This handbook reviewed various teaching methods used in the matrix of the Greco-Christian-Roman tradition and generally recognized as pedagogically important. The 28 methodologies presented in the handbook were adapted to secondary teaching, but could also be applied to teaching on the college level. The general roles of the methodologies were: (a) utilization by students in minor and major methods classes as frameworks for microlessons; (b) use by student teachers; (c) utilization by college teachers as educational models to be followed by the students. Each method was described briefly giving procedures and recommendations for their usage. Emphasis of each methodology was placed on the needs of the individual in the learning situation. A 13-item selected bibliography was included. (BRB)
ANALYSIS AND SYNTHESIS OF TEACHING METHODS

A Handbook for Future Teachers

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INTRODUCTION

The teaching methodologies that follow have been adapted to secondary teaching, but could be applied to college teaching as well. They should serve at least three roles: 1) They can be utilized by students in minor and major methods classes as a framework for their micro lessons. 2) They can be used by our student teachers. 3) They can be implemented by the teachers of our college and thus provide good models to be followed by our students.

Each method should be explained in its philosophical and historical framework so that it can be thoroughly understood and applied. Teachers should feel a bond of brotherhood with all of the dedicated educational philosophers and practitioners such as Pestalozzi, Comenius, Montessori, Dewey, Socrates, and others who have tried to make a better life for their pupils possible. Without the foundation of their ideas, ideals, and practical methods we surely could not teach our students in a manner that would help them grapple with the difficulties that confront them today.

Frederick G. Turk
Washington, D.C.
Analysis and Synthesis of Teaching Methods: is a compilation of those teaching methods which have proved significant within a long historical tradition.

The authors of this handbook provide a review of teaching methods used in the matrix of the Greco-Christian-Roman tradition and generally recognized as pedagogically important: they do not recommend any particular method.

Because every method is devised in response to new demands of subject and learner, and because every method becomes obsolete as subject and learner change, the study of method is dynamic and ever-changing.

Every teacher must know a variety of methods so that he can choose which one to apply in a particular teaching/learning situation. Every teacher must know the range of teaching methods so that his area of choice is broad. Every teacher must understand the ingeniousness of great methodologies so that his own creations can be evaluated correctly.

Decision-making is at the heart of the educational process and the teacher must be fully informed in order to decide wisely. In the wisdom of his decision rests his glory or defeat as a professional educator.
Wise decisions cannot be made in teaching unless the teacher can both analyze and synthesize procedures. It is in the analysis of teaching/learning problems that the science of pedagogy consists: it is in the creative production and implementation of new strategies that makes the art of teaching.

A knowledge of teaching methods that have achieved historical prominence, then, provides a repertory for the future teacher, a base for decision-making, and a challenge to personal creativity.

It is my hope that this slim volume on teaching methods will give young teachers the historical perspective they need to create wonderfully new and effective lesson strategies for their charges.

Mary C. Rodgers
College Heights Estates
August 23, 1970
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The following pedagogical methods have achieved historical significance because they were able to meet the needs of particular students of a particular era.

1. **THE MEMORIZATION METHOD**

   There is some knowledge that needs to be memorized: typing keys, some poetry, common decimal equivalents, manual skills, a few historical dates, etc. It is difficult to believe the great extent that one's memory was used by the Hebrews, the Spartans, the traditional Chinese and others.

   Teachers should stress logical over rote memorization. How quickly we forget the meaningless! The 4 R's should be kept in mind.

   Reflection + Repetition + Recitation = Retention

   Don’t abuse the method! G.K. Chesterton is known to have said that if one knows where to look for information, why should he memorize something.

2. **THE LECTURE METHOD**

   No method is able to transmit information so effectively. The method was used extensively by Confucius (551-479 B.C.?) and during the Middle Ages before the advent of the printing press. A good lecturer must know more than the facts and have a stimulating speaking manner, but he must also tailor his presentation to the needs of his audience.

   Procedure:
   
   1) **Objectives:** What should you learn?

   2) **Definition of terms:** This is a wonderful opportunity to develop students' vocabulary.

   3) **Division and subdivision** of details: Organization
4) **Summary**: Recapitulation of the most important ideas.

5) **Raising and solving objections**: If students were learning, they should have questions concerning misunderstandings or doubts. The teacher should feel free to also ask questions as an evaluation technique.

### 3. THE SOCRATIC METHOD

Socrates (?470-399 B.C.) was a man in search of truth, and his method is an expression of this goal. He was especially angered by the excesses of some Sophists who proudly boasted of having wisdom and indicated that education should primarily teach one to express it. Much of the Greek education is involved in these two philosophies of education.

The Socratic Method is divided into two sections:

1) **Ironic**: The learner's views or beliefs are taken to be true. The teacher then proceeds to criticize constructively these suppositions until the absurdity or goodness can be easily understood by all.

2) **Giving birth to ideas**: The learner is guided from particular instances toward the formation of general propositions or concepts. This is induction.

The procedures are determined by the teacher and his students.

### 4. THE DISCUSSION METHOD

Most of us enjoy talking with our friends and the pleasure is maximized when everyone learns from the discussion. But how often are discussions a bore? They must be directed.

Cicero (106-43 B.C.) often used the discussion method as he tried to lead his fellow senators toward the resolution of their problems. He is an example of the finest product of Roman education—the orator.

Procedure:

1) **Presentation**: The teacher introduces a problem or topic to his students as to elicit their opinions, evaluations and solutions.

2) **Guiding**: He skillfully directs them towards conclusions.

3) **Summary**: He recapitulates the salient ideas and the conclusions.
It must be realized that there is no one correct answer to a problem. Courtesy for each other is learned through the interaction, as well as habits of clear thinking and sound investigation.

5. THE PARABLE METHOD

We surely associate the teachings of Christ with this method. Analogies are made between familiar concrete objects which we understand to abstract ideas which are difficult to understand. Mercy is taught through the Good Samaritan, percentages through parts of the dollar bill, etc.

Procedure:
1) Statement of the analogy.
2) Descriptions of the details: The students can help here.
3) Conclusions: Do the students understand the important comparisons?

The teacher needs to be an expressive storyteller as well as quite persuasive.

6. THE JESUIT METHOD

The Jesuits have been known to be "Masters of Method." Their aim has been to form cultured gentlemen - a person who does not injure anyone. The method need not be as systematized nor unreceptive to new knowledge as has been practiced. The keys to the method are repetition and competition among the students.

Procedure:
1) Prelection:
   a) A passage to read by the teacher.
   b) Difficult words are defined.
   c) The meaning of the passage is analyzed.
   d) The new content is associated with past experience.
   e) An assignment concerning the content is made.
2) Repetition: The group is divided into two, and two well-prepared students monitor each subgroup.
   a) The monitors quiz the members of the other subgroup to assess completion of the assignment.
   b) Students discuss and dispute the meanings and interpretations of the passage.
   c) Rewards are given to the better students.
This method seems most useful in the teachings of the valuable ideas contained in ageless literary passages in English or foreign languages.

7. THE VINCENTIAN METHOD

Saint Vincent de Paul (1580-1660) is known for his devotion to the poor, but he also was a fine educator. He developed his petite methods of giving short but pointed sermons. A teacher frequently is called upon to deliver an appealing moral type lecture in class.

Procedure:

1) **Nature:** What topic is to be studied?
2) **Motive:** Why is it important for us to study the topic?
3) **Means:** How can the topic be learned or put into practice?

The teacher should try to use many concrete objects and should not overwork the method. Maybe we should pass the method on to our clergymen.

8. THE MONITORIAL METHOD

Andrew Bell (1753-1832) in India and Joseph Lancaster (1778-1838) in England almost simultaneously developed a heralded method that would allow one teacher the ability to teach a great number of students. The method was used to educate the masses so as to realize the Jeffersonian ideal - an educated electorate.

Procedure:

The teacher thoroughly teaches ten monitors who in turn teach what they have learned to ten of their classmates.

A teacher can use the method to teach mechanical tasks and artistic projects that lend themselves to group work. We often fail to realize this fact - children teach each other quite well.

9. THE HERBARTIAN METHOD

Johann Friedrich Herbart (1776-1841) developed the idea of the "apperceptive mass." Johann Pestalozzi (1746-1827) had advanced teaching methodology greatly. He stressed sense-realism methods which practically applied the fact that nothing reaches the intellect unless it is first perceived by the senses. Herbart successfully resolved the obvious weakness of Pestalozzi's Method, that is, the assimilation of new concepts to old ones. His method is based upon the continual flow of ideas and formation of idea clusters.
Procedure:

1) **Preparation**: This step is identified with readiness. Past knowledge needs to be reviewed and interest stimulated.

2) **Presentation**: The new material is taught in a concrete manner including many examples.

3) **Association**: The new knowledge is compared and analyzed with respect to old knowledge.

4) **Systematization**: General rules are then formed attesting to the fact of the unity of knowledge.

5) **Application**: The student is now required to apply his new learning to a suitable assignment.

This method appears best used to teach mathematical and scientific concepts.

10. **THE PROBLEM METHOD**

This method is attributed to John Dewey (1859-1952) who stressed learning by doing. He was interested not so much in learning knowledge per se but in learning the ability to think and to reason. The method requires a more flexible class setting than is found in most schools.

Procedure:

1) **Recognition of a difficulty**: The student must feel the desire to learn something that is of deep interest to him. The teacher encourages his students in an atmosphere of freedom to present their own problems.

2) **Definition of the problem**: The teacher guides the students to a clear realization of the problem.

3) **Suggestion of possible solutions**: Hypotheses are now formed by the students with the help of their teacher.

4) **Examination of hypotheses**: Each hypothesis is carefully tested.

5) **Verification of conclusions**: The best hypothesis is selected and put to the test of experience.

This method could also be termed the scientific method and could be used in the social as well as physical sciences. The students are encouraged to work together and should gradually learn to use the method without the guidance of a teacher.
THE PF7 METHOD

This method is an application of Dewey's method to the schools as they are today. It emphasizes personal interest, non-competition, the "whole person," creativity and individual learning. It is attributed to William Heard Kilpatrick (1859-1965), an interpreter of Dewey.

Procedure:

1) **Purposing:** Each student determines his intentions before embarking on his project.

2) **Planning:** A complete outline of his work is necessary. It should function as a map does to the traveler.

3) **Executing:** The plans are now enacted.

4) **Judging:** The success of the project is now evaluated.

There are boundless opportunities to develop projects. They can be in areas of the production of something, the consumption or appreciation of something, the resolution of a particular intellectual problem and the attainment of a skill or knowledge.

THE UNIT METHOD

A reaction to the exaggerated child-centered, self-activity outcomes of progressive education was this method derived by Henry C. Morrison (1871-1945). The emphasis is upon the unity of a segment of knowledge. The teacher determines when and how particular material is taught, and all activities are highly organized.

Procedure:

1) **Exploration:** Determination is made as to the extent of students' knowledge concerning the particular unit to be taught.

2) **Presentation:** An overview of the unit is given to stimulate interest, and upon subsequent days material is presented and developed in a Herbartian manner.

3) **Assimilation:** Tests are frequently given to assess learning and expose areas that need clarification. Enrichment opportunities can be introduced.

4) **Organization:** The students are now called upon to come to conclusions about their new learning through various types of activities such as panels, dramas, projects, etc.

5) **Recitation:** Students present final results of the work.
The unit method obviously utilizes the other methods. There are also a few variations of this method. The Dalton Plan or Contract Plan individualizes a unit of material whereby the student and teacher agree upon certain activities to be mastered. The Winnetka Plan allows groups of students to work on different units simultaneously.

13. SOCIALIZED RECITATION

This method calls upon group participation and group responsibility for learning. It entails the free exchange of ideas and a great amount of reflection and appreciation of all points of view.

The procedure would vary from group to group. The teacher, whose role is more that of a stimulator, motivates the students by arranging the chairs in a circle or into small groups, tries to maintain a reserved position, encourages student questions and initiative and does all he is able to cause a feeling of group solidarity and interaction. The teacher acts indirectly and needs to plan thoughtful questions that may require judgements, comparisons or analyses; projects and problems to be worked upon.

Classes in social studies, science, mathematics, current events, and extracurricular club-type activities could utilize this method.

14. THE CASE STUDY METHOD

This method is used extensively by students of law, medicine, sociology and psychology. The use of concrete, real situations helps lead to generalizations and make one aware of important causal factors.

Procedure:

1) **Selection**: A case should be chosen that illustrates facts that are relevant to the topic under study.

2) **Reading**: Everyone must read and study the case.

3) **Analysis**: Questions are asked and answered about significant facts by each student.

4) **Discussion**: Personal conclusions and judgements are now shared. The teacher's role is to make sure each student supports his view with principles.

There are numerous opportunities to use this method in the teaching of social studies, health, science, etc.
15. THE CREATIVE DRAMATICS METHOD

This method was developed at D.C. Teachers College and has proven successful in the D.C. schools. It calls upon the creativity of the students and is a good way to involve them in the lesson.

Procedure:

1) **Topic:** The teacher relates a story or describes an event. He needs to be very expressive so as to gain the students' attention.

2) **Discussion of the characters' feelings:** The teacher tries to have students identify with the characters in the story or event on an emotional level.

3) **Setting the scene:** The teacher gives the framework of a scene to be acted out by some of the students. He should try to give minimal instructions so as not to seriously limit the students' imagination.

4) **Assignment of roles and spontaneous enactment:** Students voluntarily take the roles and enact the drama, imagining the props.

5) **Debriefing:** Everyone now discusses the drama especially as to its validity in a community spirit. The teacher clarifies important concepts by prudent questions.

The method is especially appropriate for the learning of concepts in the areas of history, English, science, physical education, and home arts.

16. THE WHOLE-PART METHOD


Procedure:

1) **Analyze skills:** The teacher must thoroughly understand the fine points as well as the sequence of the various parts that form the whole.

2) **Assess the readiness:** The teacher must determine previous learning that would be of help towards learning the new skill.
3) **Arrange the training:** The student should be aware of the whole skill before trying to learn the parts. Frequent reference needs to be made to the whole so as to make the parts meaningfully related to it.

4) **Provide practice:** The arrangement of practice and rest periods is critical.

5) **Provide feedback:** The student needs to know the quality of his efforts.

This method is applicable to many motor and verbal skills such as typing, physical education activities, singing, and learning a foreign language.

17. **OPERANT CONDITIONING METHODOLOGY**

B.F. Skinner through his studies of animals, especially pigeons, showed that simple whole learnings could be learned through operant conditioning. This same idea is the foundation of modern programmed learning. The teacher in class can use the same method to teach formal-type material.

**Procedure:**

1) **Stimulus:** The teacher presents a simple situation to which the student must respond; of course, the teacher must motivate his students.

2) **Response:** The student answers correctly or incorrectly. If correct, the teacher reinforces the response; if incorrect, the teacher redirects the student's efforts to make possible a correct response.

The method can be applied to learning decimal equivalents, spelling words, important dates, vocabulary, etc.

18. **ARRANGED DISCOVERY METHOD**

It has been about ten years since Russia's Sputnik shocked the citizens of the United States. An examination of education took place especially in the areas of mathematics and science.

Methods of teaching were and are being devised that stress the understanding of concepts and the process by which new knowledge is discovered instead of focusing upon learning a prescribed body of knowledge which often leads to more fact accumulation.
Ideally it would be wonderful to have students rediscover knowledge as the scientists did. Not everyone, however, is a genius, nor would we want to take all the time that would be required. The concept of the wheel, for example, was discovered only after a long period of time; in fact, the Incas never did use the wheel. Practically then, arranged discovery would be better. In this situation the teacher provides meaningful situations which make the discovery easier and quicker.

The following procedure is a combination of Socrates' Birth of Ideas Method and the Problem Method.

Procedure:

1) **Stimulation:** The teacher poses a problem for his students and indicates the importance of resolving it.

2) **Examples:** The teacher provides a number of concrete examples that upon analysis lead to the resolution of the problem.

3) **Discovery:** The students discover the solution usually through sudden awareness.

4) **Application:** To thoroughly understand the discovery, application of the concept is required.

The method need not be confined to mathematics and science, but can easily be applied to social studies, physical education, English, foreign languages, etc. It is an exciting and challenging method. It is far more difficult to help a student learn a concept than to simply tell it to him, but arranged discovery or induction is much more meaningful.

19. **INDIVIDUALIZED METHOD**

There is presently an effort to individualize instruction as much as possible. The principal idea is to have each student learn at his own rate. The method is quite appropriate for the learning of simple skills and for remediation.

Procedure:

1) **Diagnosis:** The teacher assesses the students' knowledge of a particular area by using tests, viewing behavior, analysis, etc.

2) **Prescriptive selection of behavioral goals:** The student and teacher agree upon what should be learned within practical limits.

3) **Individualized directed practice and learning:** The teacher assigns the learning activities required to attain the behavioral goals. The child is active and has the responsibility to learn. The use of teaching machines is possible.
20. **TEAM TEACHING METHOD**

Basically an organizational strategy, this method uses large group instruction followed by small group interaction. Several persons share the responsibility for providing information, practice, and evaluation of learning.

The strength of this method is that it allows each teacher involved to do "his thing": the weakness of this method is that students must adjust to the teaching styles and divergent evaluation of a number of teachers. Since not all students are psychologically and socially mature enough to handle the complexity of team teaching, it should be used with discretion.

21. **SELF-INSTRUCTIONAL METHOD**

Modern technology has made it possible for students to teach themselves quite effectively. The teaching program (unit of study) is created by experienced education of personnel and put into a machine that manipulates it. Thus, the intelligence of a teacher is involved in the teaching/learning situation, but the teacher is not physically present since the machine takes his place.

Some distinguished programs in self-instruction are available today in both information subjects (history, literature, civics) and in skill subjects (arithmetic, usage, spelling).

22. **TUTORIAL METHOD**

Long-honored as a teaching strategy and dating back to Isocrates and Aschoam, the tutorial method is still used today. It is sometimes called coaching, since the strategy consists mainly of an instructor who tells students what to do and then supervises their performance. The student corrects his behavior in terms of feedback given by the instructor. A one/one relationship is maintained as long as the student needs it.

23. **AUDIO-VISUAL METHOD**

The philosophic tradition of Descartes and Thomas Aquinas gave emphasis to the point that nothing "enters" the mind except through the senses. Modern educators believe in maximum stimulation of eye and ear to heighten learning input.

The intense use of films, radio, filmstrips, slides, charts, maps, transparencies, film loops, audiotapes, records, and videotape can turn any method into an audio-visual one.
24. **THE DIAGNOSTIC METHOD**

This method is used astutely in situations requiring remediation. Usually the instructional problem is complex and requires not only initial diagnosis, but continuing testing.

An example where this method might be applied is in the teaching of English when lack of proficiency might mean anyone of eighteen various skills in literary analysis, encoding, decoding functional grammar, and others. Daily testing in one or the other of the many English components would be necessary to keep abreast of a student's changing verbal behavior.

25. **THE MAYER METHOD**

Little known in this country, the Mayer method has none-the-less left its imprint on European education. Enrico Mayer was concerned with l'aspetto morale (the moral aspect; ethical values) in the educational process.

Teachers were exhorted to address themselves first to the students' attitudes and human responses, and then to a particular subject matter.

Love, gentleness, righteousness, were all explicit values recommended to teachers: obedience, gratitude, candor were virtues recommended for students. Today's educators who stress the affective domain in education (Bloom, Torrance, Cetzens) are close to this emphasis on moral values.

26. **THE GABELLI METHOD**

Another great Italian who influenced European education was Aristide Gabelli. Essentially his method was one of productivity. Instruction was not considered complete until some observable phenomenon took place: a diagram made, a story created, a garden planted.

Gabelli's method did much to raise vocational education in France and Italy to a respectable level. Heretofore, much teaching/learning was verbalization pure and simple. Dialectic, sophistry, endless debate was rampant in the schools until Gabelli showed that a man's hands as well as his mouth were instruments of intelligence.
27. THE AGAZZI METHOD

Personal responsibility marked the method of this great educator. "Children from five to twenty", he said, "should be conscious of what they know and do not know". He argued that no one could care about learning if he did not care about not-knowing.

This method is similar to what American teachers call the contract method. Children are given a number of options from which to choose how much work they will do in a particular subject. The grade accompanying each option is known prior to the choice. Students assume full responsibility for completing the work and fulfilling the contract.

This method involves the whole child (effectively, cognitively, physically) in the instructional strategy.

28. THE MONTESSORI METHOD

Maria Montessori gave educators new insight into the course of children's happiness, self-activity. She developed a system of education from nursery school to college based on learning by doing. Her method highlighted the value of materials in the educative process and she was criticized for classrooms full of household implements, garden tools, pets, sewing articles, building materials (real bricks and mortar), and other realia.

The pivotal skill a teacher demonstrates in the Montessori method is that of suggesting rather than telling a child when highly individualized, highly personalized, highly child-centered, the Montessori method has considerable applicability to the needs of urban children.

CONCLUSION

All methods known and in use today have survived the test of time and pedagogical practice. In a new day, new methods are needed. These innovations can be quickly judged as educationally sound if they reiterate the enduring human values educators have traditionally underlined. New methods can be quickly judged as educationally effective if the students respond to strategy that makes them in the same instance both intelligent and humane.
SELECTED BIBLIOGRAPHY


