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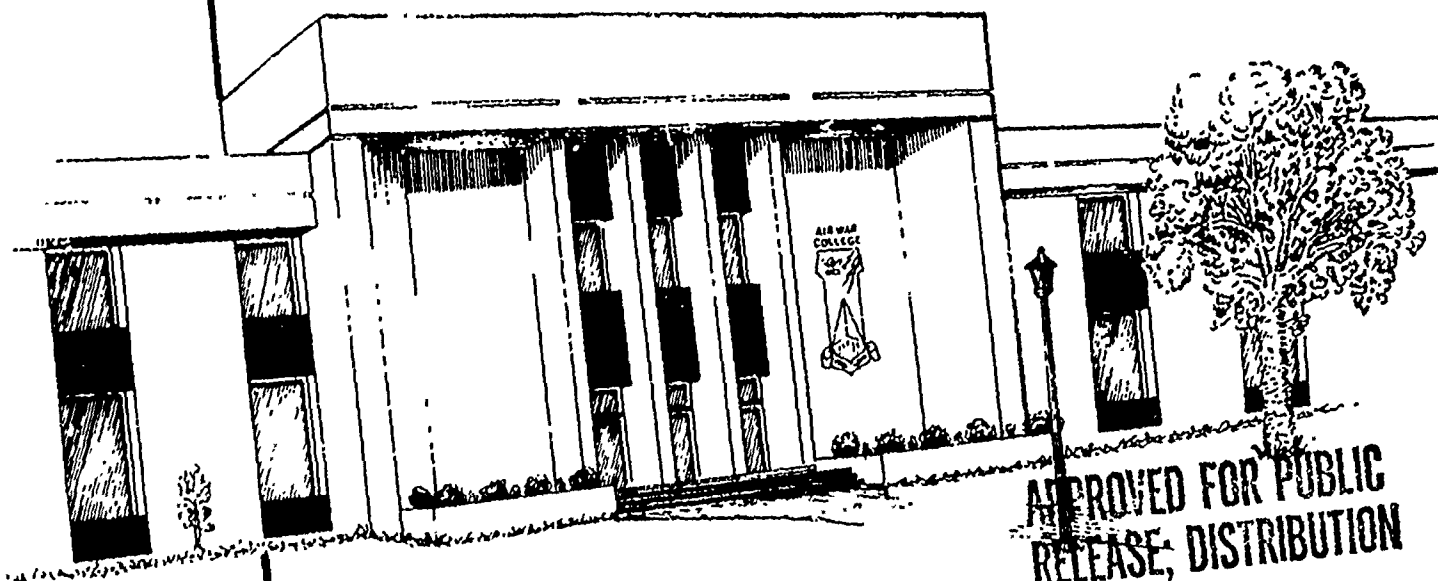## RESEARCH REPORT

SENIOR SERVICE SCHOOL TEACHING METHODS

LT COL GAIL I. ARNOTT

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AIR UNIVERSITY
UNITED STATES AIR FORCE
MAXWELL AIR FORCE BASE, ALABAMA

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SENIOR SERVICE SCHOOL TEACHING METHODS

by

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A DEFENSE ANALYTICAL STUDY SUBMITTED TO THE FACULTY

IN

FULFILLMENT OF THE CURRICULUM

REQUIREMENT

Advisor: Colonel James E. Salminen

MAXWELL AIR FORCE BASE, ALABAMA

May, 1989

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EXECUTIVE SUMMARY

TITLE: Senior Service School Teaching Methods

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> The five senior service schools in the United
States use a variety of teaching methods. This study
reviews the teaching methods used at the war colleges,
considers their method selection criteria, discusses the
various techniques for evaluating instructional method, and
reaches the following conclusion: teaching method is not an
important variable in predicting subsequent student perfor-
mance. More important predictors include instructor and
student background and expertise, what worked well in the
past, the content of the curriculum, and even the time of
year. Quality presentations and the use of a variety of
techniques are more important than the particular method
used. *Keywords; military, education . (KR) (—*

BIOGRAPHICAL SKETCH

Lieutenant Colonel Gail I. Arnott (Ph.D., US International University; M.Ed., South Dakota State University; B.S., Seattle Pacific University) has invested his adult life in the field of education--from swimming teacher, to missile launch crew instructor, to graduate school professor. He has served as an instructor with the Strategic Air Command, US Air Force Academy, and Air University. While assigned to Headquarters, Air Training Command he worked with officer, enlisted, and aircrew training and selection technology. He has also written articles on interactive videodisc, leadership instruction, and the relationship between student background and US Air Force technical training. His dissertation research focused on job satisfaction in the US Air Force. Colonel Arnott is a graduate of Air University's Academic Instructor School and the Air War College class of 1989.

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CHAPTER I

INTRODUCTION

Background

Congressman Ike Skelton (D-MO) is currently heading the latest of a series of efforts designed to improve the quality of military education. His panel's nine key recommendations prescribe a number of initiatives regarding professional military education. The panel members' prescriptions for enhancing curriculum methods include the use of the case study method for joint education and more stringent evaluations of student performance. The panel recommends frequent essay-type exams, and student papers that are thoroughly critiqued and graded by qualified faculty. (1:7-8)

This involvement at the highest governmental level is just one of the significant challenges facing curriculum developers at the five US senior service schools (SSSs). Other challenges include: incorporating vital national security interests into curriculum; educating high achieving students with extensive educational backgrounds; motivating officers and experienced civilians as well as sophisticated spouses with varied professional backgrounds; accommodating the expansive abilities of students, faculty, and presenters; facilitating resource and facility constraints; responding to political pressures at virtually every level from local to international, civilian and military; meeting user demands;

keeping lessons relevant and current; and staying at the forefront in educational technology.

Purpose and Significance

There is another issue facing curriculum developers-- What mode of instruction is optimal for a given lesson? What balance of seminar discussion, lecture, reading assignment, case study, and simulation or war game is best suited for preparing SSS graduates to face the substantial and vital responsibilities in their subsequent assignments? This Defense Analytical Study (DAS) will address these questions. And not merely from an academic viewpoint, but from a pragmatic approach that will provide a useful resource for those who wrestle with curriculum challenges at the graduate school level.

This pr   't began with the following research question: Wha   aching methods are most (and least) effective at the SSSs? (The term "effective" refers to resultant student performance based on lesson objectives.) This research question evolved to the current thesis statement.

Thesis Statement

The specific teaching methods used in senior service schools are not important predictors of success in fulfilling lesson objectives.

Limitations and Assumptions

The evolution of this thesis statement from the original research question was based on the following

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inherent hurdles facing the study:

1. the SSSs do not have standardized curriculum units defined as lessons and evaluated as lessons

2. the SSSs use different lesson rating systems

3. standardized student performance criterion measures for the SSSs do not exist

4. the review of literature convincingly reports data suggesting that instructing methods do not make a difference in predicting student performance.

This "evolved" thesis permits analysis based on objective and subjective data readily available from the 1989 academic year curricula. The review of research literature in Chapter II and the discussion on SSS philosophy, curriculum, and methods in Chapter III clarify this issue regarding SSS differences and the data available for analysis.

The most valid criterion measure for assessing SSS lesson success would be a final examination requiring student responsibility for actually conducting a campaign under wartime conditions. Student performance would be evaluated against criteria such as: Was the effort successful? Were campaign objectives achieved? Were the proper resources used efficiently? Were the "principles of war" properly used? Realizing the inadvisability of this approach, the SSS faculties use a variety of student activities as opportunities for student evaluation, such as: papers and reports, seminar participation, various exercises; and in the case of the College of Naval Warfare, essay examinations.

The SSSs use a variety of techniques other than student evaluation to evaluate the success of their lessons. They use student survey, faculty and staff input, alumni survey, major command and headquarters input, administrative boards, inspector general reviews, and other investigative panels. The degree to which these pragmatic evaluation techniques correlate with valid student performance "on the job" and the effectiveness of lesson plans is an open question. However, this study will accept the results of the various SSS evaluation regimes and the reports of SSS academic deans, course directors, and directors of curriculum evaluation as sufficiently valid.

SSSs are somewhat unique in academia as their student bodies consist primarily of military and other government professionals who have excelled in their careers and who have completed graduate degrees. Student ages average in the early 40s for the SSSs. Does the research regarding undergraduate college teaching methods apply to the "mature" SSS student? Or are they special in some way? Do they respond better to "active" teaching methods? The study will, in general, arrive at findings assuming the student populations of SSSs are comparable with other US college populations. Additional study is needed to determine if this is accurate.

Summary of Limitations and Assumptions

The limitations listed above address serious DAS design concerns. Of particular note are the lack of a valid criterion variable to measure the success of lesson

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objectives based on student performance, and the non-standardized SSS curricula and teaching method evaluation techniques. However, a criterion variable such as comprehensive student evaluation by the SSS, or subsequent job performance rating, may not be as valid as the predictors of lesson objective success used in this DAS. Most organizations struggle with the challenge of perfecting personnel rating systems that validly rate performance. And few are totally satisfied with the compromises required to field a pragmatic system.

Regarding the lack of SSS curricula and teaching method evaluation standardization, the specific approaches taken by the schools have emerged from decades of evolution and fine-tuning. Their differences often reflect legitimate mission differences, and by their contrasts contribute to a democratic defense fabric stronger than a standardized system might provide.

Definition of Terms

The following terms are defined as they are used in the study.

Teaching Method: mode of presenting curricula to students. Methods addressed in this study include:

Seminar Discussion: instructor-led, open deliberation of lesson objectives by 12-16 students;

Case Study: problem-solving analysis of real or realistic dilemma, usually involves reading assignment and seminar discussion;

Lecture: formal presentation by a speaker, often followed by question and answer period; also includes panel discussion and teaching interview in an auditorium setting;

Reading Assignment: required student reading of books, articles, essays, and printed case studies or other exercise material;

Writing Assignment: student-generated essays and research papers;

Exercise: includes simulation, wargaming, and role playing.

Senior Service School (SSS): top level of professional military education for lieutenant colonels, colonels, and senior grade civilians; sometimes called senior service college or war college. The resident SSSs used in the study include:

Air War College (AWC), Air University (AU), Maxwell AFB, Montgomery, AL;

College of Naval Warfare (CNW), Naval War College, Newport, RI;

Industrial College of the Armed Forces (ICAF), National Defense University, Fort Lesley J. McNair, Washington DC;

National War College, (NWC), also part of National Defense University at Fort McNair;

US Army War College (USAWC), Carlisle Barracks, PA.

Lesson Objective: stated purpose of a specific course curriculum segment.

Professional Military Education (PME): Military academic programs that are distinguished from basic skills or technical training. The SSSs are the top level of PME.

Bloom's Cognitive Taxonomy: a hierarchy of learning used in developing instuctional systems. The levels of learning include:

Knowledge: Simple recall and recognition;

Comprehension: Translate, interpret, and extrapolate;

Application: Use learned information in new situations;

Analysis: Identify relationships and principles;

Synthesis: Create new relationships and principles;

Evaluation: Exercise learned judgement. (2:-; 3:2-2, 4-1)

Summary

Teaching methods. . .Do they make a difference in student performance? Or is well designed and presented curricula not dependent on the mode of instruction?

Chapter I has set the stage for the DAS investigation by describing the background of the teaching methods issue, by stating the research thesis along with its purpose and significance, and by defining pertinent terms used in the study. Chapter II reviews the literature, recent and not-so-recent, that illuminate the question of teaching method importance.

CHAPTER II

REVIEW OF LITERATURE

Introduction

Volumes have been written on instructional methodology. Most research and writing has focused on the lecture. For example: how to improve the lecture; is it in or out of fashion; and how does it compare with other methods.

There have also been periodic reviews of senior service school effectiveness (SSS). Most of these reviews have touched the topic of teaching methods. Some have included accolades. And some have made specific recommendations for change.

This section will deal sequentially with recent reports that specifically focus on professional military education, and then discuss research accomplished outside the military that evaluates method effectiveness.

Reviews of Military Literature

Skelton Task Force, 1988

The most recent external review of senior service schools was conducted by Representative Ike Skelton (D-MO) at the request of of Les Aspin (D-WI), Chairman of the House Armed Services Committee. Skelton's Panel on Military Education made nine key recommendations on 18 Nov 88. SSS teaching methods were not specifically addressed, but the

following recommendations will impact curricula and quite possibly instructional techniques: #1. educational objectives should be stated clearly in terms of the level of warfare to be taught; #2. improve faculty quality; and #9. Require essay-type tests and written papers that are thoroughly critiqued and graded by faculty. (1:1-7)

Murray Article, 1987

Williamson Murray applauded the Naval War College curriculum for its in-depth emphasis on strategy and war. He particularly liked the case study method, the 600-800 pages per week reading assignments, 8-10 page writing requirements, and the grading of students. He believes the other SSSs do not prepare their students for war. They present shallow curricula without focus, spoonfeed their students, and confuse training with education. (4:31-35)

Rostow and Endicott Paper, 1987

The authors highlighted the important mission of the SSSs as potentially instrumental in making the difference between success or failure of US national security policy. With this in mind they recommended less lecture and more reading, more seminars, more tutorials, and supervised writing--except for the Naval War College and to a lesser extent the National War College which are to be emulated.

"Fully considered writing is the ultimate educational tool--the only way for a student to achieve the discipline and insight which characterize mastery" they believe. They would also like to see ample time for student reading and

reflection, oral presentations to peers and the faculty,
more case studies, more in-depth study of fewer topics,
thorough student evaluation, and student reports on papers
they have written. (5:9-29)

Student Evaluation Working Group, AWC 1987

The working group concluded that AWC student eval-
uation is adequate, but it recommended additional writing
assignments requiring analysis, synthesis, and evaluation
of levels of learning. It also recommended evaluation of
student presentations during the first semester. (6:5-6)

Advantages of Small Group Instruction, 1987

This article focused on the Army's perception of the
advantages of small group instruction: it involves students
in the learning process, it teaches them how to think and
apply learning and synthesis, and it builds team cohesion.
(7:42)

Powers Survey, AWC 1987

Lieutenant Colonel Powers provided abstracts of
Air Force studies on graduate education from 1946-82 and
selected Army and Navy graduate education studies. (8:-)

D'Gornaz Report, ACSC 1987

This student review of AWC and Air Command and Staff
College (ACSC) space curricula recommended the teaching
methods be upgraded to include wargaming and computer-aided
instruction. The author outlined specific approaches and
identified which AWC lesson objectives could be supported by
wargames or computer-aided instruction. (9:iii-17)

War Games, 1986

General Lawrence, former president of National Defense University, touts the use and bright future for wargaming at NWC and ICAF. Wargames and simulations can be used as an original learning experience, to reinforce, and to evaluate student learning. Their use fosters creativity and the exploration of group dynamics. Specific educational objectives include: exposing students to the relationships between various policy instruments, gaining insight into decision-making, understanding one's opponent by playing the adversarial role, and understanding the problems of communication. (10:22-25)

Senior Service College Comparison, USAWC 1985

Three SSS students reviewed the similarities and differences of the five SSSs. They found the differences were primarily "ones of emphasis, focus, or structure rather than ones of significant content or directional divergence." They also commented that the schools are successfully meeting their respective objectives. (11:10-11)

In addition to reviewing SSS structure, curricula, faculty, student body, grading, and alumni, this study reviewed the "teaching vehicles" employed. Active learning was emphasized at all SSSs, with student preparation and active seminar participation as the basis. Reading assignments varied from short articles and case studies to books. CNW used the case study more. NWC used individual and small group activities usually with reports back to the seminar as

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a primary learning tool. Writing assignments were required at each school but received the most emphasis as a learning device at CNW. Lecture received the most emphasis at AWC (50 percent of instructional contact time), and the least at NWC and ICAF (15 percent). (11:33-34, 58, 69-70, 90-91)

Air University Task Force Report, 1985

This report established action items to upgrade AU faculty through recruiting, training, and evaluation initiatives. (12:-)

Tuttle Experiment, 1984

Tuttle studied the relationship between cognitive style (field dependence and independence) and : vels of learning in Air Force officers. He concluded that as course content becomes more complex, officers with field independent cognitive styles do better in .erms of learning outcomes than officers with field dependent learning styles. (13:-)

Johnson Dissertation, 1982

Johnson reviewed the development and growth of the SSSs and their interrelationship. He noted that the Berlin War Academy's use of the disputation instruction method (as opposed to the lecture) and its focus on developing critical thinking were the basis for the US war colleges' curricula. (14:-)

Hines Dissertation, 1978

This research concluded that SSS students have
unfavorable attitudes about the systems approach to
instruction and they did not believe this approach could be
effective at the war colleges. Significant differences were
found among the SSSs regarding their negative attitudes.
ICAF stude.us had the least negative attitudes and NWC and
CNW students had the most negative. (15:-)

Instructional Method Report, 1977

The Air University Academic Instructor School
compiled a matrix for professional military education that
recommended teaching methods based on the student level of
learning desired. The report also presented a rationale for
the matrix using the the instructional systems development
theory. (16:-)

Naval War College Innovations, Kir'.patrick 1976

This former Naval War College faculty member
reviewed the changes instituted by Admiral Turner in 1972.
The changes included reduced use of lectures; emphasizing
the seminar, the case study, and intensive readings as the
educational base; requiring examinations; and assigning
student grades. Kirkpatrick would like more modern case
studies used rather than the historical selection that
followed Turner's changes. He would prefer the historical
cases be covered in the commissioning sources. He believes
that the most demanding intellectual effort belongs early in

careers, like it does for attorneys (law school) and doctors (medical school). He questioned the advisability of lengthy reading assignments at the SSS level. He would devote half the curriculum to formal coursework and the remainder to students developing advanced strategic and tactical concepts. He also recommended adding aptitude test scores to the admissions process. (17:-)

SSS Curriculum, Hartmann 1976

Hartmann has lectured at all SSSs, has been on the faculty of the Naval War College, and has authored numerous books on international politics. He believes SSS curricula should include a mix of four activities: core curriculum using lectures and seminars, electives, research, and gaming or simulation exercises. He doesn't see any "inherently superior educational merit" in any of the activities, but he believes student interest and varying student needs are supported by variety. He also recommended scheduling the four activities to take account of changing student interest in the spring as new assignments loom. He would like to see a more standardized SSS curriculum to help diminish the continual and sometimes unnecessary churning. (18:131-3)

Doughty Study, US Army 1976

Major Doughty discussed the leadership challenges
that faced General Cushman as he changed the Command and
General Staff College curriculum. One of Cushman's innova-
tions was the requirement that the case study method be used
for teaching at least half of each course. The object was
to develop thinking and problem-solving skills as students
analyzed cases and orally defended their solutions in small
work groups. Instructor resistance to the change was based
on their increased workload to redo instructing materials
and spend more time in class. Also, they found the case
method inefficient and slow, and instructors often lacked
time for adequate preparation. Cushman believed the case
study vital in enhancing realism and rapport with the
faculty. (19:82-84)

Student-faculty rapport was also the object of
grading reforms emphasizing subjective evaluation by the
faculty and a more informal environment in the classroom.
(19:85-86) He also encouraged the trend from training to
education by increasing the intellectual rigor, and he
broadened the curriculum to reach both the generalist and
the specialist by adding electives. (19:130-31)

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SSS Dilemma, General Davis 1976

This former Commandant of the USAWC favored tailored SSS curricula that allowed students the "maximum opportunity for study, research, and just plain thinking in those professional areas that best suit his professional interests." (20:105)

Clements Report 1975

The DoD Committee on Excellence in Education reviewed the SSSs and affirmed the value of five mission-oriented colleges. It established initiatives in the areas of curricula; faculty, staff, and student selection; research; field trips (fewer, shorter trips with smaller groups); budget; cooperative degree programs; combining NWC and ICAF into a university of national defense; and instructional methodology. Teaching method guidelines included: resident faculty are responsible for educational excellence and are the key ingredient; and peer learning and guest lectures are important but secondary. The committee surmized "there is no rigid rule for optimizing the learning process." (21:7) The Clements Board also encouraged closer cooperation among the SSSs in curriculum development. (21:-)

Lightner Board, AWC 1973

This comprehensive review of SSSs compared curricula, the electives programs, faculty, students, student evaluation, research, cooperative degree programs, and teaching methods. It concluded that the AWC was "leading or at least keeping pace with the other institutions in the

continuing development of programs." The board was concerned with the CNW emphasis on the historical case-study approach, and the many simultaneous changes taking place there. It also observed the SSS trend "toward varied techniques, i.e., electives, case studies, and gaming, and away from the traditional lecture-discussion-seminar approach." (22:32) It applauded the AWC goal to reduce its lecture-discussion-seminar mode by 20 percent over the next year, and ked the teaching interview, panel discussion, individual u group problem solving activities, book analyses, case studies, student oral presentations, and debate innovations. (22:20-21) The panel also noted that the AWC had the most comprehensive individual and curriculum evaluation program. (22:13)

SSS Comparison, USAWC 1972/73

This straight-forward review compared the SSSs on 20 different factors including methodologies, computer-assisted instruction, student evaluation, and evaluation of curriculum by students. The main differences noted were in the area of computer-assisted instruction--NWC and AWC had none at that time. (23:-)

Murray Thesis, ACSC 1967

Major Murray attempted to devise a data-based paradigm to improve the matching of ACSC instructional methods to specific group settings. He was unsuccessful, due in part, he thinks, to the strict rules of evidence required in testing his hypotheses. He also concluded:

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"Despite considerable effort the fact remains that the literature of the field is at best ambiguous and at worst contradictory." (24:40)

Officer Education Study, 1966

The study recommended that NWC and AWC introduce wargaming and simulation in their curricula. It also noted the low number of faculty lectures at all SSSs, and questioned NWC's heavy reliance on guest lecturers. (25:85, 97)

Macomber Thesis, ACSC 1966

Major Macomber critically reviewed ACSC teaching methods and recommended specific methods matched to the levels of learning required by the lesson objectives. He found "nothing inherently wrong with the teaching methods used at the College," but "the misuse of the teaching r . ods seriously detracts from their effectiveness." (26:182) He also recommended daily achievement tests for knowledge level objectives, and ungraded essay tests for comprehension level objectives--for student feedback only. This thesis is not data-based, the hypotheses are evaluated against 12 criteria derived from educational psychology. (26:20-21, 170, 175)

Seanger Thesis, ACSC 1964

This student report concluded that the case study method would improve the ACSC curriculum, particularly the management block. (27:-)

Military Education Policy, Masland and Radway 1957

This text comprehensively reviewed the nation's military education system. Regarding methods, the authors noted the import of students learning from each other and the resulting friendships, and the primacy of the lecture. They liked the "committee paper" concept--8-12 people work on a problem, write a solution, then defend it. (28:330-33)

They recommended more in-depth study covering basic principles and relationships rather than time spent on current developments. They also suggested scheduling a fewer number of total speakers who can then periodically remain in residence for several days to explore ideas with students. (28:418-19)

Carlson Thesis on Air Force Teaching Methods, 1953

Carlson is ahead of us in more ways than one. His review of literature on teaching methods, which r·views three earlier literature reviews, concludes "no trend of evidence to support one method over the other." (29:16) And then his subsequent data-based research failed to support the superiority of the discussion or the lecture method. His summary is prophetic, "When students are motivated to learn, they will achieve near their capacity under any effective method properly employed by a qualified instructor." (29:201)

Reviews of Non-Military Literature

Learning via Tests, Foos and Fisher 1988

According to this study, undergraduate students learned more from a reading assignment when a test followed the reading than when no test was administered. Learning was also enhanced when inferential and "fill in" tests were used versus "multiple choice" and verbatim testing methods. (30:179)

Teachers and Teaching Machines, Cuban 1986

Cuban surveyed the impact of technology on teaching methods over the past 70 years. He noted the predictable cycle of "exhilaration/scientific credibility/low level implementation/disappointment" as each new device was introduced. Some cynicism is merited regarding the advent of teaching aids such as the motion picture, radio, television, and the computer. But he cautioned against treating innovations as "just a fad." He recommended consideration of issues such as cost-effectiveness, the nature of the innovation, and the impact on the teachers and the taught. (31:-)

Teacher Effectiveness Research, Brophy 1982

Brophy's review of research credited a growing sophistication of research techniques as the reason for moderate success in establishing links between teaching behavior and student learning. Prior to 1963 contradictory results were obtained. In the following 10 years weak findings identified teacher organization, clarity, and

enthusiasm as predictors of student learning. Subsequent

research verified that effective instructors:

1. focus on academic goals that emphasize content
2. promote high levels of student involvement
3. actively monitor student progress and provide
    immediate, academically oriented feedback
4. structure task-oriented learning activities in a
    relaxed, yet efficient environment.

He concluded that individualized (also called discovery)

learning is not as effective as teacher lectures and

demonstration. (32:1-4)

Simulation vs. Lecture-Discussion, Lucas et al. 1974

In their review of research the authors reported

conflicting results on the relative effectiveness of these

two methods in predicting cognitive achievement. However, in

their experiment, they found simulation a better method for

enhancing cognitive achievement, based on the results of

posttests administered after five weeks. (33:266)

Improving Lectures, Campbell and Wells 1974

Effective lectures entail descriptive objectives and

notetaking guides .or students, as well as planned student

interaction. (34:71-72)

Lecture Popularity, Cohodes 1974

Cohodes decried the permissive classrooms of the late

60's and early 70's and predicted the return of more formal

classrooms with lectures. (35:6)

Personality and Teaching Effectiveness, Sulkin 1972

The author's review of research indicated some

studies that find significant interaction between personality

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characteristics and teaching methods, and other studies
that did not. Sulkin's own study found no significant
interaction. (36:263-267)

Audio-Tutorials vs. Lecture, Stuck and Manatt 1970

Audio-tutorial (self-paced individualized
instruction) was found superior to lecture in terms
of posttest results. (37:-)

Comparative Analysis of Teaching Methods, Dubin 1968

Dubin's analysis of 91 comparative studies attempting
to find differences in teaching methods, unequivically
concluded "that there is no measurable difference among truly
distinctive methods of college instruction when evaluated by
student performance on final examinations." Or stated
another way, "We cannot claim superiority for any among
different teaching methods used to convey subject content
to the student." (38:35, viii)

Dubin did not just report on the 91 studies, he
statistically combined and re-analyzed the data, where
comparable, by analysis of the signed differences in mean
group performance, and by analysis of standardized
differences in mean group performance.   There   is   no
detectable difference in method effectiveness. However, he
did find differences in student performance when studying was
a predictor variable--in the positive direction. (38:-)

Review of Lecture Research, Verner 1967

This data-based review specified when lectures
should and should not be used and provided tips for enhancing

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lectures. Use lectures:

1. When the basic instructional task involves the dissemination of information
2. When the information to be imparted is nowhere else available
3. When a segment of content material must be organized and presented in a particular way for a specific group
4. When the establishment of learner interest in a subject is an indispensable aspect of the learning objective
5. When the content material presented is needed only for short-term retention
6. When introducing an area of content or providing oral directions for learning tasks that will be pursued and developed through some other instructional process.

Do not use lectures:

1. When the instructional objective involves any form of learning other than the acquisition of information
2. When the instructional objective involves the application of skills or information
3. When the learning task involves the initiation or alteration of attitudes, values, or behavior
4. When the information acquired must be available through long-term retention
5. When the content material is complex, detailed, or abstract
6. When the learner participation in the learning activity is crucial to achievement of the objective
7. When the instructional objective requires the analysis, synthesis, or integration of the material acquired
8. When the intelligence level and educational experience of the learners are average or below.

Enhance lectures by insuring that:

1. The number of major points presented is not excessive
2. Summaries are presented at the beginning and at the end
3. The material presented is meaningful to the learner
4. Verbal illustrations used to establish meaningfulness coincide with the experience of the learner
5. The length of the presentation does not exceed thirty minutes

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6. The sentences are short and the language and style are simple
7. The speed of delivery is adjusted to the complexity of the material and the experience of the learner
8. The lecture is augmented by instructional devices and/or techniques which provide for learner participation. (39:94-95)

Lecture vs. Discussion, Gayles 1966

Gayles reviewed the research literature and concluded that there is no one best technique. The most effective teachers varied their approaches to fit their own personalities, their students, and the subject matter. (40:98)

Summary

It is not difficult to find literature on the topic of teaching methodology--literature that is replete with evidence and opinion. We'll continue to sort through the evidence and opinion on the topic of the relative effectiveness of teaching techniques as the following chapters address the specific methods used by the SSSs and the relationship (if any) between these methods and student performance.

CHAPTER III

SENIOR SERVICE SCHOOL MISSIONS, CURRICULA, AND METHODS

Introduction

This chapter will address the underlying philosophy of each SSS by discussing, in turn, the advertised mission, the curriculum, and the teaching methods employed.

Air War College

Mission

"To prepare senior military officers to develop, maintain, and lead the aerospace component of national power to deter conflict and achieve victory in the event of war." (41:11)

AWC "is dedicated to developing knowledge, skills and attitudes integral to the profession of arms and to the study of the development and employment of aerospace power in joint and combined operations." Its primary focus is on "warfighting--that is, the effective employment of aerospace forces--the curriculum is designed to nurture professional breadth, intellectual depth and a capacity for analytical thinking among future Air Force and joint/combined force leaders." (42)

Curriculum

"The Air War College fosters advanced learning in the areas of doctrine, strategy, and employment; national security affairs; and command and leadership. In-depth

research and elective courses provide opportunities for a tailored, concentrated focus in selected subject areas." (41:13)

Three departments under the Dean of Faculty administer 11 core courses and 60 elective courses (each student takes at least three electives). AWC faculty and staff as well as resources outside of the school are used to conduct these courses and a two-day Aerospace Power Symposium, a five-day National Security Forum, and a student research project call the Defense Analytical Study.

The Department of Aerospace Doctrine and Strategy conducts the following core courses: Military Strategy Analysis, General Purpose Forces Employment, Strategic Force Employment, Space, and Joint Force Application.

The Department of National Security Affairs has the National Security Policy, Soviet Studies, and Regional Issues courses.

The Department of Command and Leadership administers the Executive Assessment and Development, Executive Leadership, and the Command Environment courses.

Teaching Methods

The preferred method of instruction is the instructor-led seminar discussion. On a typical day, groups of 12 students discuss the lesson for the day, following a lecture presentation by a guest speaker. Daily reading assignments from selected texts and periodicals and nine writing assignments consisting of essays and research papers are also

required, in addition to the Defense Analytical Study. Case studies, role playing, simulations, oral presentations, field trips, and wargaming exercises are also employed. Students are involved in two separate seminar "mixes" during the 10 month curriculum.

AWC course directors often select specific lesson teaching methods based on the developmental approach to instruction. They determine desired samples of student behavior from alumni and supervisory field surveys and then select the teaching mode recommended for achieving the desired level of learning based on the desired samples of behavior. For example, if the desired sample of behavior required a knowledge or comprehension level of learning, then the recommended teaching method could be a reading assignment or lecture. If the desired sample of behavior required a higher level of learning, like analysis or synthesis, then the teaching approach might entail a writing assignment or exercise. (2:-; 3:18-1-11; 43:97-116)

Course directors also rely on what was done in the past and what worked well, based on faculty and student feedback. One course director explained that input from civilian faculty members who have extensive academic experience was particularly useful. Faculty and guest speaker expertise, reputation, current position, and availability, are also important factors in selecting presenters. (44)

The relative efficiency of the method is also considered. Readings, lecture, and television presentations are relatively efficient in terms of quantity of information disseminated. Case studies and some types of exercises often require large investments of development time, presentation time, and student interaction time. And some exercises require elaborate and expensive facilities and computer support. (45; 46)

Additionally, course directors consider the import of method variety, they employ a range of different media, and they strive for a balance of instructing modes. They also weigh suggestions from the commandant, the dean and associate dean, and various committees that review curricula. (44; 45; 46; 47; 48)

Additional input on teaching method, as well as missions and curricula for PME, are provided by the Center for Aerospace Doctrine, Research, and Education (CADRE). CADRE has recently written four documents providing comprehensive background, doctrine, and recommendations for PME. (49:-, 50:-; 51:-; 52:-)

College of Naval Warfare

Mission

"To enhance the professional capabilities of its students to make sound decisions in both command and management positions, and to conduct research leading to the development of advanced strategic and tactical concepts for the future employment of naval forces." (53)

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Curriculum

Three major courses of study are offered by CNW:
Strategy and Policy--offered by the Strategy and Policy
Department, National Security Decision Making (NSDM)--
offered by the NSDM Department, and Joint Military
Operations--conducted by the Operations Department. The
NSDM study is divided into the following three courses:
Force Planning, Defense Analysis, and Policy Making and
Implementation. And Joint Military Operations is composed
of the Warfare, Strategy and Operations, and Planning and
Decision Making courses. (53)

Forty elective courses are also offered. Students
are required to take one elective per trimester and they may
elect to audit an additional elective each trimester. (54:1)

Teaching Methods

CNW employs an evolved teaching methodology based on
what has worked well in the past. The course directors rely
mainly on seminar/case study as the primary teaching method.
Readings, papers, and wargames are also important methods.
Lectures are used to supplement the seminar/case study
approach. Lessons progress from the "abstract and
historical, to the particular and current." (55:35; 56)
Students are involved in three different seminar "mixes"
during the 10 month curriculum.

Student responsibilities as outlined in the NSDM
Syllabus illuminate the CNW philosophy regarding
instructional approach. "Learning requires the students'

active involvement. A tough-minded, questioning attitude and a willingness to enter vigorously into discussion are central to the Department's learning method." (57:2)

In addition to seminars/case studies, readings, lectures, and writing assignments, CNW makes liberal use of role playing exercises requiring oral and written presentations. For example, the Policy Making and Implementation Course requires a short essay "caselet" analyzing the student's personal experience with organizational output measures. (58:43)

CNW's parent institution, the Naval War College, sponsors three conferences: Current Strategy Forum--five days, Ethics Conference--two days, and a two day Congressional Conference.

Courses generally require a graded final examination. They require analytical thought based on course objectives, are three to four hours long, require individual effort, and may be closed or open book. (53)

Industrial College of the Armed Forces

Mission

"To provide executive education and research, within the areas of leadership, resource management, mobilization, and joint and combined operations, to selected senior military and civilian officials destined for positions of high trust and leadership in the federal government." (59:28)

Curriculum

The ICAF curriculum is divided into a core program, an electives program, and a research program. The core curriculum consists of five phases: I. Framework for National Decisionmaking, II. International Security and National Power, III. Force Determination: Military Power and Strategy, IV. Force Generation, and V. Force Employment: Joint and Combined Warfighting. Within each phase are modules, each comprised of varying numbers of 90-minute lessons.

Phase I modules include Executive Skills Development, Economic Concerns, Domestic Environments, and Joint and Combined Warfare. Phase II has The International System, National Strategy and the Global Environment, and National Will and Cohesion. Phase III has Military Strategy, Military Posture, Force Planning, and Operational Planning. Phase IV consists of Manpower Resources, Production Capacity, Infrastructure, and Mobilization. And Phase V includes Strategic Deployment and Global Strategy. (59:30-33)

The ICAF electives program is similar to the AWC and CNW programs. A broad range of topics are offered and students select from three to six electives. A research project may be substituted for one or two electives. (60:2-2; 15-3 to 5)

Teaching Methods

ICAF uses a variety of methods: seminar, case study, readings, individual study and research, lecture, group exercises, and field trips. The ICAF and NWC library maintains an audio cassette tape collection of professional military literature. The tapes are advertised "as an <u>excellent</u> way to cope with the boredom of commuting." (60:3) They also have a communications segment emphasizing speaking and writing skills.

At the end of each phase students are required to answer comprehensive questions on the material covered, both orally and in writing. The answers require applying the material to high level decisionmaking in the US Government. (59:30)

The ICAF approach on selecting teaching methodology emphasizes the subject matter itself, and what method is subjectively best for covering specified lesson objectives. Student feedback is used to determine needed changes and adjust the lesson mix approach for subsequent years. (61)

National War College

Mission

To conduct "a senior-level course of study in national security policy formulation and implementation to prepare selected military officers and federal officials for high-level command and staff responsibilities. The National War College focuses on national strategy and emphasizes a joint, multi-Service perspective." (59:43)

Curriculum

The NWC approach is "designed to expand and deepen students' knowledge of national security matters and to sharpen their analytical skills." The academic program supports this approach through core courses, electives, and field studies. (59:44)

The three core units are: I. War and Diplomacy, II. National Security Policy, and III. US Defense Policy and Military Strategy.

Unit I consists of two courses: Statecraft, and the Art of War. Unit II covers Congress and the Presidency, National Security Organization and Decisionmaking, and the Geostrategic Context. And Unit III has one course, US Defense Policy and Military Strategy.

The NWC electives program parallels ICAF's. NWC students take at least six electives, and a research paper may be substituted for one elective. (59:44-49)

Teaching Methods

As a general rule, NWC favors the more active learning techniques such as student presentations, exercises, and case studies. However, the faculty attempts to balance these techniques with lecture, panel presentations, and reading and writing assignments. NWC prefers lecture for covering a relatively large amount of subject matter when time is limited and students have a limited background in the lesson area. The faculty tailors the NWC methodology to the particular subject matter, student background, faculty and other guest expertise, and the time available. (62, 63)

NWC has issued a memorandum on teaching techniques that addresses the issue of variety and innovation. It warns the faculty to beware of the "mid-year slump" and to emphasize active modes during this time of the year. Variety is also a watchword as even active modes can be overdone. Additional items of emphasis in the memo included the import of instructor freedom in the classroom and a list of recent teaching method innovations. (64:-) (see Appendix)

US Army War College

Purpose

"To educate you to expertly link strategic and operational considerations with tactical factors in the preparation for and successful conduct of war in support of national policy. The range of professional development thus implied focuses not on your next job, but on those that follow, for as a graduate, you will join those serving with

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distinction in the top level leadership positions in the
Army, in joint and combined commands, and throughout the
Department of Defense." (65:1)

Curriculum

The seven core courses include: The Senior Leader;
War, Politics, and Strategy; Joint Forces and Doctrine; Army
Roles; Regional Appraisals; Joint and Combined Theater
Warfare; and US Global Strategy: 1992-96.

USAWC offers 52 elective courses in its Advanced
Course Program. Students are required to complete five
Advanced Courses. (65:8-9)

The Military Studies Program requires each student to
select either an Individual Study or an Oral History option.
Individual Study is a written research project. Oral History
entails recording interview sessions with retired senior
officers. (66)

USAWC also sponsors a National Security Seminar
during the final week of the academic year. Invited guests
and speakers join the student body to address national
security issues. (65:12)

Teaching Methods

USAWC expects students to participate actively in
their "rigorous program of thinking, reading, study, and
research." Sixteen-person seminars are the "fundamental
learning vehicle." Methodology includes lecture, discussion,
written and oral presentations, case studies, and exercises.
Students are evaluated by the faculty against standards in

four areas: writing, oral, participation, and preparation.

A computer-assisted manpower mobilization exercise is featured in the Leadership of the Army and Management of Army Systems Course. (65:3-5) And students are assigned to one seminar group during the ten month curriculum. (67)

Summary

Teaching methods employed by the SSSs differ more in emphasis than in substance. All rely on seminar discussion, reading and writing assignments, lecture, various types of simulation and exercise, and case study. CNW places more emphasis on lengthy reading assignments and uses the case study extensively. CNW is the only school requiring written essay examinations--although all schools evaluate their students through writing assignments and oral presentations. NWC emphasizes method variety--a balanced approach.

AWC and USAWC rely on lecture more than the others. AWC method philosophy is more rooted in systems development theory--due in part to the influence of the Academic Instructor School (AIS) also located at Air University. AWC new faculty orientation includes AIS training in instructional systems development.

AWC is also adjacent to the Air Force Wargaming Center--a new facility providing computerized wargaming services for the Department of Defense. This facility provides excellent access to modern wargaming methods.

But the root question remains. Do teaching methods make a difference? Chapter IV will review the data.

CHAPTER IV

DATA

Introduction

This chapter will describe the data collected for the study. Since each school evaluates their teaching methods and defines their instructional units differently, the data, objective and subjective, will differ.

Air War College

Table 1: **Student Ratings of Teaching Methods**

Students were asked "How would you change the emphasis on each of the following?" This data is from the End of Year Survey for the Class of 1988. (68:11-12) Data are portrayed as percentages of responses to each item from "greatly reduce" to slightly reduce ("2") to do not change ("3") to slightly increase ("4") to "greatly increase."

Item	greatly reduce	2	3	4	greatly increase
#1. Seminars	11%	24%	44%	16%	4%
Faculty-led seminars	13	22	49	13	4
Student-led seminars	10	20	34	27	10
Case Studies	3	15	43	31	8
Exercises	10	25	48	13	4
TV presentations	11	19	54	15	2
2. Lectures	5	21	56	15	3
Lectures by guest speakers	6	18	49	22	5
Lectures by resident faculty	5	22	46	23	3
Lectures by students	4	17	41	28	10
Q and A sessions with speakers	10	29	44	16	2
Panel discussions	4	16	48	30	3
Teaching interviews	8	14	63	14	1
3. Writing assignments	27	40	27	6	0
4. Research	26	23	41	8	2
5. Reading Workload	7	39	48	5	1
6. Electives	3	7	41	28	22
7. Field Trips	3	6	27	31	33

Table 2:   Student Ratings of Import of Curriculum Aspects

Students were asked to rate each item in terms of how important it was to their education. This data is from the End of Year Survey for the Class of 1988. (68:10) Data are portrayed as percentages of responses to each aspect from not important ("not imp") to very important ("ver imp").

Aspect	not imp	min imp	imp	mod imp	ver imp
#1. Listening to guest speakers	0%	7%	24%	33%	36
2. Questioning guest speakers	4	21	19	34	12
3. Discussing issues in seminar	4	11	29	28	28
4. Supporting my positions via writing	17	30	30	15	9
5. Improve personal health and fitness	4	10	22	28	38
6. Associating with classmates	0	4	13	26	57
7. Interacting with foreign officers	2	9	26	30	33
8. Associating with faculty	8	29	29	26	9
9. Exercises (cumulative)	8	20	35	24	12
Politico-Military Simulation (Pol-mil)	9	25	39	18	10
Force Posture Exercise (FPX)	10	22	40	22	6
Rapid Deployment Exercise (RADEX)	9	21	37	25	9
Theater War Exercise (TWX)	6	13	26	30	25
10. Taking elective course	3	8	25	29	36
11. Using critical thinking in research	12	26	25	22	16
12. Attending protocol lunches with guests	26	37	25	7	6
13. Traveling on field trips	5	6	21	27	40

Table 3: Student Ratings of Lessons

Table 3 represents a stratified random student sampling (n = 30 with 95% return rate) of responses from daily critiques for all courses for the academic years listed. Respondents marked survey items from unsatisfactory to outstanding on a scale from "1" to "5." (68:5-11)

Academic year	89	88	87	86	85	84	83
Objective achieved	4.00	3.76	3.89	3.87	3.94	4.02	3.86
Lecture - content	4.14	3.90	3.95	3.92	3.96	4.07	3.92
- delivery	4.24	3.89	3.99	3.94	3.94	4.05	3.97
Discussion	3.91	3.93	4.08	4.00	4.06	4.10	4.02
Seminar	4.05	3.76	4.06	3.96	4.08	4.07	3.93
Reading - quality	3.74	3.36	3.50	3.68	3.60	3.57	3.53
Overall mean	4.02	3.75	3.88	3.88	3.93	3.98	3.87

College of Naval Warfare

The following data was obtained from the National Security Decision Making Department (NSDM) for academic year 1988-89. Questions and averaged student replies (n = 216) on a scale from 1 to 7 have been extracted from NSDM surveys. (69:-)

Table 4: Value of Subcourse and Quality of Instruction

Subcourse	Value	Quality of Instruction
Policy Making and Implementation	5.58	6.09
Defense Analysis	5.39	6.42
Force Planning	6.04	6.50
Average	5.67	6.34

Subjective data in the form of student comments were also collected using the following statements.

1. The two things I liked most about the overall course.

2. The two things I disliked most about the overall course.

Table 5: Categorized Comments

Liked Most

Number of Comments	Comments Category
89	Seminar atmosphere and learning method
48	The readings are good
39	Good instructors
29	Use of case studies and exercises
25	Guest speaker program

Disliked Most

62	The readings
36	Exams and grading
29	Seminar environment and instruction
29	Course content

Industrial College of the Armed Forces

Student survey data (N = 199) was obtained from academic year 1988-89 for the four modules of Phase I. The following data was extracted from surveys admininstered after the completion of Phase I. (70:-) Possible responses range from "unsatisfactory (0)" to "outstanding (5)."

Table 6: **Phase C. .ique Summary**

Module	Objective Achievement	Delivery	Value	Average
D	4.19	4.13	4.39	4.24
B	4.17	3.97	4.42	4.19
C	4.04	3.98	4.26	4.09
A	3.81	3.79	4.09	
Average	4.05	3.97	4.29	

National War College

The following data were collected to evaluate Unit I, Force and Diplomacy, Course 1: Statecraft. Three methods for collecting the data were used.

1. Student survey
2. Faculty comments solicited during a meeting with the Commandant, Dean, and faculty seminar leaders
3. Faculty ratings of guest speakers. (64:-)

One hundred and sixty-six students (98%) responded to the hand-scored survey. Six of the nine questions require written, subjective comments. Three questions are objective, e.g., "Did the course meet its objective?" Student responses to this question included 164 "yes" (99%) and two "no."

Written comments by the faculty regarding teaching method are included in the Appendix. Additional comments about teaching innovations are included also.

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Faculty grading and subjective comments are short and blunt. Fifteen to twenty faculty members grade each guest speaker using an "ABCD" scheme. The NWC Director of Evaluations records the speaker grades and comments as noted below, and distributes them to curriculum planners. (64)

SPEAKER EVALUATION
(name)
(date)
(lecture title)

2 A's
11 B's
7 C's

It was thought that the speaker gave a dry, yet organized and enlightening analysis of this complex period in American dipolmatic history. Some felt that he could have been more focused and objective though. He was better in the Q & A and there was positive feedback from the informal session. We should, therefore, invite him back. It was suggested, however, that we have him on a panel and definitely in the morning.

This particular critique from among the 12 speakers evaluated for this course contained the most information on method. Other critiques mentioned length (too long), good visual aids, replace speaker with readings and seminar discussion, too elementary for audience, more diplomatic than forthright in Q & A, needed seminar after lecture as audience was "fired up," guarded and self-conscious, keep same theme in panel but invite different guests, and there were usually suggestions for replacement speakers when grades were average or below.

Army War College

USAWC collects comprehensive data from students and faculty to evaluate their various courses. None of the data, however, provides for teaching method comparisons.
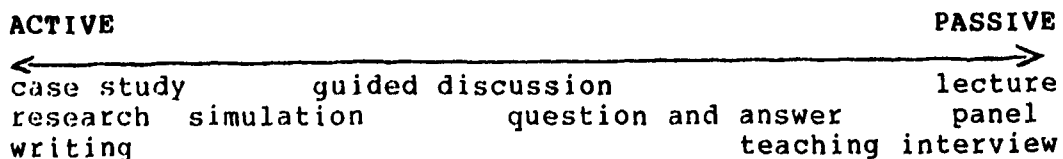
CHAPTER V

EVALUATION

Introduction

This chapter will evaluate the literature and collected data on instructing methods. First the literature.

Literature Trends

Method "trends," or what's fashionable in curriculum, is a good topic to begin with. The literature indicates the lecture has been in and out of fashion. The discussion method has had its "day in the sun" also. Case studies, analytical writing, and essay examinations are now receiving emphasis. In-depth versus generalist approaches have been debated and cycled through curricula. Computer-assists and videodiscs have followed the videotape and interactive slide show era. Will the chalkboard and the professor survive the technicians?

One researcher has found a relationship between method and student performance--for long-term retention (longer than six months) and for learning in the affective domain. Other researchers have used an active to passive learning continuum and have recommended active learning as being superior. The following graphic illustrates the continuum.

```
ACTIVE                                                 PASSIVE
<--------------------------------------------------------->
case study          guided discussion              lecture
research   simulation          question and answer    panel
writing                                   teaching interview
```

The research on teaching method that compares lecture versus guided discussion is clear. Neither is superior based on measurable student performance. However, close examination reveals differences if long term effects are taken into account and if curriculum is dealing with affective objectives.

Collected Data

Air War College

AWC has an excellent repository of historical data tracking student and faculty ratings of curricula. The data portrays student preferences as well as actual student and faculty ratings of methods.

When the students of the 1988 class were asked about changing the teaching method emphasis, the following trends from Table 1 emerge: they would like to see fewer seminars but more case studies, fewer exercises and TV presentations, more student lectures, fewer question and answer sessions with speakers, more panel discussions, fewer writing assignments and research requirements, and more electives and field trips.

This data reflects what methods are popular to students rather that what is effective. Table 2 reflects what methods students consider effective. The following aspects regarding methods are rated high: listening to and questioning guest speakers, seminar discussions, theater war exercise, and field trips. Research and writing are rated low.

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Table 3 solidly indicates that lesson objective fulfillment ratings correlate with the ratings for method; e.g., outstanding lecture delivery ratings are likely to correspond with outstanding objective fulfillment ratings. The data indicate that quality presentations, lecture or seminar, will fulfill lesson objectives. And lower ratings for method effectiveness correspond with lower ratings for objective fulfillment, regardless of the presentation method. Specific methods do not appear to be predictors of lesson success.

College of Naval Warfare

The limited data portrayed in Table 4 does not measure the relative effectiveness of various teaching methods, but it does indicate a correlation between the lesson value and the quality of instruction. Force Planning, the top rated course in terms of quality of instruction, was also rated first in potential value.

Table 5 reports categorized verbatim student replies to two open-ended questions on course "likes" and "dislikes." Seminar atmosphere and learning method were more often mentioned as "likes" by a wide margin than any other category of "likes" or "dislikes." This table portrays a high degree of student appreciation for the CNW seminar format. And the fact that 89 of 216 students surveyed penciled in positive comments on seminar atmosphere and learning method in an open-ended format, signifies a student awareness of and penchant to judge teaching method.

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Some additional CNW data regarding student perceptions of course value bear commenting on here. Doctor William Turcotte, Chairman of the National Security Decision Making Department, has noted that student "attitudes toward our product, as expressed by estimated value of the course, as rated by them on a scale of 1 to 7, is perhaps central to the overall view by which this curriculum is held in the College in general and perhaps in the Navy." (72) He goes on to say that quality of teaching is subordinate. In his review of over 2,000 questionnaires, he has seen the quality of teaching rated high and the curriculum value rated low. The reverse is rare, however. "When value [of the curriculum] is rated high, so typicall; ity of teaching," he notes. (72) Quality of curriculum as perceived by students, is paramount. Or to again quote Doctor Turcotte, "what we believe they should believe is somewhat less important than what they believe." (72)

Industrial College of the Armed Forces

The data from Table 6 indicate that of the four subcourses (modules) of Phase I, module D is rated first by students in both meeting the course objectives and in presentation delivery. Module D is rated a close second in its perceived value. The module rated fourth, module A, was rated fourth on all three variables.

Unfortunately, the specific types of presentation delivery are not rated separately, so conclusions about relative methods effectiveness cannot be made. However, as

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with the AWC and CNW data, the student ratings of objective achievement and method of presentation are positively correlated. Apparently, their is a relationship between lesson delivery and lesson success. This relationship could be due to the following:

1. Delivery style affects rating of lesson success
2. Lesson content affects delivery ratings.

The CNW and the ICAF objective data do not provide the opportunity for insight into which possible explanation or combination of both explanations is most plausible. However, the AWC data and the Turcotte observations make a good case for the influence of lesson content driving other variables.

National War College

NWC uses a subjective approach to evaluating presentations which often includes comments on method. Conclusions regarding the probability of specific teaching methods predicting student performance are not possible from the NWC data. However, the data do indicate course objectives are being met with a variety of methods.

"Variety is in itself an academic good," a faculty staff report on methodology surmises. Active learning approaches must be mixed with more passive techniques. The report also emphasizes faculty quality and professionalism, non-traditional course materials (e.g. case studies and simulations), more faculty time to prepare for teaching, freedom for instructors to tailor classroom techniques to

their individual strengths, and stability in curriculum content in order to perfect execution. (64)

US Army War College

USAWC collects extensive data to evaluate its courses. Feedback measures include workload, pace, length of reading assignments, time for discussion, as well as various measures of course impact on students. Unfortunately, there are no survey questions about instructing methods.

Summary

Based on the data, there is not a "single best method" approach to selecting curricula presentation modes to fulfill lesson objectives. However, based on the subjective expertise of SSS and various other educators, the selection of teaching methods should depend on: presenter background and expertise; student background; nature of the subject matter; time available for presentation; level of student learning desired; as well as novel and a variety of different approaches, and even the season and place in the curriculum, and the time of day and week. But even when all of these are adhered to, empirical research will probably fail to establish a significant difference in student behavior when compared with a control group. The important variable is quality curriculum, not specific teaching methods.

CHAPTER VI

FINDINGS AND RECOMMENDATIONS

Introduction

Was Marshall McLuhan right when he penned "Societies have always been shaped more by the nature of the media by which men communicate than by the content of the communication." (73:8) Or more familiarly, "The medium is the message." (74:vii)

Most of the data would disagree. In the SSSs, the medium is not the message, the message is the message. The message will normally endure any medium. . .but the SSSs have worked diligently to "remove the tedium from the medium."

And with excellent overall results. They have perfected educational delivery with an enriched armamentarium--the seminar, the lecture, the case study, reading and written assignments, oral student presentations, simulation and gaming, and field trips. All are fine-tuned and intermixed to challenge a student body that arrives each fall, not only with high ability, but also with high expectations.

Findings

Quality curriculum, well presented, will "shine through" any particular method used at the senior service school level. Or said another way, good curriculum poorly

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presented will be more effective at the SSS level, in terms of desired learner behavior, than poor curriculum well presented.

Recommendations

Curriculum developers should concentrate on curriculum content. Method fad and innovation are less important. However, when teaching methods are selected, educators should ideally consider the nature of the subject matter; the desired cognitive levels of lesson objectives; student and prospective, presenter backgrounds and expertise; the location of the lesson in the course and the time of day and year; the amount of time available for the lesson, and the history of the lesson, if any.

Recommendations for Further Research

Instructing methods in the cognitive domain of learning have been comprehensively studied. Additional research should focus on long term retention--longer than six months, and on affective behavior changes due to teaching method variations.

There is little data, also, on the effect of teaching method on the mature student. Additional research is needed on the effects of age and experience on how curriculum is assimilated and used at the graduate level.

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3. We used a variety of teaching techniques to include panels, lectures, seminars, guest seminars and case studies. Evaluate these techniques. Which worked best; which were least effective?

Many of the students felt the mix of teaching techniques was just about right and appropriate for this type of course. The variety kept them interested and alert and complemented the methodologies used in Course 2, Foundation of Joint and Combined Warfare. Those who did express preferences however, favored the instructional seminar the most. They described it as a stimulating opportunity to bat ideas around and put everything into perspective. Comments were mixed on the guest seminars, lectures, panels and case studies. For the guest seminars, the quality of the speakers was uneven from seminar to seminar; some were very well received while others provided only superficial answers and seemed unwilling to discuss certain areas. The lectures were also a fairly mixed bag. While some enjoyed their personal observations and said they made them think, others said they were disappointing overall. A few students admitted they may have been expecting too much from the speaker program. While some felt the panels were very effective and called for more, others complained about their lack of balance and controversy. For some, the case studies were an excellent way of focusing the issues for discussion and providing hands-on learning. However, a smaller group said they had a difficult time getting involved.

4. Evaluate your particular seminar's discussion. What made your seminar a good learning vehicle or, conversely, hindered its effectiveness? What particular techniques worked well or not so well in the seminar?

Comments indicated the seminars were extremely effective. The mix of students' experiences and background was a key element and the opinions expressed fell across a wide spectrum. The faculty seminar leaders were uniformly praised for allowing the discussions to flow while keeping the groups focused on the topics. It was obvious that some students appreciate the freedom to wander around the topics though others want more structure and control, but faculty seemed to handle this well in most instances and there were few complaints. The best instructors seemed to keep control and focus on the topics while eliciting comments and participation from everyone, even the most reticent members of the seminar. Some of the seminar leaders assigned different readings and discussion questions to various students and that seemed to work well on an infrequent basis.

<u>Active Learning Course Structure Innovations</u>
<u>NWC Core Program, AY 1987-88</u>

UNIT I

1. Statecraft:

--paper asks students to apply course framework to a foreign statesman and his statecraft
 (DeGaulle, Chou En Lai, Nkruma, Khrushchev, Sadat, Brandt)

--case study of 1971 Indo-Pakistani War and associated superpower crisis illustrates Nixon-Kissinger statecraft and use of policy tools

2. JCO:

--students play roles of principal component air commanders in Vietnam war

--historical Gettysburg battle exercise in which students play Gen. Lee or Gen. Meade and their staffs; each must formulate their side's mission and develop courses of action

3. Art of War:

--structured essay to critique an issue/topic using the view of one of the military theorists being studied in the course

--each student is critiqued and evaluated on an oral presentation on a different topic

UNIT II

1. Executive Decisionmaking

-- students solve a rank order problem as members of an interservice work group providing the Sec Def with a prioritization of defense budget cuts

--decision matrix exercise using the Cuban Missile Crisis

--final group decision exercise on the Middle East

2. National Security Policy Formulation

-- book review of one of the readings as a basis for discussion in class

UNIT III

1. Geostrategic Context

--discussion of a crisis scenario involving a Greek/Turkish confrontation

--paper asking students to place a regional issue in U.S. security policy in the context of American global policy

--student subgroups apply a framework for analysis of insurgency to specific insurgent situations and make oral presentations on the cases to their seminars

--case study on INF decision and later political fallout

--crisis simulation on a Nicaraguan invasion of Honduras

2. Military Strategy

--10-minute oral presentation in Introductory block using an analytical framework to critique a strategy

--15-minute briefing by Soviet and U.S. teams in each seminar on the adversary's greatest strengths and weaknesses, discussing how to cope with the former and exploit the latter (Threat block)

--seminar divided into 2 teams for the Nuclear course --one set of presidental advisers and one SACEUR staff-- to play a decision exercise on first use of nuclear weapons

--3-day conventional warfare deployment/employment exercise in which students evaluate air and sea capability and prepare guidance for deployment and employment of forces in Southwest Asia; uses computer simulation

--student simulation of NSC as it deals with a LIC/hostage situation and selects among counterterrorism options

--course paper asks students to use an analytical framework to critique a current or proposed strategy, either regional or functional

SRE

--students construct and validate a U.S. military strategy and then simulate "buying" their own force structure mix to support it; each student gives a formal briefing. Uses FORECOST computer model

CDE
--simulated 3-move national security crisis in which students make decisions and test crisis management skills