

DOCUMENT RESUME

ED 071 329

EM 010 474

**TITLE** Introduction to Psychology and Leadership. Leadership Course; Phase I, Course Description.  
**INSTITUTION** Naval Academy, Annapolis, Md.; Westinghouse Learning Corp., Annapolis, Md.  
**SPONS AGENCY** National Center for Educational Research and Development (DHEW/OE), Washington, D.C.  
**REPORT NO** TR-6-3  
**BUREAU NO** BR-8-0448  
**PUB DATE** 18 Nov 68  
**CONTRACT** N00600-68-C-1525  
**NOTE** 21p.; See also EM 010 418 and EM 010 419

**EDRS PRICE** MF-\$0.65 HC-\$3.29

**DESCRIPTORS** Autoinstructional Aids; Behavioral Objectives; Communication (Thought Transfer); \*Curriculum Design; \*Curriculum Development; Individualized Curriculum; Individualized Instruction; Individual Psychology; Instructional Design; Leadership; \*Leadership Training; Management Education; Military Training; \*Models; \*Multimedia Instruction; Performance Criteria; Psychology; Social Psychology; Technical Reports

**ABSTRACT**

The existing (1968) United States Naval Academy course on psychological and management principles applicable to leadership is reviewed, along with the proposed experimental multimedia course being developed by Westinghouse Learning Corporation (the final report appears under EM 010 418, EM 010 419, and EM 010 484). The functional categories of a working model for the development of multimedia courses are also presented. EM 010 418 through EM 010 447 and EM 010 451 through EM 010 512 are related documents. (RH)

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ED 071329

November 18, 1968

COURSE DESCRIPTION

Contract No. N00600-68-C-1525

Abstract

This report presents an overview of the present Naval Science course, N106, and the experimental course in Leadership to be developed for the United States Naval Academy. Differences between the existing and proposed courses are also discussed.

The functional categories of an empirical model which has been developed to fulfill the objectives of the multi-media project are presented. This model, when completed, will serve as a validated prototype which the Academy can use for the development of other instructional courses.

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TP-6.3

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## I. INTRODUCTION

The United States Naval Academy, in cooperation with the Office of Education, has contracted for the development of three multi-media one-semester courses. The purpose behind the development of these three experimental instructional courses is twofold. First, the Naval Academy wishes to produce the best possible educational courses incorporating the most recent advances in educational technology. Second, the multi-media course development project is an important component in a broad research program presently under consideration at the Academy.

The primary objective of the Naval Academy is to improve both the quality and effectiveness of each midshipman's education. An outgrowth of this will be the simultaneous development of the educational techniques, methods and systems that will have broad application in the educational community as a whole.

After completion, it is believed that these three courses may serve as models for developing future learning materials at all educational levels.

Westinghouse Learning Corporation (WLC) was pleased to be chosen as one of the three contractors who will be designing and implementing one of the experimental courses for the Naval Academy. The WLC staff has had extensive experience in the analysis, design, and implementation of learning systems. Many WLC investigators were pioneers in the development of programmed instructional materials and concepts. The staff is particularly aware of the problems of instructional systems implementation and the need for thorough documentation of the developmental process.

The purpose of this report is:

1. to present an overview of the existing Leadership Course, N106.
2. to outline the procedures which WLC is taking to fulfill the Academy's objectives in the development of the experimental multi-media course.
3. to present an introduction to the content, objectives, and goals of the experimental course.

## II. THE PRESENT COURSE, INTRODUCTION TO PSYCHOLOGY AND LEADERSHIP N106

### A. Logistical Requirements

The existing Academy course, Naval Science 106, is an introduction to the basic techniques of Naval leadership. It includes the fundamental principles of psychology and management that are felt to be most directly related to leadership. During the Academy's 1966-1967 academic year, the course was taken by members of the senior class. During the 1967-1968 year, the course was offered to members of the sophomore class. During the 1968-69 year, the course is being offered to both freshmen and sophomore classes. Each section of the course meets three times a week, during the 16 week semester. A total of 42 hours of instructional material is usually included in the curriculum. The remaining sessions are required for reviews and examinations. For every hour of classroom instruction, the midshipmen are expected to complete two hours of outside class assignments.

### B. General Description

This course is an introduction to the theory and techniques of Naval leadership developed through the principles of psychology and management. It presents the principles of the behavioral sciences which are pertinent to understanding individual and group behavior of adults. It introduces midshipmen to the management process and the relationship of management functions to leadership. The course presents the generally recognized techniques of effective leadership which

can assist the Naval officer in analyzing, predicting, and influencing the behavior of his subordinates.

C. Overall Objectives of the Course

The overall objectives of the present course are:

1. to develop in midshipmen a knowledge of those principles of the behavioral sciences which are pertinent to an understanding of the individual and group behavior of adults, and to develop an awareness of the applicability of these principles to Naval leadership.
2. to teach the generally recognized techniques of effective leadership which can assist the Naval officer in analyzing, predicting, and influencing the behavior of his subordinates.
3. to introduce midshipmen to the management process, and to inculcate in them an understanding of, and an ability to use, the human relations aspects of that field as it relates to Naval leadership and to the duties of a Naval officer.
4. to develop in midshipmen the ability to use the fundamentals of psychology, management, and leadership in the analysis and solution of leadership problems.

D. Topics Covered in the Present Course

The following is a list of general topics to be covered during the first semester of the 1968-69 academic year.

1. What Psychology Is and Does - Behavior as Adjustment
2. Development of Behavior Leadership Growth
3. Clinical Approaches to Personality



4. Psychometric Approaches to Personality - Basic Statistics
  5. Psychometric Approaches to Personality
  6. Defining and Measuring Learning and Retention
  7. Management of Learning and Retention
  8. Observation and Action (Perception)
  9. Thinking and Deciding
  10. Motivation and Drive
  11. Emotion
  12. Reactions to Frustration
  13. Mental Health and Therapy
  14. Leadership and General Order 21
  15. The Individual and the Group
  16. Interpersonal Communications
  17. Effective Leadership
  18. Leadership Basis
  19. Leadership Behavior and Styles
  20. Authority and Responsibility
  21. Review and Quiz
  22. Cohesion (Morale, Esprit de Corps, Discipline)
  23. Introduction to Management and the Management Process
  24. Planning and Objectives
  25. Organizing and Coordinating
  26. Directing and Controlling
  27. Counseling - Interview
  28. Personnel Evaluation
- E. The Relationship of the Course to the Total Curriculum

The present course is considered one of the essential courses in the Academy's curriculum. At present, it is a

prerequisite for eight of the courses offered in the Naval Science Department. These courses are:

- N409 Management and Military Law
- N609 Psychology: Individual Differences
- N610 Principles of Management
- N701 Financial Management
- N702 Material Management
- N805 Military Psychology II
- N813 Personnel Administration
- N822 Advanced Studies in Management

There is a possibility that the course will be offered to the junior class during the 1969-70 academic year. If this is the case, it may no longer be required as a prerequisite for many of the above courses.

### III. THE MODEL FOR COURSE DEVELOPMENT

#### A. Project Planning

The effective development of a large-scale research and materials preparation effort needed to fulfill the objectives of the multi-media project requires careful and extensive planning. A theoretical model for this project has been carefully developed. This model is constantly undergoing revision as the work on the contract progresses. In this way, a functioning empirical model will be generated from iterative tryout revision cycles. This model may then serve as a validated prototype which the Naval Academy can use for the development of other instructional courses.

#### B. Functional Categories of the Model

Initially, there were 15 functional categories in the developmental model. This number has since been changed to 11. These 11 functions are briefly described below.

1. Project Management: Functions which fall into this category cover all aspects of internal management and customer interaction.
2. Course Design and Analysis: This category contains functions relating to the systematic analysis of materials and the design of the course and objectives. More specifically, tasks include such activities as, acquisition, study and classification of course materials, specification of course content, construction and sequencing of all objectives, interaction with subject matter experts, and coordin-

ation with the materials preparation function to insure student attainment of all objectives.

3. Presentation Design and Media Selection: This category is partially unique to this contract in the sense that it is usually considered a sub-function of course design rather than an independent function. The development of a separate category is due to the research emphasis in this project. The function of presentation design is not only to specify the optimal presentation design and media for any given objective, but to do so within the constraints of the research design. Tasks in this category include classification of objectives, development of a theoretical rationale for specifying presentation design, developing an empirical application of this theoretical model, specifying the dimensions of presentation design and media selection to be investigated, and careful monitoring of all final course material modules to insure their compliance with original specifications.
4. Materials Preparation and Behavioral Editing: Functions in this category cover all activities relating to the actual preparation of course materials. Specific tasks include construction of all texts, preparation of all film scripts, slide sequences, lecture scripts, workbooks, texts, and support materials. The behavioral editing function is the most important aspect of materials preparation in that it insures the instructional effectiveness of the material.



Behavioral editing is concerned with the continual monitoring of the stimulus response progression. Each discrimination must occur in the appropriate sequence to insure that effective learning will take place.

5. Research and Evaluation: This general function covers the specification and design of the total research effort. Tasks include the specification of student data base elements, specification of the experimental design and statistical analysis, specification of data collection procedures, development of assessment instruments, and interpretation of experimental results in the light of existing research in learning theory and educational psychology. This function is unique to this contract and would not be included in a general model for materials preparation.
6. Materials Validation: One of the necessary steps in the construction of all good instructional materials is the validation or empirical tryout and revision of materials. This functional category covers all aspects of the validation procedure. More specifically, tasks include implementation design, data collection, item analysis of progress checks, error diagnosis of individual frames, and collection and analysis of affective student and instructor responses.
7. Production and Control: This function covers all aspects of materials production and quality control. Tasks include typing and copy editing of all reports and materials,

insuring compliance with submittal formats, graphic and packaging design, printing and filming specifications, and all illustrations and art work.

8. Project Coordination: This function would generally be included in the same category as project management. Because of the diversity of the functional categories included in the model, it was believed that a separate coordination function would be necessary. The functions cover general implementation and maintenance of management decisions. Specific tasks include such activities as the establishment of project schedules and insuring their compliance, monitoring of production and submission of all reports, establishment and maintenance of complete filing and document retrieval systems, maintenance of the cost accounting system, and general inter-divisional coordination activities.
9. Cost Accounting: Cost accounting is necessary for maximum efficiency in any project. In addition, the multimedia course development project requires the accumulation of costs by function and task. This is necessary to determine cost effectiveness of the various materials and of the model itself. Specific tasks include the design and implementation of the cost accounting system, development of computer programs to accurately isolate all direct and non-direct labor costs, and the development of a flexible feedback system for all WLC departments involved in the project effort. This category may eventually be assumed under either project coordination or general administration.

10. Contract Administration: This function is similar to that of any long-range contract. Included in this category are all tasks involved in insuring compliance with the contractual agreement that has been established with the customer and direct customer interaction on all aspects of the project effort which effect the cost, scheduling, or other contractual commitments.
11. Data Processing: This category actually functions as support to many of the previously mentioned categories. However, because of the personnel and physical facilities required, this function is generally considered to be procedurally independent. Specific tasks include such activities as establishing a series of data bases and information retrieval systems for the research effort, for the validation of materials, and for systems management. It also includes implementation of materials utilizing CAI components.

It should be emphasized that the above are functional categories. They do not necessarily represent responsibility assignments. Often one individual may be assigned to two or more categories or vice versa. This distinction is important because it is the functions and procedures which can be generalized to similar projects.

This model is continually revised with respect to four criteria:

1. actual functions performed in each category compared to theoretical functions
2. interactions of functions in each category

3. interdependencies of functions in each category
4. cost-effectiveness of the categories



#### IV. THE EXPERIMENTAL LEADERSHIP COURSE

##### A. Logistical Requirements

The experimental course will adhere to the same logistical requirements as the existing course. The only major difference is that it may be offered to midshipmen in their junior year rather than in their freshman or sophomore years. Approximately 45 hours of classroom instruction will be prepared. This will be supplemented with 20 hours of remedial and enrichment material. For every hour of classroom material, an additional hour will be prepared for work outside of the class period. In addition, various parallel modules will be built using the same content but different media or presentation designs. This is necessary for portions of the research design which will evaluate the effectiveness of the course with respect to cost, presentation design elements, media, and student variables.

##### B. General Goals

In general, the goal of the course is to teach midshipmen the skills and attitudes necessary to lead men effectively. These skills are:

1. to plan the mission, assignment, or operation effectively, using good management practices.
2. to realize that effective leadership depends on the credible image of the leader.
3. to accept moral responsibility for the welfare of the Navy and the United States (special trust and confidence).

These broadly stated objectives are quite similar in tone to the mission of the Naval Academy and to the goals stated in General Order 21.

C. Proposed Content

The content for the experimental course has been tentatively divided into eight major areas. These areas are outlined as follows:

- 1.0 Characteristics of Individual and Group Behavior
  - 1.1 Science and technology
  - 1.2 Psychology as science
  - 1.3 Behavior
  - 1.4 Laws of behavior
- 2.0 Self-Direction, Self-Motivation, Self-Control, Image
  - 2.1 Naval expectations
  - 2.2 Self-expectation
  - 2.3 Attaining goals
  - 2.4 Setting goals for yourself
- 3.0 Supervision and Motivation of Subordinates
  - 3.1 Leadership and supervision
  - 3.2 Leadership psychology research
  - 3.3 Procedures for motivating subordinates
- 4.0 Discipline and Morale
  - 4.1 The concept of discipline
  - 4.2 The concept of morale
- 5.0 Relations with Superiors and Peers
  - 5.1 Formal
  - 5.2 Informal

- 5.3 Rationale
- 5.4 Techniques
- 6.0 Organization, Selection and Administration
  - 6.1 Management - an overview
  - 6.2 Organization
  - 6.3 Selection
  - 6.4 Administration
  - 6.5 Decision making and problem solving
- 7.0 Communications, Counseling and Personal Relations
  - 7.1 Models of communication
  - 7.2 Types of communication
  - 7.3 Personal relations
  - 7.4 Counseling
- 8.0 Training and Guidance
  - 8.1 Learning
  - 8.2 Factors effecting learning
  - 8.3 Assessment of deficiencies
  - 8.4 Resolving deficiencies
  - 8.5 Presentation methods

A more detailed breakdown of each of these content areas can be found in the Technical Report, TR-6.1.

D. General Objectives

For each of the eight major content areas, or chapters, general objectives have been developed as follows:

Chapter 1. Midshipmen will understand that the knowledge and application of certain psychological principles are directly related to controlling the behavior of subordinates.

Chapter 2. Midshipmen will understand that the basis for a Naval officer's behavior is naval tradition, naval custom, naval regulations, and naval standards of performance.

Chapter 3. Midshipmen will be able to use the concepts of behavior mentioned in General Order 21 to accomplish the Navy's mission (including ramifications of good management, personal examples, and moral responsibility).

Chapter 4. Midshipmen will be able to apply principles of behavior, management, and leadership to the establishment and maintenance of discipline, morale, and esprit de corps.

Chapter 5. Midshipmen will be able to establish and maintain good personal relations with seniors and peers on the basis of prescribed parameters of officer behavior.

Chapter 6. Midshipmen will be able to employ men and materials efficiently using principles of organization, administration, and planning.

Chapter 7. Midshipmen will be able to communicate effectively up and down the chain of command, in counseling with his subordinates, and in interactions with peers (laterally).

Chapter 8. Midshipmen will be able to use principles of training and guidance to erase performance and learning deficiencies among subordinate personnel.

E. Differences Between the Existing and the Experimental Course

By the nature of the contract, the experimental course will differ from the existing course in its presentational



form. Aside from this, the emphasis of the new course will also differ in several key ways from the present course.

The differences are as follows:

1. The experimental course will place a heavy emphasis on the 41 Critical Behavior Categories of NAVPERS 9224A and the film, General Order 21.
2. The constituent concepts of leadership will be derived from management and psychology principles, rather than merely related to management and psychology.
3. The thrust of the new course will be toward visible behavior applied, rather than toward simple cognition.
4. The new course will require that midshipmen apply the rules and principles of leadership to solve problems.
5. The experimental course will use mixed-media to facilitate the simulation of real life situations.
6. The course will allow the student to obtain the objectives on an individually paced schedule.

In developing this course, WLC has taken the following perspective:

Effective Naval leadership is based on the successful application of psychological and management principles

through appropriate behavior of the leader during times of emergency, during periods of training, and during everyday interaction with senior and subordinate personnel. Leadership is inferred from the visible, and often measurable behavior of those being led. When leadership is present, men will behave in ways quite different than when it is absent. Effective leadership allows the leader to predict and control the behavior of individuals within the group. An effective leader must be able to identify and diagnose instances where leadership has its own effectiveness in directing men toward the accomplishment of the Navy's mission.