodied in the project concept and among those reformers were Pestalozzi, Froebel, Herbart, Comenius and others. These men in turn were influenced by leaders of preceding generations. It is interesting to note that the conditions which existed in society when these reformers lived were just the very conditions against which they struggled in an effort to improve social conditions and their weapon was education.

Rousseau in "the Emile aims to replace the conventional and formal education of the day with a training that

should be natural and spontaneous." Rousseau maintained that education should consist of: (1) Physical activities (2) sense training although incidentally the child should be given some idea of conduct and property, (3) instruction in the natural sciences through curiosity and interest in investigation but instruction should be limited to "merely that which is useful"¹

Later "Rousseau adds industrial experience and the acquisition of the trade of cabinet - making to the training of a child: He (the child) is not to learn science, but to discover it". (4) He also includes moral training through contact with the unfortunate and the criminal elements of society.

By his destructive attack upon traditionalism Rousseau brought education into closer relations with human welfare and opened the way to numerous social movements in modern education. "The industrial work of Pestalozzi and Pellenberg" (Dewey's position today,) the impetus given the psychological and child study movements typified in the work of Pestalozzi and Froebel, "the moral aim of education held by Herbart, the social participation in the practice of Froebel and the present day emphasis upon vocational education, moral instruction and training of defectives and of other extreme variations, alike find some of their roots in the *Emile*."²

Rousseau made a large contribution utilizing child interests and motives (purposes) of providing situations involving worthwhile problems for the child to solve, of utilizing the

1. Graves, Frank P.-A History of Education-In Modern Times Pg. 14

2. Same - pages 15 - 24.

senses and natural activities of the child and of the development of social understanding and co-operation of the child through participation in a social environment. This last point was suggested to Rousseau's followers through the weaknesses in his theories of educating Emile.

Basedow, a teacher in a gymnasium, was turned definitely towards educational reform by the influence of Rousseau. Basedow pleaded for non-sectarian schools and a national body to control education. He published two books, one on the rearing of children according to the ideas of Bacon, Comenius and Rousseau; and one book, an illustrated reading book for children in German dealing with natural phenomena. In 1774 he established an experimental school in which children were to be treated as children and not as mannikins, where teaching "methods were based upon conversation and play" and "where education should be rendered practical in content and playful in method."¹ His books were written in imitation of Robinson Crusoe recommended by Rousseau. Although this philanthropic movement in education carried on by Basedow and his followers became a fad, yet "it introduced many new ideas concerning methods and industrial training and it denoted further progress in the social, scientific, and psychological movements of modern education"² To sum up the philanthropic movement of Basedow and others made the following contributions to modern theories involved in the project method:

1. It further stimulated activity of an experimental kind in education.

1. Graves, Frank - History of Education In Modern Times Pg.26,28.
 2. Same - pages 32, 33.

2. It contributed to the library of children's literature and the prominence given the picture reader.
(A rich environment)
3. It established the science alongside the humanistic content.
4. It put into practice the Rousseauian ideas of method in geography, geometry, natural history, and the like; that is, the natural way in which a child seeks knowledge which he needs.

Pestalozzi, another follower of Rousseau, believed as did Rousseau that education is the remedy for social ills. Pestalozzi with Herbart, Froebel, and other educators of the later eighteenth and early nineteenth century, represent the psychological movement in education. Pestalozzi's aim in education, was "the natural, progressive, and harmonious development of all the powers and capacities of the human being" and he insists that "the knowledge to which the child is to be led by instruction must, therefore, be subjected to a certain order of succession, the beginning of which must be adapted to the first unfolding of his powers, and the progress kept exactly parallel to that of his development"¹ Pestalozzi's ideas were not democratic but he aimed to help the poor as a class by themselves.

His psychology was based upon his own intuition. His psychological ideas were that the child has a natural equipment of instincts, impulses and tendencies, and that he should be allowed to develop naturally without coercive interference from without and that the child's total development would result from the interaction of his natural endowment and his environment.

Among the contributions made by Pestalozzi, to modern

1. Graves, Frank - History of Education in Modern Times-Pg. 137.

educational theory as practiced in the project method are: that education can purify social conditions and that a natural method of teaching is needed; and that instead of accepting formal principles and traditional processes, educators must study carefully the development of the child mind and embody the results in practice. This is the aim and practice of educational psychologists today, such as Thorndike, Gates and Pillsbury. His beliefs in discipline were contrary to the formal method practiced in his time and contributory to modern theories concerning discipline. The belief that sympathy and understanding should exist between teacher and pupil is another important contribution of Pestalozzi to present day educational problems. Furthermore, Pestalozzi pointed out the dependence of method and subject matter upon the needs of the child and the need of analyzing subject matter to determine that which is worthwhile. In all undertakings he advocated the encouragement of child initiative and the use of child purposes in forms of sense training and through industrial as well as academic training.

Another educator to whom we owe some of our modern ideas in education is Froebel, another disciple of Rousseau. He put forth the idea that school is a society. Furthermore, he maintained that school was a place for practice in co-operation and democracy. He advocated the complete development of the child through interaction of the child with his environment under the guidance of the teacher. In Dewey's *Democracy and Education* he pays the following tribute to

Freebel. "Freebel's recognition of the significance of the native capacities of children, his loving attention to them, represents perhaps the most effective single force in modern educational theory in effecting widespread acknowledgment of the idea of growth."¹

Another follower of Rousseau to whom modern educators must attribute some of their ideas is Herbart. Herbart brought a systematic philosophy to bear on the problem of human development. His theory and methods in education indicate his contribution to education. In the first place, his idea of the aim of education was the development of moral character. He believed this could be brought about by the upbuilding of a group of many-sided worthy interests. Thence, social improvement would result. All children should be given an education for this purpose. According to Herbart the method of education should be based upon the use of pupil interests, the use of apperception or related ideas, the correlation of subject matter with experience and other subject matter and instruction (according to Herbart's followers) should proceed in such a way as to parallel the steps in learning. The steps to which reference is made are: (1) preparation (2) presentation (3) comparison or association (4) generalization and (5) application.

Herbart is generally supposed to have left no place for instincts or innate characteristics and tendencies.-- In this, however, both the devotees of Herbart, such as

1. Dewey, John - Democracy and Education. Page 67.

De Cerno was, or those more critical, like Adams, have overlooked the empirical part of his Psychology and the whole of his Applications of Psychology. In these works he leaves as much room for the innate as could be asked, for he admits that the psychological mechanism never works itself out completely. In the body which is somehow joined with the soul, are innate predispositions, which may retard or stimulate the ideas, and the psychological mechanism is thus interfered with in characteristic fashion. W.H. Kilpatrick, of Columbia University has probably been the first to point out Herbart's position in this matter.¹

According to Stockton all of his (Herbart's) main doctrines which are to be later noticed, show him as advocating non-interference with natural processes, and as looking for a self-realization comparable to Froebel's self activity. But he also wanted careful and expert interference with the direction of the natural processes, as a means for the development of sound moral character. (This also, is the aim of Kilpatrick) This selection of morality as the aim, though tending to be narrowly conceived, had the virtue of being more conscious and definite than any previous program. In the carrying out of this program, he depended upon the native tendency to uncritical acceptance of suggestion and resultant action with the group. But he also put special emphasis upon thinking, upon variation, upon the solution of problems; and in doing so, made clearer than any one else the relation of specific aim to solution.

1. Graves, Frank - History of Education-In Modern Times Pgs.198-199

Herbart recognized "periods" of development with much more tendency toward real science than did his predecessors. He saw also the relationship of motor activity and play to the problem of development, especially with regard to specific aims for attack upon problems and in general accepted in varying degree the better aspects of the work of other leaders. In a greater emphasis upon careful study of individual differences in equipment and developmental tendencies he was unique. But he went further and made an attempt to apply real scientific method to education. He began a conscious inquiry into the real psychology back of his idea. He attempted to develop a perfectly clear, practical and scientific psychology of the learning process and a scientific analysis of the nature of subject matter and of its relations to the learning process.

"Although his particular system is not popular at present, since it is held to be in conflict with later developments in psychology, yet his idea that there could be, and that there should be a conscious system - a teaching scientifically in accord with a conscious scientific theory of the learning process is one of the mightiest forces active in the education which followed him."¹

Thus interest, environment, correlation, moral character, growth, activity, individual differences, and the scientific study of education are some of the contributions made by Herbart to the D.K. philosophy of education. On the preceding page reference was made to Herbart's idea that the

1. Stockton, James L.-Project Work in Education. Pages 22-26.

steps in instruction should parallel the steps in the learning process. It is interesting to note that Dewey believes, that instruction should be based upon the way of learning. Then if this is true why does Dewey criticize (Herbart's) formal steps? Dewey challenges the five formal "steps" of the Herbartians because he believes that thinking normally occurs only when there is a problem, a discrepancy engaging the attention, and that the formal steps make no provision for this. Furthermore, Dewey maintains that acquiring knowledge should be incidental to thought development and not vice versa as in the method of the Herbartians.¹

These reforms, started by Rousseau and his predecessors as well as his followers took place during the eighteenth and nineteenth centuries in Europe and they were brought to this country by such leaders as Dr. Mann, Miss Blow, Dr. Harris and others. These ideas had their influence upon our educational procedure and still have as has been suggested by reference to Dewey and Kilpatrick. As a result of Rousseau's teachings the following influences should be noted (1) the socialization of our school activities (2) the democratization of our school activities and the state control and support of our public schools. Other changes that took place as a result of the transfer of European educational reforms to America were: (1) the copying and formalizing of the Pestalozzian methods by the normal schools (2) the kindergarten movement as a result of Froebel's doctrines (3) the application of the scientific method of study to our educa-

1. The ideas expressed above are borrowed from the ideas of Gray, Dewey, and Stockton expressed in my own way.

tional problems as a result of the doctrines of Rousseau; Pestalozzi, Froebel, Herbart, Spencer and Darwin.

Consequently a period of reconstruction of American education followed. During this period methods of teaching changed; the attitude toward the child's natural endowment, his process of development, and his individuality became one of serious study and a desire for the truth concerning the child as a factor of the educative process, became and still is the central point in educational problems. Among the changes in method that will be noted are from the questionaire to the laboratory and from the dictatorial to the investigatory method. It is now thought, as had been pointed out, that the child is born with instincts, impulses, and tendencies that appear at birth and those that are progressively appearing throughout life. In the process of the development of the child are apparent his tendency to conform in some instances and his tendency to question and challenge in other instances. With the belief in the presence of individual differences, the question of which plays the more important part - endowment or environment - remains a mooted question. Out of these problems have grown an attempt to measure native intelligence and such measurements as now exist will need to be perfected before any just decision can be arrived at concerning influences that affect the development of the child and the place education must play in promoting the growth of each individual child.

Now, leading up to one of our living contributors to the present tendencies in education as expressed in the project method, we turn to Dewey and with interest we observe what Bagley asserted, namely "the project method represents a synthesis of movements and tendencies in educational theory that have been gathering momentum for several years."¹ and, indeed, the chief author of that synthesis is Dewey. Dewey tends to socialize and psychologize modern American education. He points out that a practical content (industrial and scientific) are best calculated to interpret life. He advocates the encouragement of natural and effective child development through the unification of the school with life. He further advocates the use of education as a remedy for social ills through the establishment of a (1) definite social program (2) a definite social philosophy and (3) a definite democratic ideal - that is - "school is a society." The keynote of Dewey's conception of the aim of education is social efficiency which is best secured through social participation under guidance. Through such a procedure the child lives the life of a child and so lives himself into the life of an adult.²

In his method of teaching, Dewey would provide for individual differences, pupil interests, the development of right attitudes and a balance of social and individual interests.

If the above are Dewey's contributions to the project method, what ideas, if any, did he borrow from Rousseau?

1. Bagley, Wm. - quoted from *Projects and Games in the Primary Grades - Milwaukee Public Schools* - Pg. 8.
2. Ideas obtained from page 40, Stockton, James - *Project Work in Education*.

- (1) "Education should not begin on the basis of adult preconceptions of what the child should be."
- (2) "The basis should be the child's endowments, instincts, impulses and tendencies."
- (3) "His education should continue as a process of the development of the best that is in him."
- (4) "This development is not to be forced."
- (5) "The method to be used is the method of experience, the interaction of the child and experience or the child and the curriculum."
- (6) "The curriculum is human experience organized into the "subjects" of instruction."
- (7) "Books are to be used to interpret experience."
- (8) "Experience is to be so organized as to direct the child toward democratic ideals."
- (9) "The child is not to be forced."
- (10) "The individuality of the child is to be respected."
- (11) "Motor activity and play" must form a vital part of his educational experience.
- (12) "School is a place for working." ¹

Dewey exceeds Froebel's intuitive appreciation of how development takes place and Herbart's theoretical psychology and pedagogy in the following ways:

- (1) "Dewey uses scientific experimental psychology" as the basis of his philosophy.
- (2) "Dewey's original contribution" along this line, can be found in his analysis of reflective thought in "How We Think."
- (3) "Dewey psychologizes subject matter."
- (4) "Dewey believes in reducing educational problems to their lowest terms."
- (5) "Dewey gets conformity and variation through social participation."

1. Stockton, James - Project work in Education. Pages 40-48.

- (6) "The child (according to Dewey) gets knowledge through activity and the result is initiative and originality." ¹
- (7) "Dewey believes in the encouragement of variation and inventiveness in the solution of difficulties." ²

Dewey is interested, not in the memorizing of a string of facts, but in the development of thought and of a method of attack upon a problem and the transfer of that method of attack to other situations. Dewey would train the child so that he has power to face and master a new situation for himself. In the words of Dewey, "Education must develop in the child transferable methods of attack upon problems." Furthermore, "this training must provide for individual differences." Therefore, according to Dewey, "Education is the reconstruction of experience giving it a more socialized value through the medium of increased individual efficiency." ³

Dewey's contributions to the content of the curriculum indicate his tendency to analyse the content and reduce it to simple terms. Thus he would keep only that which is useful. He would place most emphasis upon that directly utilized in life. He would keep that which is useful as culture as well as that necessary for money and self-support. This curriculum content must change since social life is always changing - Dewey maintains. But most vital of all the curriculum must provide for training in the personal responsibility of the child to society.

Such are Dewey's contribution to the underlying principles of the project method. But what are the underlying

1. Stockton, James - Project work in Education Pages 48, 49
2. Same Page 49.
3. Same Page 50.

principles of the project method as expressed by the expositor of that method?

- (1) "The child is naturally active especially along social lines;"
- (2) "Wholehearted purposeful activity in a social situation as the typical unit of school procedure is the best guarantee of the utilization of the child's native capacities."
- (3) "Learning is proportionate to wholeheartedness. (Interest-Rousseau, Dewey, and others.)"
- (4) "A naturally social child with a good skillful teacher to stimulate and guide his purposing is developed in character." ¹ In these claims of Kilpatrick for

the project method we see traces of the influences of Rousseau; Pestalozzi, Froebel, Herbart, and in particular Dewey.

In brief, the project method is an inheritance from the past. As has been indicated in this chapter "Stockton shows that the fundamental principle of the project method, that of learning to do by doing," is found in the beliefs of Rousseau, Pestalozzi, Froebel, and Herbart, and also in the beliefs of the great masters of learning before Rousseau. ²

1. Kilpatrick, W.H.-The Project Method - Teachers College Bulletin October 12, 1918, Page 18.
 2. Nolan, Ona I.-Education Vol. 44-Jan. 1924, page 277.

Summary

A summary of the principles borrowed by modern progressive teachers from the past is as follows:

- (1) "The child must be kept directly in contact with life."
- (2) "Through social participation the child learns the ideals of a democratic society."
- (3) "The aim is to make school as real as life."
- (4) "Education is development through social participation."
- (5) "In solving problems the child's instincts, impulses, and tendencies must be recognized and utilized."
- (6) "The child develops naturally through his interaction with his environment."
- (7) "Books are to be used as the interpreters of experience not the substitutes for experience."
- (8) "Guidance is necessary for worthy development."
- (9) "School is a place for working rather than for listening."
- (10) "Make contact with the environment through excursions."
- (11) "Prepare the subject matter in a psychological order."
- (12) "Individual differences must be given full play."
- (13) "The individual child's interests must furnish the drive."
- (14) "Solve problems."
- (15) "Subordinate the individual to the social ideal."
- (16) "The curriculum must be unified and made practical upon a broad cultural basis which interprets modern practical life and makes school a part and parcel of it."
- (17) "Learn to do by doing." - Dewey.¹

In the United States the use of the term "project method" in education seems first to have appeared with reference to the teaching of vocational education by projects. The word

1. Stockton, James - Project Work in Education, Pages 54-66.

project was used vaguely at first in specific forms of education. In 1908 - 1910 it was used by Stimson, Snedden, Prosser and Allen in their report to the Massachusetts Legislature. At that time projects were confined, as a rule, to units of work in agriculture. In fact, projects in agriculture have been submitted and were and have been approved by the officer of the Experimental Station in the States Relation Service of the United States Department of Agriculture. Recently "project" has been applied to enterprises in demonstration work and extension teaching under the Smith-Lever Act. In all of the above instances the idea involved is that of a program of importance of some duration and the expectation of certain tangible and valuable results.¹

Later the "project" was borrowed by secondary school teachers of science and manual arts and it suggested the idea of value in connection with the practical phases of teaching these subjects."²

But today, through the efforts of Dewey and his interpreter Kilpatrick, the project and the project method are used in all schools from the kindergarten up but the emphasis is placed upon purposeful activity and the carrying of some activity to completion in a social environment. Thus, the project and the project method were evolved from the past and are utilized in the present.

1. Stevenson, John A. - The Project Method of Teaching.

pages 40, 41, 42.

2. Same - page 42.

Chapter II.

Present Ideas Concerning the Project Method.

In chapter one an effort was made to point out the manner in which the present concept of a method of learning by the use of projects or purposeful activities gradually evolved from the theories, ideas, and ideals of leading reformers in education of the past centuries. Even before Rousseau, there might be found the germ of the modern philosophy of education, but it was Rousseau, who began the movement toward our present situation. In chapter one, also, a reference was made to the vagueness of meaning that accompanied the use of the terms project and project method when they were first used in education. Indeed, if the thoughts of present day educators are studied; in the writings of these leaders there will be found differences of opinion and in some cases, doubt as to the real meaning of the project and the project method when considered in different types of education. In this chapter will be given a survey of many of the points of view of modern educators concerning the meaning of the project and the project method.

First, according to Webster's New International Dictionary, the term project is defined from its Latin origin, as follows: Pro meaning forward and jacere meaning to throw. A project then is "that which is projected or designed; something intended or devised; a scheme, design; plan."¹

1. Mendel E. Branom - The Project Method in Education Page 11.
Snedden, David - School and Society Vol. 4-1916-Page 423.

In ordinary connotation the word project is used in the language of business with reference to plans and schemes in active life.

Among educators the word project is given many meanings. Men interested in vocational education have viewed and still view the project in a narrow and limited sense. Other men, in other fields of education have given it a broader meaning. A brief summary of definitions formulated by men in various educative callings will suffice to indicate the confusion that exists.

Those interested in vocational education define the project in some such terms:

"Some conceive the project as planning tangible activities or carrying on concrete constructions."¹ In the vocational field a project means, "An act carried to completion in its natural setting."² According to Snedden "a project is a unit of activity resulting in purposeful concrete achievement the aim being realized through the utilization of acquired skills and experiences acquired in the process."³

Randall likewise limits the project to a concrete accomplishment for he says, "A school project is a problem the solution of which results in the production of some object or knowledge of such value to the workers as to make the labor involved seem to him worthwhile."⁴ Thus we see

1. James F. Hosié - National Education Association Bulletin, 1922 - Page 824.
2. W. W. Charters - National Education Association Bulletin 1921 - Page 428.
3. D. Snedden - School and Society - Vol. IV. Page 419.
4. J. A. Randall - National Education Association Bulletin 1915 - Page 1010.

that Randall emphasizes satisfaction with results obtained but he neglects the idea of wholehearted activity in a social situation. Dennis - also interested in vocational education, considers a project as a complex situation requiring a period of time for its solution. It must be of economic importance, a business enterprise, according to Dennis.¹ Higgins - another promoter of vocational education, looks upon projects as consisting of school material organized upon the work level based upon observations, reading, pictures, drawings, diagrams and the science needed.² McMurry - seems to sum up the point of view of these vocational educators when he says, "It seems to suggest not the school but the shop, not the textbook, but the busy mart, the industrial life, the unhallowed things of the schemer and the promoter."³

The tendency of teachers of manual subjects, to narrow the project idea is further seen in the remarks of C.W. Stone and others. C.W. Stone says, "A project is a life topic in which the processes and objects of learning are largely manual."⁴ Stimson, also limits the project to manual activities for he states, "Finally a farming project as the term is here used is the thing to be done on a farm, which in the preparation for doing it and the carrying of it out to a successful result would involve a thorough going educational process."⁵

1. S.N. Dennis - N.E. Association, 1916, Pages 622-6.
2. Mendel, E. Branon - The Project Method in Education Chapter II. Page 35.
3. Charles McMurry - Teaching by Projects. Chapter I - Page 10.
4. John A. Stevenson - The Project Method of Teaching - Chapter III. Page 64.
5. R.W. Stimson - After John A. Stevenson - The Project Method in Teaching, Chapter XII. Page 69.

W. H. French, apparently agrees with Stimson in his meaning of a project for he defines a home project as "A piece of farm work selected by the student with which to illustrate some theory or to demonstrate some plan of procedure which has been presented in the course of the school instruction. For instance, a certain theory has been presented in regard to corn culture and the boy undertakes to raise an acre or more of corn in accordance with the instruction. This would constitute a home project."¹

Among others who interpret a project as a unit of manual activity are Barrow, Lane, and Heald. In their report to the United States Department of Agriculture, they list the following factors as requisites of projects:- "To start with a definite aim, to do certain correlated lines of work covering a fairly extensive field or period of time, and to bring together everything bearing on the main aim are essential points in a project."²

And Heald further maintains that "as a fact, many of the lessons which the boy learns best are the outcome of emergencies which he faces in his project and must look up at once to save his crop."³

1. John A. Stevenson - Chapter III. Page 71
2. " " " Chapter III. Page 74
3. Heald "The Home Project as a Phase of Vocational Agricultural Education" - U. S. Department of Agriculture Bulletin 281. Page 9.

Furthermore, Allen states that "in the field of vocational education the meaning of the term project becomes still more specific in that it implies that the care of the project lies in the field of shop experience. The project is built up around doing a job. In order to serve a progressively educational purpose the project must be so organized as continually to present new difficulties and offer new opportunities for achievement."¹

If we reconsider the meanings given to the word project by those interested in vocational education, we shall find that the authors of the definitions are agreed upon certain factors which in their estimation should be involved in a project. Snedden as well as Stinson, Heald, Allen, and others emphasize "some form of positive and concrete achievement,"² give much attention to the application of knowledge previously learned and imply that a natural setting for a somewhat complex act carried to completion by means of a certain amount of reasoning are necessary requisites of a project. They would limit a project to a concrete and constructive unit of activity. This shows the interpretation of the project by those who used it in vocational education, where it was first used in this country. As it can be seen, these points of view still hold among leaders in vocational education.

Some educators, among whom is Snedden, ascribes the present confusion in the minds of teachers and others in res-

1. John A. Stevenson - The Project Method in Teaching
Chapter III. Pages 69-70.

2. Snedden, David - "Project as a Teaching Unit" School and Society, Vol. IV. Pages 420, 421, 1916.

pect to the meaning of the project to the vague and broad meaning given this term by men in the field of academic education. Those who would limit the application of the word project to manual arts lament the harm that has been done by applying it to general education as has been done by Kilpatrick, Stevenson, and others. If a study of the meanings ascribed to the project by those interested in general education is made, it will be apparent that a great deal of disagreement reigns.

There are several points of emphasis apparent in the definitions of the term project as given by those interested in using the project in all forms of educational enterprises. Thus, Kilpatrick Hasic, Bowden, McMurry, Charters, Woodhull, Krackowiser, Downing and Bonser place such emphasis upon the project as a wholehearted purposeful act. Repeatedly Kilpatrick maintains that a "wholehearted purposeful act is a proper unit of instruction and believes this best builds the kind of character we need (in a democracy) and that it is only thus by practicing life itself the child can learn."¹ Then again, in the Teachers College Record for September 1918 Kilpatrick writes, "The term project refers to any unit of purposeful experience, any instance of dominating purpose, as an inner urge, (1) fixes the aim of the action (2) guides its processes and (3) furnishes its drive, its inner motivation."²

1. W.H. Kilpatrick - National Education Bulletin, 1922 -Page 683.
2. W. H. Kilpatrick - Teachers College Record, September, 1918
Vol. XIX. Pages 319-335.

That the same point of view is held by James Hasic is quite obvious for he says, "A project is any enterprise entered into with zest because it is thought worthwhile, which is pursued with a more or less clear view of the goal to be attained and which is guided by a conception of the appropriate means."¹

Furthermore, in a statement sent to John Stevenson on March 20, 1918, Mr. Hasic states, "I understand by project as a complete unit of purposeful experience."² Hence, Hasic and

Kilpatrick agree in this case. Bowden also emphasizes purposeful activity in his definition which runs somewhat as follows: "A project is a purposeful act pursued in natural surroundings and carried on in the face of difficulties to a successful end." It is not a little surprising to see the same point emphasized by Charles McMurtry in one of his definitions where he says, "A project is a natural summons to ambition and effort, an impulsive forward movement in purposeful thinking."³

Although Charters shows a tendency to view the broader interpretation of a project with some doubt, yet he too implies that a project is a purposeful unit of activity. This same point of view is supported by Woodhull who says, "that the project is an asset to the teacher of science because in a project when the child is confronted with a situation having certain values he desires to interpret them and he puts forth great effort because of his voluntary purposeful attitude toward the situation."

1. James Hasic - National Education Association Bulletin, 1922
pages 824-8

2. John Stevenson - The Project Method in Teaching Chap. III. Pg. 84

3. Charles McMurtry - Teaching by Projects - Chapter I. page 3.

Kilpatrick's point of view is accepted by Miss Krakowiser and Mr. Bonser and Mr. Downing, all of whom agree "that the essential features of a project are that it involves completed action on the part of the pupil, action that is natural, not artificial, action that is purposeful and that results in the solution of an enigmatical concrete situation. A project then is an appealing concrete problem the solution of which is planned and executed by the pupil."¹

But there are other factors emphasized by educators in their interpretation of a project besides wholehearted activity and among them is the idea that the project is a complete act or unit of activity. Among the educators who emphasize the project as a unit of activity is Kilpatrick, who speak of a project as a unit of work or a "complete act which the agent projects, purposes and within limits, sees through to completion."²

This is likewise the opinion of Charters, Branom, Krakowiser, and Downing, as is evident from the following quotations: Charters writes, "A project is an act carried to completion in its natural setting."³ Branom also indicates that "a project involves a complete unit of activity."⁴ Miss Krakowiser also states that, "Any purposeful activity determined upon and carried to a successful completion becomes a project."⁵

1. Downing, Elliot R. - Teaching of Science in the Schools Pg. 103
2. Stevenson, John A. - The Project Method in Teaching Pg. 57
3. Charters, W.W. - Limitations of the Project -
Natl. Education Assoc. 1921 Pg. 428
4. Branom, Mendel E. - The Project Method in Education Pg. 14
5. Krakowiser, Alice M. Projects in the Primary Grades Pg. 15

Downing in discussing the project in science teaching, states that one "essential feature of a project is that it involves completed action on the part of the pupil."¹ This list of definitions sums up another angle from which the project is viewed by some educators.

Another factor included in the project concept as expressed by Kilpatrick, Stewart, Babbitt, Nolan and others is the presence of a "natural setting." Both Branom and Hsieh claim that the child must feel that the activity is a natural and worthwhile procedure before he will carry on wholehearted purposing and execution. Stevenson and Stewart seem inclined to limit the project to a problematic act. Stewart maintains that from one point of view a project is a problem. Stevenson defines a project as "a problematic act carried on to completion."²

The idea that projects are complex acts is expressed by Babbitt and Charters. Babbitt says, "The project has been considered a complex unit of work taking place in its natural setting."³ and Charters says, "The project is considered to be an act carried to completion in its natural setting and involving the solution of a relatively complex problem."⁴

Another factor brought out in the meaning of a project by some educators is the presence of a social situation. Accordingly Doctor Kilpatrick defines a project as "a wholehearted purposeful act in a social environment."⁵

1. I bid. 1 Pg.36

2. Stevenson, John A. The Project Method of Teaching. Page 43

3. Babbitt, Franklin The Curriculum Page 30-33

4. Branom, Mendel B. The Project Method in Education Page 60

5. Kilpatrick, W.H. Teachers College Record, Vol. XIX, Sept. 1918
Page 519.

In like manner Hotchkiss indicates this point of view for he asserts that "The project should grow out of some social situation or individual experience, the solution of which could result in genuine satisfaction to the individual or individuals working it out."¹

But, unlike Kilpatrick, Hotchkiss limits projects to the larger unit of subject matter. McMurry, also considers a project as a large piece of work for he writes, "The project as worked out is simply a big object lesson in the process of learning - a demonstration of the right method of collecting, organizing and mastering knowledge."² Kilpatrick does not limit or place most emphasis upon concrete, objective achievement or upon a complex problem as such, but, upon a unit of work involving wholehearted purposeful activity. Small units as well as large units may be projects providing the pupils purpose them according to Kilpatrick's point of view. It is apparent that the most striking point of view persistently repeated by Kilpatrick is that a project involves a purpose on the part of the person pursuing a project. This fact is also often expressed by Downing, Bonser and others. In short, "the term project refers to any unit of purposeful experience, any instance of dominating purpose as an inner urge which (1) fixes the aim of the action (2) guides its processes (3) and furnishes its drive, its inner motivation."³

1. Hotchkiss, E. A. - The Project Method in Class Room Work, Pg. 43
2. McMurry, Charles - Teaching by Projects, Pg. 60
3. Kilpatrick, W. H. - Teachers College Record, Sept. 1921 Pg. 283

To sum up those interested in vocational education tend to limit the project activity to the expression in concrete form of some thought. They would confine projects to things made with the hand. Those who are interested in all forms of education would not limit the project to a concrete form of activity, but in the words of Kilpatrick, they would make it "as broad as the whole of life."¹ Leaders in vocational education base their interpretation of a project on something else besides purposes, such as "the carrying of an act to completion in its natural setting."² The leaders of general education place most emphasis upon the presence of a purpose on the part of the doer. Indeed, to Kilpatrick the purpose or aim is the most vital factor of a project. Woodhull, I think gives the point of view of most educators when he says, "The project is the normal growth by which related material is interpreted and classified in life's experiences. The child confronted with a situation having certain values, desires to interpret them. This conception seems to include all intellectualized effort which is put forth because of the student's voluntary purposeful attitude toward the situation. An attempt to restrict the use of the word project to a special type of lesson has proved futile." Woodhull, however, does not think the project ceases to be a project when whole-hearted purposing on the part of the pupil ceases.

1. Kilpatrick, W.H. - The Foundation of Method - Page 347.
2. Stevenson, John A. The Project Method of Teaching - Page 43.
3. Woodhull, John - quoted Professor Mann - General Science quarterly, Volume 2 pages 249-250, Nov. 1917.
4. Kilpatrick, W.H. The Foundation of Method - Page 348.

Kilpatrick does not agree with Woodhull for he says, "If the purpose dies and the teacher still required the completion of what was begun then it becomes a task."¹ Thus, we see that even among those who consider the project as a purposeful act there is a difference of opinion as to the significance of pupil purposes dominating a project to the end.

Another leader in education who evaluates the purpose as the vital factor of all activity is Dewey. In "Democracy and Education" he asserts that "an aim denotes the result of any natural process brought to consciousness and made a factor in determining present observation and choice of ways of acting. It signifies that an act has become intelligent. But this aim to be true must arise within the person engaged in the activity and not be imposed from without. This form of purpose as a foreseen end gives direction to the activity and influences the steps taken to reach the end. It does three things (1) it stimulates careful observation of the given conditions to see what are the means available for reaching the end and to discover hindrances in the way. (2) It suggests the proper order or sequence in the use of means. (3) It makes the choice of alternatives possible."² These are Dewey's arguments in favor of "purposeful activity." They are firmly in agreement with his disciple's belief and extremely convincing that purpose must dominate the activity to the end.

Despite the fact that there are so many opinions current concerning the real meaning of the term project yet

1- Kilpatrick, W. H. - Foundations of Method - Page 348
 2- Dewey, John - Democracy & Education - Pages 119-121.

there seems to be almost universal belief in the fact that a project is a complete act or an act carried to completion. But, what is a complete act? This is defined by many educators in slightly different terms. According to Heald, in a complete act the pupil "is to start with a definite aim to do certain correlated lines of work covering a fairly extensive field or period of time, and to bring together everything bearing on the main aim."¹ In "The Industrial Arts Magazine for May 7, 1918" Professor Jackson defines a complete act in terms of what it involves as "a worthy purpose exercise of the judgment, the calling forth of physical and mental power, the exercise of organizing ability and educative ability through actual experience even though mistakes be made."² In somewhat similar phrases Kilpatrick states that "a complete act is one where the learner himself takes each step in the process; he purposes, he plans, he executes, he judges. The purpose is extremely vital as it promises success because it organizes the steps in the process and it so utilizes the act and readiness as to furnish the conditions most favorable to all kinds of learning."³ In the mind of Heinmiller there are three distinct parts to a complete act or project. "First, there must be a compelling motive of such intensity that it will initiate activity on the part of

1. Heald, F. B. - General Science Quarterly, Mar. 1917-Pgs. 167-168

2. Jackson, L. L. - The Industrial Arts Magazine, May 7, 1918
Pgs. 138-9

3. Kilpatrick, W. H. The Foundation of Method page 215.

the child and carry him through to its completion. Second, the activity will necessarily be a life situation, that is a situation similar to one met in actual life. Third, there should be a testing and proving of results."¹

But it is impossible to carry out any complete act without using thought. Even the simplest project in manual training involves some thinking on the part of the pupil who is carrying out his project. Just what mental activity accompanies and is involved in a complete act is best understood after reviewing Doctor Dewey's steps in reflective thinking-he says, "Thinking includes all of these steps - the sense of a problem, the observation of conditions, the formation and rational elaboration of a suggested conclusion and the actual experimental testing."² These same steps are worked out more minutely in Dewey's book, "How We Think." When a situation arises in which the child's purposing is thwarted by a "felt of difficulty" he stops, for he can progress no farther until he overcomes this difficulty. He attempts to "define and locate" the problem before him and he immediately looks about him and back into his experience for "suggestions of a possible solution." Upon the basis of his experience and by means of trial and error he develops by "reasoning the bearings of the suggestions" upon the proper solution of the problem before him." "Further observation and experiment" leads him to the acceptance or rejection of each suggested solution" until finally he

1. Heinmiller, Louis E. - A First Book in Education - Page 82.

2. Dewey, John - Democracy and Education - Pages 177-2-192.

concludes what he believes to be the needed solution.¹ These are the factors involved in a complete act of thought according to Dewey.

Kilpatrick, also, considers a project as a complete act of thought but the steps he lists in such an act are not those of Dewey, exactly, but they seem to be those of Dewey analyzed into their constituent elements. Kilpatrick says that in a complete act of thought the following steps occur.²

- (1) "A situation arouses an impulse or tendency to pursue a certain course of action."
- (2) "A difficulty appears."
- (3) "An examination of the situation is made to locate and define the difficulty more precisely."
- (4) "Suggested solutions arise; hypothesis are formed, behavior patterns are suggested."
- (5) "Implications are drawn from each suggested solution, each a hypothesis or guess."
- (6) "Actual trial is made to see if the deduced implications hold."
- (7) "The solution is accepted in the light of tests made. This is Kilpatrick's interpretation of a complete act of thought analyzed into its several steps."

1. Dewey, John - "How We think"
2. Kilpatrick W. H. - "Foundations of Method"

Pages 68-78
Pages 242, 243.

SUMMARY

Up to this point the writer has attempted to point out differences and similarities in the interpretations of the project by several leaders in education. As will be apparent, repeatedly, attention has been called to the latest interpretation of the project as expressed by Dewey, and Kilpatrick and their followers. But, so many times has the writer repeated child purposes as the most vital factor in the project, that the reader may be misled into thinking that a project is not the natural and virile way of meeting life's problems, but an easy manner of letting the child have his own way. Indeed, the project has been misinterpreted by many at this very point.

Kilpatrick does not claim that every purpose is good nor that the child is a suitable judge between purposes, nor that he is never to be forced to act against a purpose he entertains. But he persists in his determining to utilize worthy purposes on the part of the pupils for he declares that "any scheme which does not aim consciously and insistently at securing and utilizing vigorous purposing on the part of the pupils is founded essentially on an ineffective and unfruitful basis."¹

But, by what means is this purposeful activity on the part of the pupil to be carried into effect? The answer generally given is by the project method. Here, however, as in the case of the project, we find some difference of opinion as to the meaning of the project method.

1. Kilpatrick, W.H. -Teachers College Record, Oct.12,1918. Page 121.

Stockton describes the "project method as the natural concrete expression of modern educational principles in action."¹ Hsieh agrees with Stockton when he writes, "The project method is a synthesis or union of ideas of method. It includes principles that have shaped our practices from the days of Rousseau. It involves the principles self-activity, learning to do by doing, interest, motivation, concreteness, individual differences, co-operation, permanent retention, transfer of judgment of values and training for leadership."² The point of view held by Stockton and Hsieh is also expressed by Doctor Bagley in the following quotation: "The project method represents a synthesis of movements and tendencies in educational theory that have been gathering momentum for several years - some of them indeed for several decades. It represents an attempt to formulate these tendencies and movements in a single and unified pattern of educational procedure."³ The idea that the project method is a natural method is suggested by the words of Branom, who defines the project method as "the way of growth through which man is differentiated from other animals. It is nature's particular way of developing the child as a human being."⁴

The idea that a difficulty is involved is suggested in the meaning given by Bowden, who describes the project method

1. Stockton, James L. - Project Work in Education Page 53.
2. Hsieh, James F. - National Education Association Bulletin 1922, Pages 824-8.
3. Bagley, William - quoted from Projects and Games - in the Primary Grades-Milwaukee Public Schools, Pg. 8
4. Branom, Mendel - The Project Method in Education - Page 15.

as "a natural procedure undertaken by a self-willed individual or by individuals in quest of pertinent information that will dispel to a more or less degree a perplexity of mind."¹

Other points are emphasized in the meanings given by Lobingier, Woodhull, Stewart and Kilpatrick. Lobingier, indicates the project method as "implying unified activity with something definite to be achieved."² On the other hand Woodhull points out that the "project method is nothing more or less than the method of the scientist adopted to children."³ Apparently, Stewart agrees most closely with Kilpatrick in regard to the project method, for he says, "The project method is the method of teaching, which implies that teaching units provided for instruction grow out of the use of projects, but it does not preclude or exclude the use of other methods."⁴ Kilpatrick urges that the project method be not interpreted "as a specific device but as a point of view. It is an ideal to be sought rather than a device to be applied. Moreover, it is not new except in the degree of conscious consideration that is now being asked for it."⁵ In another part of his writings Kilpatrick says, "By the project method I mean the effort to found the educative process on the use of projects or perhaps better - the effort to use the project as a purposeful experience as an instance of purposeful activity."⁶

1. Bowden, G.A. - School Science and Mathematics, Vol. 22-Pgs.439-46
2. Lobingier, John L. - Projects in World Friendship Page 28.
3. Woodhull, John F. - General Science Quarterly, Vol.2-Nov.1917
Pages 249-250
4. Stewart, R.M. - School Science and Mathematics, Vol.20-Oct.1920
Pages 594-601.
5. Kilpatrick, Wm. H. - Educational Review, Vol.64-1922-Page 207.
6. Ibid 4 - Page 208.

It appears from the above mentioned definitions that the project method is simply a name for the way in which man, because of his natural equipment, tries to carry out his aims or purposes in life's activities.

In this chapter an effort was made to define the project and the project method as expressed in various instances in the many quotations given. Indeed, this survey of definitions gives the reader an insight into the somewhat confused mass of interpretations current to-day among the leaders, both in vocational and academic education. Such may be expected in this day and hour when education is dynamic and not static, which leading philosophers claim must ever be true in a growing progressive society and in an ever changing point of view toward the great aims and purposes of life.

Chapter III

The Psychological Implications of the Project Method

In the preceding chapter a summary of the meanings of the project and the project method was given. It seems that a common element was present in practically every meaning and that element was purposeful activity. The project, then, involves activity. But, upon what basis is this point of view in education to be justified? In order to answer this question it seems necessary to look to those principles which guide the educator in determining what should or should not be practiced in education. Possibly the project method has its foundations for the use of activity in the present theory of psychology, which emphasizes the behavior, conduct or activity of the individual. It is worthwhile to note what Thorndike, one of the leading psychologists at present, has to say about the belief in activity. He says, "We are not to think of man as naturally inert, doing nothing until something external stirs him to action. On the contrary mental emptiness is one of man's greatest annoyers. Alive and awake each human being craves occupation.--In addition to such physical actions and tangible affairs there are countless other activities that go on in the realms of thought and imagination. In this all engage some more extensively than others."¹ Then psychology, according to Thorndike, acknowledges the tendency to be active as a natural endowment of man.

1. Kilpatrick, W.H. - Source Book in Philosophy of Education, Pg. 305
 quoted from Thorndike-Educational Psychology
 Vol. 1 Page 140.

Wherein lies the explanation for this belief? Again, Thorndike accounts for this condition in man for he says, "We are thus to think of the human individual as a bundle of neural connections leading on in a thousand different directions of activity, all craving exercise but at any one time differing much among themselves as to readiness."¹ Then, it appears that man is naturally active, because he was made that way by the Creator and the basis for this tendency is found in the nervous system of man. Then man must, according to Thorndike have within him something that prompts him to do what he naturally will do. The initial tendencies which lead to action are found in "all those instinctive cravings, commonly called curiosity, attention to novel objects and to human behavior, reaching and grasping, tasting, biting, general exploration with the eyes and general manipulation with the hands. Such experiences often lead to further activity, but they are in themselves their own sufficient reward."² In other words, when man is born there already exists in his nervous system certain neural connections which stimulate or bring about other neural connections. In brief, man is born with certain bonds, or as Henslow and other psychologists say, "with certain instinctive tendencies."

Hence, man is endowed with the impulses which are conducive to activity. These initial tendencies to activity

1. Kilpatrick, W.H. Source Book in Philosophy of Education, Pg. 306
quoted from Thorndike-Educational Psychology
Vol. 1 Page 140.
2. Kilpatrick, W.H. Source Book in Philosophy of Education Pg. 306
quoted from Thorndike, Educational Psychology
Vol. 1 Page 140.

must be understood and directed if the growing child is to develop the type of character and initiative needed in a democratic society. Indeed, such is the concern of Kilpatrick, Dewey, Hotchkiss and other promoters of the project method. But just what are the instincts that must be controlled? Horaworthy considers them as either social or non-social. Among the social tendencies she lists parental behavior, gregariousness, desire for approval and display, rivalry, imitation play and sex behavior. Those tendencies which she indicates as non-social include; physical activities as gross bodily control, vocalization, visual exploration and manipulation, food getting and food hunting, teasing, ownership and collecting, fighting, fear and curiosity. Fortunately, however, the child who can learn does not remain at the stage of activity that nature gives him at first but develops and grows under the stimulus of his own purposes and the guidance of those whose duty it is to help him to learn. It is interesting to note the manner in which the child develops. Dewey has described it in these terms:

"In the first (stage), there is no anticipation or preliminary consciousness of ends at all. The start is made with the child's instinctive and spontaneous powers, and through the operation of these powers certain results are reached. Ends are attained but not aimed at."

"In the second stage, ends consciously suggest themselves to the child and these ends at once call out the powers or suggest the doing of certain things. This stage

differs from the previous one in that there is anticipation or some consciousness of the results which may be brought about in action. But it differs from the stage next to be spoken of, in that there is no reflective examination of these ends, and no special analysis of means."

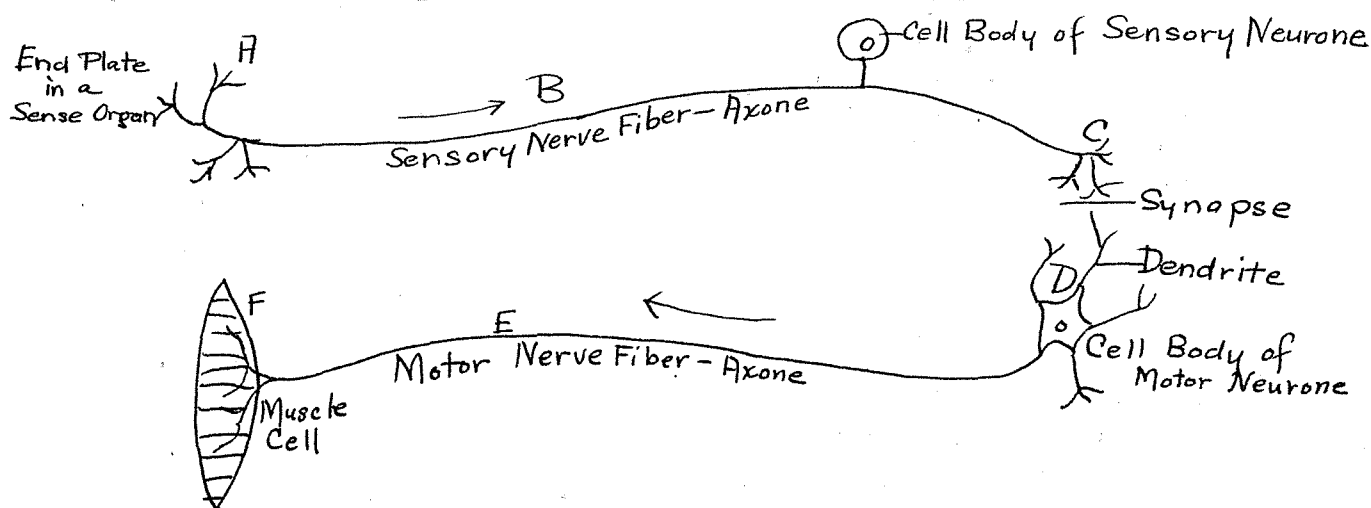
"The third stage then is conscious control, proper where the individual agent clearly defines to himself what it is that he wants after deliberation, after comparison with other possible ends, and then has at command a definite and orderly series of specially discriminated means with which to work out the proposed aim."¹ In other words, man becomes more rational as he develops his powers.

But what is the correlation between child growth and the project method? Those who favor the project method say that "learning takes place most economically and most effectively because the drive or propelling power is within the child."² How is this claim justified? According to Gates we learn by reacting to the various situations of life, hence learning requires activity. According to Thorndike and Woodworth learning is involved in the neurones which are in the nervous system. A typical neurone has (I) a receiving end usually branching out like a tree (the dendrites) (II) a thread-like conducting part, and (III) a discharging end usually also branching out into many endings. The simplest behavior system ("reflex arc") consists of a sensory neurone and a motor neurone meeting in a kind of junction point,

1. Kilpatrick, W.H. Source Book in Philosophy of Education. Pg.305.

2. Hotchkiss, E.A. The Project Method in Classroom Work, Page 9.

(called a synapse)--Any act of conduct can be conceived as a response (R) to some situation (S) or perhaps more precisely as a response (R) to some situation acting as a stimulus S. We represent this by the symbol $S \rightarrow R$ ¹ That is, the path of the impulse as set up by the stimulus is along the nervous fibre from the sense organ to the sensory area of the brain where a connection takes place between the neurones and the impulse passes over the intervening synapses or spaces to the motor or other neurones out to the ends of their fibers or axones if they are motor neurones. The following diagram represents the simplest bond or the reflex arc.



To illustrate, a stimulus S arouses the end plate in a sensory organ A and the impulse is conducted along, the sensory axone B to its discharging end C where the impulse passes with more or less difficulty through the synapse to the dendrites or receiving fibers D and along the motor axone to the discharging end in the muscle or motor organ F. This is the path taken by a simple reflex. Sometimes a group of neurones are ready to act and at other times they are not.

ready to act. If, however, purpose or the right mind set is present then this purpose or mind-set-to-an-end serves as a drive or inner urge which makes more ready all one's inner resources (response bonds that by previous inner connection seem pertinent to the activity at hand). "Learning," then "is located in the synapse (or Synapses) which join R to the S"¹

Evidently then there may exist in these neural connections conditions that favor learning or hinder learning. If "learning is acquiring new bonds or changing old ones,"² then the purpose it seems will largely determine which bonds can be changed most readily or built most readily.

Kilpatrick claims that "his reasons for making the purposeful act the typical unit of instruction is found in the utilization of the laws of learning."³ As indicated before, experimental psychologists claim that "an act of conduct consists of a response to the existing conditions. The preferred response follows a given stimulus because there exists in the nervous system a bond between the stimulus and the resulting response."⁴ Kilpatrick says that in learning the bonds behave differently under different conditions and these conditions of learning are described in the laws of learning.

Thorndike recognizes three principal laws of learning, namely the laws of Readiness, Exercise, and Effect. The

1. Kilpatrick, W.H. Source Book in Philosophy of Education Pgs. 311-312.
2. " " Foundations of Method - Page 29.
3. " " The Project Method - Teachers College Bulletin October 12, 1918 - Page 7.
4. " " Foundations of Method Bulletin, October 12, 1918, Page 7.

Law of Readiness is stated as follows: "When a bond is ready to act, to act gives satisfaction and not to act gives annoyance; when a bond is not ready to act, to be forced to act gives annoyance." The Law of Effect is stated as follows: "A modifiable bond is strengthened or weakened according as (success and) satisfaction or (failure and) annoyance attend its exercise." In the Law of Exercise, Thorndike states that: "When a given stimulus arouses a certain response, the connection between stimulus and that response is strengthened by the exercise so obtained."¹

But what are the connections between the project and the ways in which learning takes place?

These connections can be illustrated in the making of a kite by a boy who wishes one and has made up his mind to make one. His purpose provides "a mind-set consciously and volitionally bent on its end. As a mind set it stimulates readiness to pertinent inner resources of knowledge and thought. His eye and hand are made alert. His purpose acting as his aim, guides his thinking, directs his examination of his plan and materials, elicits from within appropriate suggestions and guides his testing of these several suggestions by their pertinence to the end in view.² Hence, "the purpose is that which defines a specific end, defines success. Success brings satisfaction and spurs the boy on to the other steps³. Thus the working of the law of effect

1. Kilpatrick, W.H. Source Book in Philosophy of Education, Pages 314 - 315.

2. " " The Project Method - T.C. Bulletin, 1918 Page 9.

3. Ibid 1.

helps fix the several bonds which by the successive success brought the finally successful kite.

In conclusion "the purpose supplies motive power, makes available inner resources, guides the process to its preconceived end, by satisfying; success fixes in the boy's mind and character the successful steps as part and parcel of one whole."¹

Thinking also, plays an important part in the process of learning. All children think "Their ability to think is a part of their native equipment." In instruction the teacher is "concerned with directing the inherited powers of the child and not in creating them".² But, does the boy or girl who is carrying out his or her purpose in some activity do any thinking in the process? Yes, the boy and the girl do think. They have to choose what they need and reject what is irrelevant to the carrying out of their purposes. Both learners have to bring together in proper order that material which they need for the accomplishment of their purpose. Hence, thinking guides their organization and purpose guides their thinking. This then is practical thinking - but, how do they come to conclusions concerning the right solution of their problems? Kilpatrick lists the following steps in thinking which are evoked in the mind of a child in his effort to accomplish his purpose.

(1) "A situation arouses an impulse or tendency to pursue a certain course of action."

(2) "A difficulty appears: how to continue the given course is not known; there is no appropriate way

1. Kilpatrick, W.H.-The Project Method-T. College Bulletin, Oct. 12.

1918, Page 9
2. Hotchkiss, E.A.-The Project Method in Classroom Work, Page 21

of responding known or immediately available."

- (3) "An examination of the situation is made to locate and define the difficulty more precisely."
- (4) "Suggested solutions arise; hypothesis are formed, behavior patterns are suggested."
- (5) "Implications (one or more) are drawn from each suggested solution, each hypothesis."
- (6) "Actual trial is made to see whether the deduced implications hold."
- (7) "A solution is accepted in the light of the tests made." ¹ Thus in the opinion of Kilpatrick and

others, purpose guides thinking and therefore purposeful activity is the best form of instruction to promote thinking in school and out.

Then again, according to Hotchkiss and Kilpatrick, purposeful activity allows for practice in the use of the laws of learning such as the law of exercise and the law of effect. Through them the child forms habits. The goodness or badness of a habit, to be formed, depends upon the dominating purpose which promotes the establishment of such a habit. Hence, worthy purposeful activity is a necessity of worthy living. Moreover, "knowledge, information and ideals are of most service to man when they become habits."² So-projects or purposeful acts carried on to completion determine to a large extent the habits formed by the projector and in this way influence the psychological make up of that child.

But memory, too, plays an important part in learning. How does the project method contribute to the power to remember any certain facts? According to Hotchkiss-"Memory is

¹ Kilpatrick, Wm. H.-Foundations of Method - Pages 242, 243.

² Kilpatrick, Wm. H. The Project Method in Classroom Work. Page 24.

a gift of our native equipment, depending upon that physiological structure of the nervous system known as the synapses of the cortex."¹ Memory varies. It depends upon the attitude of the learner. If the child purposes what he is doing, he remembers what he obtained as the solution of his problem, because he gained satisfaction with success. Furthermore, remembering is fixed by his further activity along the successful path. Here again, the purpose determines the character of the remembering since it promotes and stimulates thinking which in turn facilitates memory. Through all this purposing, thinking and remembering, learning continues and is promoted.

But what is learned in "purposeful wholehearted activity"? According to Kilpatrick, "many learnings go on at once."--"While the child is responding in significant fashion for any length of time to any situation, he responds not singly but variously to the many different parts and aspects of the situation. What he learns by these varied responses I am calling simultaneous learning." These learnings are called by Kilpatrick, primary, associate and concomitant learnings." The word "primary" (is) used to refer to all the learning that belongs closely to the enterprise, immediately under consideration. If I am making a dress, then the primary learning includes all the learning that comes from the actual making, such as increased skill in planning and cutting.

"The term 'associate' is usually found in the phrase
 1. Hotchkiss, H.A.-The Project Method in Classroom Work,
 Page 26.

'associate suggestions,' and refers to all those allied thoughts or ideas that come from working on the dress, but which, if followed up then, would lead me away from my dress-making."

"The 'concomitant' learnings grow (in part at least) out of the dressmaking, but do not belong so closely or exclusively to the dress as do the primary."--"Concomitant learnings have to do with the more generalized ideals and attitudes, while the primary learning has rather to do with specific knowledges and skills"--"Prominent among concomitants are personal attitudes, attitudes toward one's teachers or comrades, attitudes toward the several subjects of study"--"attitudes toward one's self such as self-reliance or pride or humility. Other important concomitants are standards of workmanship and the like, neatness, accuracy, or the reverse."¹

From the preceding statements it is quite apparent that there is a close correlation between the project method and the psychological principles of learning. In this chapter the chief points discussed were the following: Human beings are naturally active; they are born with certain instinctive tendencies which are to be used and controlled in the development of the child who passes through several steps in the process of mental growth. The basis for this growth or learning is physiological and is located in the synapses in the cortex of the brain. A bond consists of the connection between a stimulus and a response. Bonds are built or modified in the process of learning according to the laws

1. Kilpatrick- Foundation of Method - Pages 99-119.

of learning. Purpose acts as an inner urge and brings about readiness in the most pertinent bonds which when they act they bring about success. Success leads to satisfaction and the bonds are fixed and learning takes place.

The place of purpose in the learning process and consequently in the building of bonds is described by Thorndike as follows: "Purposive behavior is the most important case of the influence of the attitude or set or adjustment of an organism in determining (1) which bonds shall act and (2) which results shall satisfy."¹

"The children of a school class may work with doubled efficiency simply from learning the significance of the work to their wants, and associating the work with sociability, cheerfulness, and achievement."²

1. Kilpatrick, W.H.-Source Book in Philosophy of Education-Pg.302.

2. Same.

Chapter IV.

The Place of the Teacher in the New Psychology of the Educative Process.

In Chapter III an attempt was made to justify the use of the project method from the psychological point of view. But the person who is to use this method and the psychological principles involved is the teacher. The teacher's position in the schoolroom has changed. She is no longer the dictator nor the hearer of lessons. No. She is no longer the chief actor in the classroom. She, however, has not lost anything because of the findings of experimental psychologists or the development and introduction of the project method into the classroom. On the contrary, she has assumed the position of the leader, the guide, the stimulator, the promoter of child activities and finally the judge of the worthiness of three purposes.

Probably the place of the teacher in this "broader method" is most aptly described by Dewey, who says, "When the teacher has provided the conditions which stimulate thinking and has taken a sympathetic attitude toward the activities of the learner by entering into a common or joint experience, all has been done which a second party can do to instigate learning."¹ And, in another book he describes good teaching as that "teaching that appeals to established powers while it includes such new material as will demand their redirection for a new end, this redirection requiring thought - intelligent effort."²

1. Dewey, John - Democracy and Education Page 133.
2. Dewey, John - Interest and Effort in Education Page 58.

Again, in telling of the relation of the child to the curriculum, Dewey describes the teachers place in the newer method in these words: "But save as the teacher knows, knows wisely and thoroughly, the race - experience which is embodied in that thing we call the Curriculum, the teacher knows neither what the present power, capacity, or attitude is, nor yet how it is to be asserted, exercised, and realized."¹ So the teacher does play a part in the D.K. system of educating children. When one reads about this system, he hears so little about the teacher and so much about the child and subject matter that he is apt to conclude that teachers are no longer needed in modern schools. But this does not seem to be the true situation in regard to the teacher for she too plays a part and a very difficult part at that.

The problem of our present teacher training schools then is to prepare teachers to fit into this new system of child training through directed self activity. What, then should be the preparation for teachers of the project method? According to Bonser the "teacher should have a clear perception of the objectives toward which work should move. The teacher must have a clear conception of the project method and its implications. The teacher must be acquainted with the psychology, pedagogy; fundamental principles and implications for the selection, organization, and development of school activities." She must increase her professional scholarship - study life and the subject matter to pursue the purposes of life.

1. Dewey, John - The child and the Curriculum. Page 40.

"Teachers must continuously keep themselves thoroughly alive to the problems and interests of the time. They must note the interests of the child and sympathetically and intelligently use those that will afford appropriate means of growth. The teacher should have a clear perspective of permanently usable values in relationship to the advancing levels of the interests, capacities and experiences of the pupils."¹ These are Bonsers' views on the preparation needed by teachers of the new method.

If we list Kilpatrick's ideas of the proper training and preparation for teachers of the project method we will note some points of agreement between Bonser and Kilpatrick.

Kilpatrick says that the aim in the schools of education should be "to turn out teachers who will themselves grow and will cause their pupils in turn to grow. Build in the minds of student teachers:- "appreciation of the type of character that society needs; ability to see and use subject matter as a means of growth along the lines called for in the foregoing character; ability to see and use method as the functioning of subject matter in and for growth; "ability to see and use psychology as an aid to growing; ability to see and understand the process of growing as found in the "practice school"; eventually the ability to guide the process of growing in pupils."² The gist of the arguments given above seems to be as follows: teachers must understand children, must know the subject

1. Bonser - Teachers College Record - Vol. 22, Sept. 1921 Page 302
2. Kilpatrick, Wm. H. - Educational Review, Vol. 64-1922 Page 207

matter, must keep abreast of the problems of the times, and must understand the psychology, pedagogy, and underlying philosophy of the project method."

But what is the function of the teacher in this new system of educating children through purposeful activity? It seems that the teacher is no longer "king of all he surveys" - on the contrary he is the guide, the one to show the way to those inexperienced persons - the children. The teacher guides the pupils in the making of their choices, shows them the way to accomplish their aims; stimulates good purposes and attitude, controls the life situation in which the children are engaged and in fine, helps to build a pupil morale appropriate to life in a democracy. Just what kind of guidance is needed? Lobingier says that the kind of guidance that is needed is "that which retains the spontaneity and initiative of the pupil. The leader must encourage certain tendencies and discourage others."¹

But some interpret the teacher's function in project teaching wrongly. According to Kilpatrick, "It is wrong to think that we call upon the teacher to wait for a move from the child. Either the pupil or the teacher may purpose. Whether the teacher shall or shall not suggest the purpose is a practical matter to be decided in the light of all the consequences including among others the degree to which the suggestion may actually enlist the purpose of the child or children."²

1. Lobingier, John - Projects in World Friendship - Pages 28-40
2. Kilpatrick, Wm. H. Teachers College Record - Vol. 22, Sept. 1921-, Page 286.

But as a guide the teacher must set the stage and control the situation so that valuable purposes are likely to be proffered. Then the teacher must decide which of the offerings is best and indeed, if any should be utilized.¹

Probably the function of the teacher of the project may be summed up as follows: "It is the province of the teacher to select, stimulate and direct activities whose worth is high in leading forward toward objectives of unquestioned value."²

It is worthwhile noting in detail the interpretation that is put upon the teacher's duties in this new form of educating children.

McMurry, one of the earliest exponents of the project in teaching, has his views upon what the teacher should do in teaching by means of projects. According to McMurry - "sifting and resifting of types of projects is the problem of the teacher. The teacher should discard miscellaneous facts and should focus attention upon those ideas and projects which are strongly purposive and far reaching in their scope and influence." He goes on further to say that the "teacher cannot be satisfied with daily plans. She must first plan the unit as a whole, then more carefully, plan each day. In fact-reorganization of the knowledge of school studies into these masterly units is a task for experienced teachers and ripened scholars.---If children are to become self-reliant thinkers they should have a chance to encounter in each of

1. Kilpatrick, Wm. H. - Teachers College Record-Vol.22 Sept. 1921
Page 287.
2. Bonser, Frederick G. " " " Vol.22 Page 302.

the important thought studies a series of these large developing problem - projects."¹ It appears from the above that the teacher purposes and the pupil accepts this purpose. Where is the life situation of the pupil which calls forth this unit of study to which McMurry refers? There is something of the orderly intellectual thinking of Herbart in the above remarks of McMurry it seems.

Briggs point of view toward the teacher's duty in the new system of education may be best understood if we first consider his aims in education. He says that we should aim (1) "to help boys and girls to do better than they otherwise would, the precise things they had chosen; (2) through classroom practice we should broaden the outlook of the pupils as to what they might further choose and then help them better to effect these new choices."² These are the teacher's duties but they should lead to the teaching (through purposeful activity) that everybody is his brother's keeper.

Hotchkiss, also, has listed what he thinks are the duties of the teachers of the new method. He says "The teacher must provide situations for the wholesome operation of the laws of learning. The project should grow out of some social situation or individual experience the solution of which should result in genuine satisfaction to the individuals or individual working it out. This calls for much thought on the part of the teacher."³

1. McMurry, Charles - Teaching by Projects - Pages 131 & 167.
2. Collings, Ellsworth - An Experiment with a Project Curriculum Page XVII.
3. Hotchkiss, E. A. - The Project Method in Classroom work Pg. 40.

In an other place he writes, "Teachers cannot afford to stand about and wait for something to happen in order to start a project. He should be on the alert to take advantage of every opportunity for the launching of genuine projects. Some of the best projects originate in some new or strange situation that suddenly appeared before the class."¹ Later on in his book Hotchkiss describes the duties of the teacher in these statements: "The teacher should sketch a preplan, list the native instincts that he hopes to arouse in the individual members of the class, list the material to be used and anticipate some of the problems and queries that the children are likely to raise and write out some desirable things to be accomplished in working out the project. The results of the project depend upon the skill with which the pupils launch the project. The teacher should also have some definite plan for judging the project. Was it educating? Was it of genuine interest to the pupils? Was it worthwhile? What school arts were learned? Were the aims accomplished? Were desirable habits being formed?"²

Other helpful hints concerning the teacher's work appear when Hotchkiss writes, "The teacher must avoid too much help in guiding the pupils in their purposes."³ Furthermore "the teacher should skillfully guide the children into a realization of the need of special work and drill in those weaknesses which arise out of a natural situation."⁴

Another writer on the project method who has expressed

1. Hotchkiss, E. A. - The Project Method in Classroom Work, Pg. 44.
 2, 3, 4. Hotchkiss, E. A. - The Project Method in Classroom Work.
 Page 48.

his opinion concerning the duties of the teacher is Mendel E. Branom. In Chapter one of his book, Branom writes, "The full significance of the project method should be grasped by the teacher. The project method determines the growth out of school and in school. The teacher must guide the direction and rapidity of this development. The teacher must establish proper relations between the child and successive situations. The skill of the teacher should be used to get the pupils interested in the goal and in the steps necessary to reach the goal wholeheartedly."¹ In Chapter IV., Branom writes, "It is necessary that the teacher shall know the nature of the child's world and the varied interests of children which aid in their growth."²

In Chapter V, Branom lists the following duties for the teacher of the project method: "The teacher's work is to place the child into effective relations with his environment." In order to accomplish this purpose "the teacher must relate the situation to the child's experiences and attitudes so that the child can grow. Her problem is to get the child's interest aroused so that he will feel the need if possible the want of mastering the situation. She has the task of getting the children to focus their attention and interests upon situations whose mastery will develop them in the direction demanded by their social welfare. Every teacher should attempt to relate the work to the child in such a way that there is no problem of discipline.

1. Branom, Mendel E. - The Project Method in Education - Page 27.
2. Same, Page 69.

The work of each recitation should be strongly motivated.-- The primary responsibility for motivating the work belongs to the teacher."¹

In Chapter X, Branom writes in regard to the teacher's duties in the study period - "The teacher's function in the study period is to act as a stimulator of activity and is not that of any authority or a general source of information. It is her business to see that the pupils have materials and sources of information with which to work. As the pupils are studying she should pass quietly among them looking over their work.--The teacher should stimulate suggestions, but she should not be a crutch for the pupils to lean upon."² It is quite apparent from the above list of duties which the teacher must fulfill that she is an important factor in the new method of education.

Another writer who has seen fit to warn the teacher of her duties in teaching by projects is John A. Stevenson. Stevenson says, "The teacher's task is simple yet difficult, simple because he must merely commence the process by so controlling the situation that a need or problem will arise for the child the rest, within certain limits are the capacities of the child; and to properly gauge these and take them into account requires teaching ability of a high order. In order that the projects may serve a progressively educative purpose they must be so organized as continuously to present new difficulties and offer new opportunities for achievement."³

1. Branom, Mendel, E. - The Project Method in Education, Pgs. 79-101

2. Same - Pages 158-159

3. Stevenson, John A. - The Project Method in Teaching, Pgs. 78, 82, 83

Later on in his book, Stevenson writes, "Before the teacher attempts to teach a subject by this method, certain suggestions should be considered. The teacher should first of all survey the subject planned for teaching in order to enumerate all the facts, principles and processes which are to be taught. This material should be arranged in a logical or systematic order. Then the projects which the teacher expects to use in this subject should be outlined to see how much of the material, logically arranged, will be taken care of by these projects."¹ Finally, he adds, "After the facts have been introduced and taught by the project method the material should be arranged in a logical order and drilled upon until a systematic grasp of the subject is realized."² These, then, are the duties of the teacher according to Stevenson.

Kilpatrick, as we have already noted, regards purposing by the pupils as the chief factor in teaching by projects. Hence, we find that he stresses the teacher's duty from the point of view that the pupil must do the purposing. Therefore, he says that the teacher's duty toward the purpose is to "rule out bad purposes, peaceably if he can, forcibly if he must - and on the other hand to start those wholesome purposes which we altogether approve."³

To the teacher of science who teaches by projects, Downing would give the following duties: "See that the pupils have abundant opportunity to come in touch with many things

1. Stevenson, John A. - The Project Method in Teaching - Page 277.
2. Same - Page 278.
3. Kilpatrick, Wm. H. - N.E. Association Bulletin - Vol. 56 Pg.272.

and with varied situations so as to enrich their experiences. They need a profusion of intelligently organized sensory contacts to build up accurate percepts. They must be directed toward the problem - solving attitude of mind and the problems used in their training must deal largely with the concrete. Their steps in the process of thinking must be guarded against errors. They must be given ideals of accuracy in observation drill in analysis and discrimination, in separating pertinent from non-pertinent facts bearing on a problem, and in arranging facts so as to make evidence for or against a tentative hypothesis. Knowledge must be acquired to give fertility of suggestion. They must be trained from jumping to hasty conclusions and to assume any impersonal unprejudiced viewpoint, in looking at a problematic situation."¹ Such are the duties of the teacher according to Downing.

Once more we note the teacher's duties according to Nolan who says, "The teacher:

- (1) "Helps initiate projects."
- (2) "Awakens interest in projects."
- (3) "Directs the activities of pupils to projects of value;
and
- (4) "Organizes minor projects and problems in the solution of complex projects." ²

In this chapter the duties of the teacher of the project method, as well as her preparation and functions were listed according to the opinions of several authorities. In closing it might be worthwhile to briefly state that the teacher must

1. Downing, Elliot R. - Teaching Science in the Schools, Page 63.
2. Nolan, Ora, I. - Education - Vol. 44 - Page 288.

be prepared to guide pupils in the selection of purposes and to guide pupils in the successful realization of their purposes in real life by helping them in working out plans to attain their purposes, in executing the plans made and in criticising the finished product.

Chapter V.

Some Conclusions

As a result of this study a few general conclusions may be formulated. First, it is safe to assume that the project method is not a brand new idea by an expression and synthesis of ideals and aims in education which have been kept alive in spite of time and trial. Briefly, the project method includes the following elements carried on from the past and promoted by some of our present leaders: self activity, learning to do by doing (comenius) interest, motivation, concreteness, individual differences, cooperation, permanent retention, transfer of the judgment of values and training for leadership.

Second, there is some confusion in the minds of teachers and others who are trying to use the project idea because of the different meanings given to the project and the project method. There seems to be two divisions of educators on the question of what the project and the project method really are. Those interested in vocational education seem to limit the project to concrete expressions of ideas in some manual form whereas those in other fields of education seem to be agreed that a project is a wholehearted purposeful activity carried on to completion in a social environment.

Third, there seems to be strong enough arguments to indicate that the project method is a psychological method. Moreover, there seems to be facts to show that the princi-

ples of psychology as determined by the application of a scientific procedure to the study of psychology are applied in the project method. In fact, how learning takes place according to our modern psychology and how learning takes place in the project method of study seem to be practically the same thing. Consequently the teacher of the project method must understand the latest principles of psychology.

In fine, this method of the project also points out the present philosophical attitude of the pragmatists. It seems to say the end of education is conduct and character. One leads on to the other. Both are dependent upon purposes of a worthy nature. The child's purposes must be utilized and directed in his activities so that he will get practice in the right habits, attitudes and ideals. of a worthy life. In fact, if rightness is to be measured in regard to any conduct, then its rightness is determined by its work ability. Then again, man's behavior is a result of neural connections made in his nervous system. Man is a mechanism that reacts to a stimulus this way and that way accordingly as certain bonds are or are not ready to act. No mention is made of any guiding power in the determination of right conduct except man himself, and his environment. He is to be his own judge. Like an animal of a lower grade, he is to learn what to do by doing, by trial and error. Nothing is considered as worthwhile which is based upon speculation. Man must be analyzed scientifically and on the basis of this study is man's nature, purpose

in life, and very existence to be explained. Such appears to be the philosophical ideas implied or stated in the D. K. philosophy of education through the instrument described, namely, the Project Method.

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