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A COMPARISON OF AUDIO-TUTORIAL AND  
LECTURE METHODS OF TEACHING

by

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## BACKGROUND AND SETTING

The sequence of the professional teacher education series, required of undergraduate teacher education students at Iowa State University, is culminated by Education 426, Principles of Secondary Education. This course is structured to manifest the principles and problems that have evolved empirically through time, so that the students might better be able to react to these situations when they arise.

This class is restricted to only six weeks of instruction, since traditionally the other six weeks of the quarter are spent in student teaching. In order to cope with this time restriction, it has been necessary to severely condense some of the content deemed desirable for the course, not so much because of time spent in class, but because of the time available for outside assignments. Class size has also become a problem. As the sections become increasingly larger, it becomes more difficult to have the verbal interaction between professor and student that is desirable.

It has become increasingly important to look for ways to improve this situation. This situation has not become untenable; however, the unending quest for methods of improvement of instruction is one of the obligations for those concerned with education.

Numerous ideas are being tried at the present time to improve instruction of large college classes: closed-circuit

television, data access learning laboratories, computer assisted instruction, etc. The University Council for Educational Administration (UCEA) has made a significant contribution in this area. The UCEA has developed simulated materials with the following objectives in mind:

1. To determine dimensions of performance in the elementary school principalship and thus to develop a better understanding of the nature of the job of the school administrator.
  2. To provide information helpful in the solution of the problem of selecting school administrators.
  3. To provide materials and instruments for the study and teaching of school administration.
- (42, pp. 7-8)

If the use of simulated, or in-basket materials proved successful in teaching administrators, then it would logically follow that the same process should be successful in preparing teachers. A complete reporting of these materials is made in chapter II; however, suffice it to say at this time that this method has been adopted for use in this study. The original study of in-basket materials was done by Hemphill, Griffiths and Frederiksen and reported in their book, Administrative Performance and Personality. An overview of this study can be obtained by a brief look at their chapters: (42, pp. 9-10)

Chapter 2, 'Collecting the Data', describes the data-gathering procedure, beginning with the first contact with the subject and continuing through the week spent at the test center.

Chapter 3, 'The Simulated School', discusses the setting in which the in-basket items are placed. The characteristics of the community of Jefferson and Whitman Elementary School are presented.

Chapter 4, 'Structuring Whitman School', describes how the movie, the kinescopes, in-basket items, filmstrips, sound tapes, and all the other materials were prepared.

Chapter 5, 'The Participants in the Study', describes the principals who participated in the study, and compares them with a nationwide sample of principals recently studied by the National Education Association. Means and standard deviations are reported for the professional knowledge, general culture, personality, and interest tests administered to the subjects.

Chapter 6, 'Scoring the In-baskets', presents the rationale for scoring in-basket materials. A central part of the chapter deals with the Scoring Manual, training of the scorers, the scoring categories, and quality control measures employed.

Chapter 7, 'Dimensions of Performance in In-basket Work', deals with three questions; Can the adding of scores assigned to items to obtain a total score for each category be justified? How reliable are the category scores? Can the important differences in the subjects' performance be described with less than the 68 categories used in scoring the in-baskets?

Chapter 8, 'The Content of the In-basket Test', contains a discussion of two 'content' scores, Imaginativeness and Organizational Change, and their relation to other measures.

Chapter 9, 'Concerns and Values of Elementary School Principals', describes, evaluates, and analyzes the subjects' concerns and values as revealed by three types of tasks: evaluation of the performance of teachers shown in kinescopes, solutions to a variety of situations depicting educational problems that were presented by taped recordings, and 'examinations' on background materials.

Chapter 10, 'Performance on Tasks Involving Group Interaction and Speaking Before a Group', presents a description, evaluation, and analysis of the subjects' behavior in a group interaction problem and in giving a speech.



Chapter 11, 'Subjective Evaluations of Performance', provides an answer to the question, What are the characteristics of principals who are viewed as outstanding by their superiors, by teachers, by scorers, and by members of the research staff?

Chapter 12, 'Relationships Among Measures of Performance', presents the correlations between in-basket performance measures and all other variables pertaining to the principals' abilities, personalities, and performance.

Chapter 13, 'Components of Administrative Performance', reports the results of an analysis of various components of the in-basket test performance factor, and summarizes the most significant findings of the study.

Chapter 14, 'Implications for the Practice of Administration', summarizes the findings of the study and explores implications for new theories of administration. The chapter presents practical applications for the selection of school administrators, the practice of school administration, and the preparation of school administrators; and it suggests further needed research.

An Instructional Resources Center was established at Iowa State University by the Office of Teacher Education in the summer of 1967. The audio-tutorial booths in this center now provided the vehicle by which the simulated materials could be utilized for instructional purposes, or could be used for any audio-tutorial teaching.

Recognizing that a problem exists in the Education 426 class, and that the use of simulated materials in the audio-tutorial booths might offer some solution to this situation, the following problem was formulated.

### Statement of the Problem

To determine if simulated materials could be developed for instruction similar to those first developed by the UCEA for graduate instruction in Educational Administration, and evaluate (test) the efficacy of in-basket materials in the teaching of school law to preservice teachers in a course entitled, Principles of Secondary Education. More specifically the problem was to answer the following questions and test these hypotheses:

Question 1: Can a teaching unit involving school law be superimposed on the UCEA materials, or materials developed specifically for this course using the same format?

Question 2: Is there an economy of time involved by the use of these materials?

Question 3: Are students more highly motivated in the area of school law by having been exposed to these materials?

Question 4: How do these experiences, in dealing with these materials, affect their attitude toward the entire course?

Null Hypothesis 1: There is no significant difference in the learning (as measured by the raw score differences between pre- and post-tests) under audio-tutorial methods and traditional methods of instruction in school law.

Null Hypothesis 2: There is no significant difference in learning (as measured by the difference in pre- and post-tests) between the students who have had student teaching and those who have not had student teaching.

It was pre-determined that if there was a significant difference of the treatments within subjects, in the statistical analysis of the study, that a post hoc analysis would be done to test null hypothesis 3.

Null Hypothesis 3: There is no significant difference in learning (as measured by the difference in a pre- and post-test) between the main effects and interactions of the following variable characteristics of the students: College grade point, whether or not the student has had student teaching, and the students' respective scores on the different tests that they will take.

Null Hypothesis 4: There is no significant difference (as measured by the post-test number two, given two weeks after post-test number one) in the retention of the content, between the students having been taught by the audio-tutorial and the traditional lecture method.

### Purpose of the Study

Acknowledging that the main problem lies with the improvement of instruction, the purpose of the study was to solve this problem. The ultimate goal of the study was not to proclaim a panacea for the problem, but to examine simulation and audio-tutorial methods and to evaluate their effectiveness. In order to achieve this goal it was necessary to develop materials, supplementing the UCEA materials, that would lead to the objectives of the course as stated for the school law unit.

A study of the effectiveness of the UCEA materials in Administrative Performance and Personality points out that ". . . this study has implications for the solution of many practical problems of administration . . ." (42, p. 331); consequently, it can be inferred that in-basket materials are relatively successful, as far as the authors are concerned, in teaching certain aspects to principals. Therefore, it was one of the purposes of this study to see if these materials can be effective in teaching concepts of school law to preservice teachers. A way of measuring this effectiveness is discussed in chapter III.

### Definition of Terms

**Simulation** - The creation of realistic games to be played by participants in order to provide them with lifelike, problem solving experiences related to their present or future work.

Audio-tutorial - Multi-faceted, multi-sensory approach to teaching utilizing audio tapes for instructions and other media in a supervised, self-instructional learning center.

Pre-test - A test given to the students in Education 426 class over the concepts of school law before any type of formal instruction in school law had been undertaken.

Post-test - A test given to the students in Education 426 class over the concepts of school law immediately upon completion of the school law unit.

Retention-test - A test given to the students in Education 426 class over the concepts of school law approximately two weeks after the completion of the school law unit.

UCEA materials - Those materials developed for the simulated "Whitman School" including background information on the school; its personnel, students, etc.; about the community in which the school is located; and problems that the principal of this school is to encounter.

In-basket materials - The same as UCEA materials.

#### Sources of Data

Data pertinent to this study were collected by administering three tests to each student in the control and experimental group. These tests measured their knowledge of the law concepts presented by each instructional method. These tests were the instruments selected to be used to solicit this information

after they had been checked for item analysis, item difficulty, and reliability.

Each student was asked to indicate on their first answer sheet whether or not they had had student teaching. This information was used as one of the variables in the statistical analysis of the study.

Finally, an attitude questionnaire was used to determine the students' feelings about the instructional methods used in the experiment. This questionnaire was given to the students at the same time they were given the post-test.

#### Delimitations of Study

The study was restricted to a unit focusing on the concepts of school law. This unit made up approximately 20 per cent of the entire course in Principles of Secondary Education. Consequently, the results of this study refer only to this particular unit.

The entire course covers a period in time of only six weeks, with the students meeting six hours per week. Therefore, the time available for the experiment was only eight hours during the first one-half of the study and eight hours during the second one-half.

This investigator developed and assembled the materials to be used by the students in this study. The UCEA materials were used as a guide; however, the content of the baskets was completely different from that of the UCEA materials.

Consequently, the clarity of the directions and problems and the caliber of the materials for their use was only as good as this researcher was able to make them.

The tests were developed by three practicing administrators and, after several revisions, the reliability of the tests was determined to be very acceptable. The validity of the test, however, can only be established at some future time when it has been determined that what they were tested over actually measured their ability to use the concepts they had learned. Every attempt was made to improve validity through the consultative help of attorneys, professors of educational law and practicing administrators.

Previous audio-tutorial instruction has been characterized by supervision over the students as they study in the audio-tutorial booths. It was decided that this procedure should not be followed in this study, since it would be introducing another teacher variable that could not be measured. By the same token, it was decided that a review session for these students before the post-test would not be used because of this variable.

The dimensions of this study were restricted to the enrollments of the Education 426 class in the fall quarter of 1967. There were 219 students enrolled in the class and included in the study.

There were eight audio-tutorial booths available for use by the students. Because 74 students were to use the booths

simultaneously, time must be considered a factor. The students indicated that, for the most part, they had ample time to complete their assignments. However, finding an open booth when they were free to use it was an occasional problem.

Students in both the experimental and control groups kept a log of the amount of time they studied during the experiment. This must be considered only as accurate as the students were diligent in keeping exact times.

The students were given an attitude questionnaire concerning their feelings about the experiment. The compilation of these questionnaires indicated several biases not connected with the experiment. Although these results were interesting, it could not be determined how relevant they were.

Ideally, there should have been at least six weeks between the post-test and the retention-test. Because of the time restrictions of the course, there were only two weeks between these tests.

The final delimitation is the use of only one instructor who taught the control group; one who is considered to be a competent teacher and is very popular as a lecturer. Although this does strengthen the results of this study, the situation is somewhat atypical and should be kept in mind.

#### Organization of the Study

The material for this study was organized and presented in five chapters. The first chapter includes the background



and setting, statement of the problem, purpose of the study, definition of terms, sources of data, delimitations of the study, and organization of the study. The second chapter contains a summary and analysis of related literature and research. The review of literature includes a section on simulation and one on audio-tutorial instruction.

The methodology and procedures used for the study are discussed in the third chapter. A discussion of the findings of the data assimilated from the study was included in the fourth chapter. The last chapter, five, deals with the summary pertinent to the investigation and certain recommendations deemed important enough for further study.

## REVIEW OF LITERATURE

The technique used in this study combined the use of simulated materials with the audio-tutorial method of instruction. A search of the literature reveals that little has been written with respect to this combination. In order to scrutinize this topic completely, an in-depth examination was made of each topic separately.

## Simulation

It is extremely important to have a clear definition of the term simulation. The use of simulation techniques is as varied as the users' definitions of the term. The social scientist defines it as (37, p. 3)

. . . a social science research technique, refers to the construction and manipulation of an operating model, that model being a physical or symbolic representation of all or some aspects of a social or psychological process. Simulation for the social scientist, is the building of an operating model of an individual or group process and experimenting on this replication by manipulating its variables and their interrelationships.

In the Journal of Simulation there is the following definition. "Simulation is the act of representing some aspects of the real world by numbers or symbols which may be easily manipulated to facilitate their study" (74, p. 33). After considering many of these definitions it was determined that henceforth, the term will refer to ". . . the creation of realistic games to be played by participants in order to

provide them with life-like problem solving experiences related to their present or future work" (19, p. 3).

Simulation is far from being a modern concept. There were undoubtedly uses made of this before recorded history. The Greeks were known to have trained their soldiers using simulated war games.

(In a) . . . very broad meaning of the work any construction of a 'model', whether symbolic (pictorial, verbal, mathematical) or physical might be termed simulation. In this sense the classic dialogues of Plato, the 15th century art of Leonardo da Vinci and the abstract art of the twentieth century might all be termed simulation, inasmuch as they are attempts to portray or reproduce by means of words, stone or canvas their authors' conception of various aspects of human life or physical objects. (37, p. 2)

Probably the best-known simulator of all time is the World War II Link Flight Trainer. Since that time those working with the space program have used all types of simulator techniques from wind tunnels to space capsules.

The business world has begun to utilize simulator training and has made a sizeable investment in it (19, p. 3). The business sector has adopted another term which they use along with simulation, and that is gaming theory. Shubik says that this is ". . . a method for the study of decision making in situations of conflict" (72, p. 8). He goes on to explain that "gaming is an experimental, operational, or training technique which may or may not make use of a simulated environment but is invariably concerned with studying human behavior or teaching individuals" (72, p. 71).

There are numerous uses made of each of these or a combination of these techniques. Management is making extensive use of this in executive development. Dill (27, pp. 55-56) indicates that these games are being used in certain programs of executive development in three basic ways which includes discrediting old ways of thinking, giving their men experience with the various types of problems that executives face, and as an evaluative device with respect to their performance.

The American Management Association developed its first game a few years ago (27, p. 56). Their criteria for developing such a game included four basic tenets. These are applicable to all uses of simulation. Included in these were fitting the game to the players, developing a game that is easy to administer, the lesson taught by the game should be quite clear, and the participants should respect the game.

These games which have been adopted by many big businesses are modified to fit their particular situations. They deal in all aspects of big business and in order to adequately simulate the environments a computer must be used. The human being is not capable of supervising the games due to slowness and inaccuracy (27, p. 59). Another highly successful business game has been developed for key marketing decisions (36, p. 124).

It is impossible to assess the capabilities of computer simulation. A computer is able to simulate any process if it can be programmed or converted to a mathematical model

(81, p. 13). With these possibilities, it appears to have unlimited potential for education.

Driver training appears to have been the first that successfully employed simulation in education (19, p. 3). This was done by simulating a driving compartment of an automobile with all of the equipment normally found in an automobile. Real life driving situations can then be flashed on the screen in front of them and their reactions can be observed by an instructor.

Northwestern University developed simulated materials to use in a course in international relations, however it soon became apparent that this was a valuable teaching device for many undergraduate courses (37, p. 150). After assessing the worth of simulated materials at Northwestern and other places utilizing this technique, such as Massachusetts Institute of Technology, Chadwick Alger compiled a list of claimed benefits of simulation and summarized them under four major headings which are:

1. . . . simulation heightens the interest and motivation of students in several ways.
2. . . . simulation offers an opportunity for applying and testing knowledge . . .
3. . . . gives greater understanding of the world as seen and experienced by the decision-maker.
4. Most simulations provide a miniature world that is easier for the participant to comprehend as a whole than are the real institutions themselves. (37, pp. 152-154)

The management and the international relations simulations games appear to be focusing on two specific objectives. Each

has to do with the role of the participant, one being to train them for roles that they actually will play someday, and the other to acquaint them with roles they will never play but should be familiar with (37, p. 154). The class involved in simulation of international relations at Northwestern in 1961 was asked to evaluate their simulation experience and from this the six most often cited themes were extracted. These were:

1. Provides vividness and understanding beyond what one gets from a textbook.
2. Gives one a realization of the complexities and/or the lack of simple solutions to international relations problems.
3. Indicates the importance of having reliable knowledge and the importance of communication in international relations.
4. Develops better understanding of the problems and goals of nations not like the United States.
5. Experience in decision-making enables one to better understand the problems of the decision maker.
6. Demonstrates the difficulties of balancing the requirements of internal and external affairs.  
(37, p. 179)

It is not difficult to determine that both students and instructors felt that the classroom experiences were materially enhanced by the use of simulation. Upon concluding this, one might logically ask what are the values or advantages of simulation versus the disadvantages or limitations.

Jack A. Culbertson has come up with some generalizations based on his working with simulated materials (20, pp. 39-46). Some of his basic advantages mentioned includes the transfer function of simulation. In almost every phase of training for

a particular task, the objective of the training is to instill in the learner those concepts that can be used at some future date in time. Simulation appears to be able to do this more readily than conventional teaching methods and materials. Another advantage is the ability to be able to focus on specific details. These details can be presented in a comprehensive manner, and to strengthen the case for simulation, these details can be presented in such a way as to show how they interact in relationship to the total picture. Versatility, a prime requisite of any method, is certainly inherent in the use of simulation. A participant is able to develop insights about the program and himself, to learn specific desired concepts, and to acquire certain skills needed to be successful when the real situation arises. Finally, the use of simulation is advantageous because the materials are realistic and susceptible to instructor control.

Culbertson also points out some of the limitations of simulation. One of the primary drawbacks for the use of simulation is the inexperienced instructor. The use of simulation does not follow the pattern of traditional instruction, and although some instructors consider this a personal challenge others become highly antagonistic toward its use. No matter how carefully the materials are developed, it is impossible to assure that the situations presented are representative of real life situations. The cost can be prohibitive because the time needed to develop a truly comprehensive and representative

set of materials would be great, and if the materials are available and you desired to purchase them the originator of the materials must make a charge commensurate with his time and effort. When you compare the cost of these materials with textbooks, films, slides, etc. it is sometimes difficult to justify the additional expenditure.

Richard E. Dawson feels that there are three basic questions that must be answered about simulation in evaluating it. First he wants to know just how applicable it is. There are certain situations that can be simulated much more readily than others. The degree to which the problem can be simulated would dictate the feasibility of its use. The second question is cost. Culbertson covered this area quite completely in his assessment. Finally he wants to know about its simplicity and communicability. It is desirable to present something as simply and comprehensive as possible, and it must be determined if the simulation technique or some other technique does this best. Dawson leaves the advisability of using a simulation situation up to the individual once he has given full consideration to the above three points (26, p. 12).

James A. Robinson, in the book, The New Media and Education, edited by Rossi and Biddle, reports a study he did using three upper-class courses at Northwestern in 1963-1964. He was attempting to evaluate the claims for simulation. He chose two groups of students, one group in a simulation section and the other in a case studies section. His findings



indicated that there was no difference between the methods for stimulating interest. He indicated, however, an unexpected pattern did emerge in the study.

Apparently, case study is more successful than simulation in eliciting student interest as measured by students' perceptions; but measures of student behavior indicate that simulation is more successful than ease in affecting student interest and involvement. (67, p. 107)

Robinson summarizes his study by stating three major conclusions. First, the behavioral measures of interest are much more effective in discriminating between methods than the perceptual measures are. Second, that attendance, course evaluation essay, and rate of participation all indicated a greater interest in the sections utilizing simulation. Finally, the different measures, behavioral and perceptual, differ in the direction of the student interest (67, p. 111).

Donald Cruickshank has been doing considerable research with simulation techniques in teacher training. He has listed twelve advantages and applications of simulation for preparing teachers that are worthy of citing (19, p. 7).

1. Provide intensive focused opportunities to study and to analyze critical teaching problems which may not occur during student teaching or other pre-service activities.
2. Increase student interest in the professional education sequence.
3. Provide opportunities for unfettered problem solving free of censure and failure.
4. Shorten the required student teaching or internship requirement.
5. 'Open' teaching behavior.
6. Decrease teacher problems thereby reducing teacher failure and turnover.

7. Aid in teacher recruitment and selection as a situational test.
8. Orient beginning teachers.
9. Provide guided in-service experiences for teachers experiencing difficulty.
10. Permit classroom teachers to analyze their own classroom behavior.
11. Substitute for student teaching or internship settings when they are not available.
12. Stimulate research regarding teaching problem solving behavior or the prediction of teaching behavior from behavior in a simulated setting.

Cruickshank reported from the preliminary results of two field tests conducted with undergraduate students who underwent simulated experiences in place of the regular student teaching. These participants indicated that the simulated experiences were very enjoyable, quite realistic, helpful, more meaningful to them than college lectures, and considered this experience would be more valuable to them than the two weeks of student teaching they had missed. In addition to these statements they felt very much involved in situations that were presented; the situations helped them solidify, in their own minds, ways to attacking certain classroom problems; and that they would certainly recommend this type of training to their friends (19, p. 6).

Boehm contends that there are two different philosophies concerning simulation. He indicates that one philosophy deals with predicted results, disregarding the determination of the prediction. The other focuses on the interest of the study. If this interest is in the process, then the actual process must be stringently followed and the predictions must be based

on actual response (12, p. 4). Pool sees the philosophy of simulation in a somewhat different light. He feels that ". . . simulators explore worlds that might be, . . . empirical colleagues establish facts about the world that is" (59, p. 102). Synthesizing these two philosophies leads us to believe that simulators try to predict from contrived situations the responses to real life encounters. This philosophy corresponds to the definition that has been accepted for simulation. With this thought in mind the following studies were examined, and some of the more salient findings were reported.

Vlcek wrote his dissertation on assessing the effect and transfer value of a classroom simulator technique. Three of his conclusions are worthy of mention with respect to their relationship to this study. The first was that the classroom simulator experience did not develop an awareness of classroom problems among the teacher-trainees. He felt that these people apparently possessed the ability to identify these problems prior to the time that they had this experience. Second, he concluded that the experiences that the students had in the simulated situation did not transfer to the experiences they had in student teaching. However, there was an indication that the more simulator problems they faced, the more this did increase the transfer. Finally he concluded that the principles that had been developed for application in dealing with these various classroom problems did transfer to the student teaching experiences encountered (83, p. 4486).

Baker did a comparative study of textbook and simulation approaches in teaching junior high school American history. There were three major findings that were significant. There were statistically significant differences, at the one per cent level of confidence, in the amount of immediate learning of pre-Civil War American history. The differences were in favor of the group using simulation. There were no significant differences, at the one per cent level of confidence, in the retentive learning of the two groups; however, a statistically significant difference did exist at the five per cent level of confidence. Finally there was a statistically positive attitudinal change in favoring a more centralized and efficient policy making procedure by the simulation group (7, pp. 3353-A-3354-A).

Rickard did a study where he developed and evaluated simulated case materials for the preparation of student personnel administrators. He reported four major findings in his study. He found no significant differences between the groups on the perceived value of the simulated case material, in-basket problems and lecture, and case discussions. The simulated case materials and discussions were significantly better perceived by the students than were the lectures. The students perceived the simulation as having considerable values to them, not only at the present time, but also in the future. Finally the two groups did not differ significantly in performance on the in-basket problems. He concluded from the

study that simulation has value in complementing course materials already available in student personnel administration as well as in a variety of curricular settings (66, p. 3275-A).

Weinberger did a study on the use of simulation in the teaching of school administration. He approached his study by questioning professors who were using simulation. The professors indicated that simulation had been used for the following purposes: conceptual learning, practice in skills, involvement, illustration of administrative materials, and self-evaluation of administrative behavior. These professors reported most frequent use was being made of background materials, followed by in-baskets, related films, and cases. Their first recommendation for effective use, however, was to use in-baskets followed by background materials, taped problems, and role plays (85, pp. 644-A-645-A). There was general agreement among the professors as to the major strengths of simulation:

. . . high student involvement and motivation; provision for skill practice in a real, but controlled situation; opportunity to compare administrative behavior; and a chance to test theories on real problems. (85)

The weaknesses reported by the professors were tabulated, and those with the greatest frequency were:

. . . technical difficulty with materials; the need for an instructor well-grounded in behavioral science; increased work load and the large amount of time required by the technique; and the cost of the materials. (85)

The major recommendations from the study were that simulation be included as an integral part of administrator training, and there was a definite need for the training of professors in the use of the simulation technique as well as in the behavioral sciences (85).

Broadhead (14, p. 1673) did a study of the use of simulated materials as a method of instruction in educational administration. Upon completion of the study, he made six recommendations. His recommendations dealt primarily with the development of these simulated materials. First, he thought that careful planning should be given for the use of this simulation technique. Second, he dealt with time. Ample time should be given for the presentation of the simulated materials. This was followed by the recommendations that adequate instructional and clerical personnel should be made available, and that every effort should be made to eliminate excessive paper work. Fifth, he recommended that you should fit the materials you used to your particular locale. Finally, he stressed the development of an adequate evaluation device for both the program and the students' performance.

Norman Frederiksen, Director of Research for the Educational Testing Service, developed the in-basket technique for studying the administrative performance of Air Force officers. Subsequent to that task he initiated the most famous study, utilizing simulation for educational purposes of all time. John K. Hemphill and Daniel R. Griffiths collaborated with him

for the nucleus of the team that simulated an entire school district to train elementary principals. This remarkable study has been the guiding light for most simulation studies and achievements since that time.

The design of this study was controlled by knowledge of some of the problems occurring with past research. The general weaknesses of criterion used to evaluate the administrators' behavior with respect to his performance in decision-making roles in other studies was considered. The inability of the researcher to be able to delineate observed concepts in terms of administrative situations; the enormous time and money that would be involved in observing a large group of administrators for any study; the administrative situations were so variable that they had a tendency to lead to conflicting conclusions on whether administrative behavior is a function of the situation or the administrator; and the lack of quantification of previous studies were all given fullest consideration when the methodology of the study was considered (42, pp. 4-5).

There were three major objectives of the study.

1. To determine dimensions of performance in the elementary school principalship and thus to develop a better understanding of the nature of the job of the school administrator.
2. To provide information helpful in the solution of the problem of selecting school administrators.
3. To provide materials and instruments for the study and teaching of school administration.  
(42, pp. 7-8)

The format included an administrative problem where a participant could be observed and his behavior recorded. Most of the important tasks of elementary principals were simulated and condensed into a week-long session during which the study took place. An in-basket technique was employed and four in-basket tests were used in the study. An in-basket test is one in which a collection of administrative problems that normally accumulate on an administrator's desk are solved and the administrative actions constitute the answers (42, p. 8).

Two hundred thirty-two elementary principals in eleven different centers across the United States took part in the study. They spent one week in this simulated situation, as Marion Smith, principal of Whitman School, in the Jefferson School District in Washington County of the State of Lafayette. The first day and a half of the week was used for orientation, where he was given the facts that would normally be available to a principal going into a new community and starting a new job. This orientation included viewing a sound motion picture entitled You Will Enjoy Teaching in Jefferson, studying materials pertaining to the personnel of the district, listening to tapes concerning incidents involving the Whitman School, and studying a wealth of printed material about all phases of the school.

On the second afternoon, Marion Smith began to function as the principal of Whitman School. They worked on the simulated problems and were carefully observed for the next two



and one-half days. The last day was used for a final test and a critique of the week's experience. During the two and one-half days they functioned as Marion Smith, the principals dealt primarily with the in-basket materials. The building of these materials involved a complete analysis of the responsibilities of the elementary principal, identification and delineation of administrative problems, and finally the development of incidents based on problems and items based on incidents (42, p. 46).

The results of this study are reported in Administrative Performance and Personality by Hemphill, Griffiths, and Fredericksen. It would be impossible to report all of the findings in this study. The simulated situation did prove to be a very effective way to train school administrators. The technique was of particular interest to this study, and this effective teaching method was adopted for use by this author.

This instructional method has been employed and evaluated by many leaders in the field of education. Luvern L. Cunningham concludes an analysis of the program using simulation at the University of Chicago, with this paragraph (24, p. 19).

Clearly there needs to be more experimentation with the instructional use of simulated materials. The research and teaching functions need to be conducted simultaneously so that adequate appraisal of effectiveness, utilization, and methodology can be made. Still to be resolved is the question of how much background material concerning the hypothetical

situation should be provided. The question of whether or not the materials can be used in regular courses needs to be explored.

Richard Wynn analyzed the success that the simulated materials has had in training school administrators. This analysis included some sixty-five universities that had used the materials between 1959 and 1964.

He felt that there were eight major capabilities of the simulated materials (87, pp. 171-173).

First, the evident face validity of the situation stimulates interest and motivation in learning and encourages the subject to behave as he might in reality. . . .

Second, the written record of performances results in the accumulation of normative data and permits clinical examination and comparison of 'on-the-job' behavior in identical situations. . . .

Third, simulation permits the learner to profit from mistakes that might be disastrous on the job. . . .

Fourth, the instructor in the simulated situation can provide the subject with concepts, research evidence, models, or other information which he can't always send in during the actual game. . . .

Fifth, simulation provides an opportunity to see the whole picture, to view each problem in broad context. . . .

Sixth, simulation permits a degree of introspection rarely provided on the real job. . . .

Seventh, the Jefferson School situation presents the subject with an interesting object lesson in simulation as a medium of instruction which he may find useful in his own school situation. . . .

Finally, simulation presents an extremely useful research medium, permitting the collection of normative and comparative data on behavior and performance in identical situations. . . .

There were a number of limitations that Wynn pointed out in his analysis. The competence of the person using simulation as an instructional technique will dictate somewhat the success this instructor will have. These materials are very expensive to produce, and once they have been produced there is no guarantee they will not be obsolete in the near future. A block of uninterrupted time must be made available for full comprehension of the background materials before they can be used for instruction. There is the one big question that has not been sufficiently answered and that is, is there a true transfer of learning from the simulated situation to others, and if there is, is this transfer of learning hazardous?

(87, p. 173)

After examining the literature available relating to simulation, there appeared to be sufficient evidence to warrant continued research as to new applications for the use of simulation in instruction.

#### Audio-Tutorial Instruction

The need for innovation in teaching has been felt by all good teachers. The updating of the disciplines, especially in mathematics and science, in the elementary and secondary schools is a factor in the need for developing a much more flexible program of presentation (64, p. 2). It is imperative that a student secure some type of post high school education in our society today. In order to accomodate this vast range

of student interests and capabilities, there are three major ingredients necessary in our teaching approach. First, instruction can not become stereotyped. We must take full advantage of all the teaching techniques and all of the modern media at our disposal. Each medium must be selected as that most capable of eliciting the desirable responses from the students. Secondly, the availability of these media to the students in such a way that they can pace themselves, thus enabling them to more fully utilize their time, is of prime importance. Finally, the personal contact with the instructional personnel must be made accessible to supple motivation and interest (64, pp. 2-3).

A new phrase, the integrated-experience approach, incorporates the principles heretofore mentioned as necessary in a new teaching approach. The emphasis is on student learning, not on the mechanisms of teaching where it has been found in the past (64, p. 5). This phrase is derived from the integration of teaching-learning experiences. Provision is made for individual student differences and the efficient presentation of some aspect of the subject. The audio-tutorial method of instruction is a taped presentation of some aspect of a subject, presented in a booth in such a way as to direct the activity of one student at a time, or it is a multi-faceted, multi-sensory approach to teaching utilizing audio-tapes in a supervised self-instructional learning center (6).

This approach has the capability of integrating and appropriately sequencing the use of learning media and materials. It can be readily adapted to the great variation in students' backgrounds, aptitudes and interests, while it still places the responsibility for learning on the student. Finally it leaves the teacher free to work at his main task, that of teaching.

S. N. Postlethwait, a biology professor at Purdue University, has been a pioneer in the use of audio-tutorial instruction. He was concerned because some of the students who had weak backgrounds in botany were unable to keep up with the class. Consequently, he began putting supplementary lectures on audio tapes for use by these students at times convenient for them. In the beginning photographs and diagrams were made available so that the students could be directed, by the tape, to examine some item being discussed on the tape. As the tapes progressed, the student was directed to open his textbook and follow the explanation offered there in conjunction with the lecture on tape. As time went on, living plants were added to the packet of materials and finally a lab manual was included wherein students were instructed to do certain experiments in conjunction with each lesson. By the end of the semester a learning kit was prepared weekly, thus the students could actually complete an entire week's assignment without ever having to attend the classroom sessions. Since the students responded so favorably to this idea, 36 students

were offered the entire course via tape. Once each week an instructor would meet with this section to discuss the material covered that week and to test the students. These students were required to take the same examinations as students in the conventionally-taught classes. A comparison was made at the end of the semester of the two groups, and the results showed no difference in the achievement. The 36 students who were in the experimental group were interviewed to obtain their opinions as to how a flexible program could be set up that would also provide the quality of instruction necessary to prepare them for advanced studies in science. As a result of these interviews a freshman botany course at Purdue was permanently established utilizing audio-tutorial instruction (64, pp. 7-8).

In 1954 the Psychology Department at the University of Michigan instituted a study aimed at discerning the difference in three methods of college teaching. These three methods were recitation, discussion and tutorial. Much to the surprise of those conducting the study, no differences were found in the three teaching methods. Interestingly, they concluded that one of the major inadequacies of this and most similar studies is that no provision was made to check on differences in the retention of the knowledge of the students (38, pp. 204-205). One of the basic aims of instruction is to present the material in such a way as to allow the students to remember it as long as possible. Consequently, it is important that any

considerations of the teaching-learning process consider the element of retention.

One of the basic principles of audio-tutorial instruction is that it does not require the supervision of an instructor. Several studies have been conducted regarding the effectiveness of supervised versus non-supervised programmed instruction. One such study was completed at Purdue University in 1962 using a mathematics course. At the conclusion of the study it was determined that the non-supervised completion of programmed instruction was less effective than that which was supervised (9, p. 210). This study dealt completely with textbook materials and was not supplemented with audio tapes or other visual materials. This study is cited as a beginning study of teaching methods to show that the inclusion of materials other than printed matter tends to improve the instructional level.

Since Postlethwait's original study using audio-tutorial instruction, other similar experiments have been done. Detroy E. Green, agronomist at Iowa State University, initiated a study in Agronomy 114. The teaching staff for this course went to Purdue University in 1965 and garnered first-hand information from Postlethwait about his experiment (77, p. 13). A conventional laboratory was set up for this course in the fall, and then due to dissatisfaction with this method an audio-tutorial-station type of instruction was established during that winter quarter. Green feels that success of this type of instruction depends on:

1. Brief concise instructions at each station.
2. Good study materials at each station.
3. Enough stations so that the students can have ample space for study.
4. Classrooms which can be kept open all day and possibly evenings.
5. Laboratory instructors who are willing to give up the lecture method of presentation and walk several miles during each laboratory period 'nipping' at the lazy students, challenging the fast students, and answering questions as needed. (35, p. 55)

An evaluation of this audio-tutorial method of laboratory instruction was made over a period of three quarters. Two sections of approximately 25 students each were randomly selected each quarter to go through this experimental method of instruction and were compared with the other students going through the station type of instruction. Only 4.14 per cent of the students in the audio-tutorial (A-T) section dropped the course, compared with 6.19 per cent drops in the other group. The weekly grades for the A-T method were higher averaging 77.1 per cent, 83.7 per cent, and 81.8 per cent respectively per quarter compared to 71.7 per cent, 73.8 per cent, and 72.7 per cent for the other group. The final examination grades, however, were approximately the same for the two groups (79). Green indicated, however, that the conventional group reviewed extremely hard for the final, while the A-T group felt that they had their grade made, and knew the



material well enough that they didn't have to study to do a good job on the final.

Ted E. Surdy, Kansas State Teachers College, Emporia, Kansas, has been using A-T instruction in a bacteriology course for two years. This experiment combines the lecture and laboratory content into one individualized course. He feels that this method has been highly successful and contends this is largely due to the close contact between pupil and instructor. There is more efficient usage of space and personnel, but most important is the return to the student of much of the responsibility for learning. The empathy between student and instructor that is established is another positive factor in the use of this A-T method (18).

H. D. Foth, R. J. Crabtree, and J. W. Schafer at Michigan State University reported on a Programmed Instruction in Soil Science in the Agronomy Abstracts. This dealt primarily with how the course was structured, then Foth reported the results of the experiment in the Educational Development Program. His results are concerned primarily with the attitudes of the students involved in the program. Some of the more salient findings were: 37 per cent felt their minds wandered while listening to tapes, perhaps an indication more visual aids should be used; and 68 per cent agreed with the statement that, "This has been one of the most interesting and stimulating science courses I've had in college" (33, pp. 7-8).

H. C. Smith and L. N. Skold, University of Tennessee, after two years of using A-T methods in Plant Science instruction, have delineated some of the following advantages. Students can control their speed of study, learning and retention are improved through repetition, and different communication avenues stimulate interest and maintain attention. They also feel that this increases the student's ability to study as well as the instructor's enthusiasm, and there is a better utilization of space, equipment and staff time once it has been developed (3, p. 147).

Harmon, of the College of Agriculture, University of Illinois, has used a similar technique in teaching Pork Production. He reports the same primary advantages as the other researchers with perhaps one additional advantage. He feels that this technique provides a medium for coverage of additional objectives of gifted students (10, p. 7).

Postlethwait suggests seven steps be followed in the preparation of an A-T lesson. First, "list all of the objectives of the unit." Here you are primarily concerned with knowing each achievement that is expected of the student. Second, "list all of the available media and teaching aids which might be useful in accomplishing the above objectives." This would include everything from sections of the text to films and audio tapes to be used. Third, "select the media adapted to the subject." This can best be accomplished by listing the objectives, then write alongside them the best way

to accomplish these objectives. Fourth, "list the study activities in their proper sequence." Here one should prepare so that each activity builds on the next. Fifth, "assemble the materials to be programmed by the audio tape." This should direct the student through the entire lesson in such a manner that the student feels the instructor is talking directly to him. Sixth, "have the audio tape transcribed and edited critically." This should eliminate much of the redundancy occurring in ordinary conversation. Seventh, "make the final tape." This could probably best be accomplished by reading this from a typed transcript from the edited tape (62).

Postlethwait feels that teaching should be approached in the same way that a scientist investigates a research problem. He should define his problem, then adopt his resources to the solution of the problem. He has an obligation to provide the facilities to the best of his ability and to motivate his students (60, p. 1). He has estimated it is possible to include 50 per cent more subject matter using the A-T method, consequently he feels that the A-T method of instruction is one of the answers to this problem (35, p. 55).

## DESIGN OF EXPERIMENT

The problem of this study was to determine if the in-basket materials might effectively be adopted to teach school law concepts to preservice teachers. It was also designed to determine if this type of instruction was significantly different from the traditional lecture method of instruction. This chapter describes the methods and procedures that were used to develop the materials used in the study, and to gather and analyze the data required for the study. It has been divided into five parts:

1. Selection of the population for the study
2. Preparing the materials
3. Orientation, execution and review
4. Testing
5. Treatment of the data

### Selection of the Population

The course, entitled Principles of Secondary Education, is offered in conjunction with student teaching. Generally speaking, students are enrolled in this class for six weeks and complete their student teaching assignment the other six weeks. Usually about one-half of the students are student teaching the first half of the quarter and then they change places with the other group during the second six weeks. It has been the policy at Iowa State University to put the great majority of seniors in education into this sequence in the

fall quarter. It was decided that the fall quarter would be the best time to run the experiment because more students could be involved in the study at this time.

Once this was determined, the actual job of selecting the control and experimental groups was completed. A class list for each half of the quarter was obtained from the registrar's office. Each student enrolled in the class the first session of the quarter was given a number. The students were numbered serially according to the class list.

Slips of paper were cut, each one inch square, and each slip received a number corresponding to a student number. These slips were thoroughly mixed and then drawn one at a time until one-half of the numbers had been drawn. The students' names corresponding to these numbers were then listed, and this list became the population for the experimental group. In this way the population was systematically and randomly selected. The same procedure was followed for the group enrolled in the course for the second half of the fall quarter.

#### Preparing the Materials

##### Delineation of concepts

Certain concepts of school law, deemed important for teachers to know, have been included in a law unit of Education 426 in the past. It was thought that this would be the most appropriate unit to superimpose on the in-basket materials for this study. Next, concepts considered to be most important

were listed. The list of law concepts was gleaned from several school law textbooks. This list was then sent to a panel of experts with the following cover letter:

Basic elements of school law have been one of the units that has traditionally been taught to students in Education 426, Principles of Secondary Education. I am proposing to teach the school law unit to one-half of this class using simulated materials as part of a study for my dissertation. I am asking a group of educators to serve as a panel to help determine pertinent content areas to be covered. I have selected twenty-three such areas from text books concerned with school law.

I would like to know your opinion as to whether you feel these concepts are important for students going into the teaching profession to understand. Please rate the value of each of these concepts in a law unit. Rate these ten to one, with ten being, the concept definitely should be taught, to one being, this concept is irrelevant. There is also a question marked 'A' that I ask you to respond to, using the same rating scale, ten to one.

This panel of educators was selected from the Iowa State University faculty within the Department of Education and from the teacher education faculty within the disciplines preparing teachers. Practicing administrators and teachers were also included in the panel.

The question marked "A", referred to above, asked whether they believed school law should be included in this course as a critical unit. The mean score for this question was 8.93 out of a possible ten. It was concluded that a need was established and that the unit was desirable.

The questionnaires were tabulated (included as Appendix A) and a mean score for each question was calculated. It was decided that any concept that had a mean score of over 5.0

would be included in the unit. There were eighteen law concepts finally delineated for inclusion into the unit.

Richard P. Manatt, Associate Professor of Education at Iowa State University, taught the control group. The eighteen concepts were discussed with Professor Manatt so that each group would be given information about the same concepts. Each group was to receive this information in a different way, one by lecture and the other by simulated materials presented audio-tutorially. Each instructor had complete freedom in the type and amount of information given to his students.

#### Formulation of problems

The challenge here was to present the students with problems in such a way that, in arriving at their solution, they would understand the law concepts inherent in the problem. In order to completely cover the eighteen concepts, thirty problems were concocted for the students to solve. These problems were divided into two groups: 1) those to be presented in written form, and 2) those to be presented in audio tape. Twenty-one were written and nine were on audio tape. These were then broken down into three baskets. Basket A had seven written and three audio problems that took place the week before school started. Baskets B and C had the same array of problems and took place in February and May, respectively.

An attempt was made to make each problem as realistic as possible. The problems were formulated using language and

grammar that one might expect in each situation. Once the problems had been written, they were reproduced on masters by a number of different individuals in their own handwriting, again trying to present each situation as authentically as possible. Finally, the tapes were made using several different actors playing the roles.

#### Formulation of reference material

Once the in-baskets were completed, it was necessary to develop reference material to be used to solve these problems. The first step was to discuss with Leonard Abels, legal consultant with the Iowa State Department of Public Instruction, the problems that had been developed. It was imperative that the correct reference be cited with respect to each problem and Mr. Abels qualified as an expert to make this determination. The following reference materials were developed and included for the students' use:

1. Policies and Procedures; Board of Education, Holley, Lafayette. These were patterned after an actual set of policies in use.

2. Lafayette School Laws. These were selected code citations taken from the School Laws of the State of Iowa.

3. Appendix A. This was a case dealing with teacher contracts taken from Code of Iowa 107.

4. Appendix B. These were excerpts taken from The Law and Public Education by Hamilton and Mort. Included in these



excerpts were information with respect to the First Amendment, Fifth Amendment, Fourteenth Amendment, Power to Require Salute to the Flag, Membership in Labor Unions, Right to Strike, Teacher Tenure Laws, Attainment of Tenure, Grounds for Dismissal of Tenure Teachers, Expulsion and Suspension of Pupils in General, Legality of Corporal Punishment, and Right of School Authorities to Withhold Diploma.

5. Appendix C. This was a law case in which "in loco Parentis" was well defined.

6. Appendix D. This was a brief paragraph telling how John Peter Zenger was tried for seditious libel and how the determination of this case has served as a landmark in cases involving libel and slander.

7. Appendix E. This was a reproduction of two published works. The first part was Senate File 710, a new statute dealing with tort liability in public schools. The second part was a summary, written in 1966 by Leonard C. Abels, about tort liability.

8. Appendix F. This was the reproduction of a letter, written by the State Attorney General, concerning religious services in school classrooms.

9. Appendix G. This was a reproduction of a teacher's contract.

All of these materials, plus a list of the personalities involved in the in-basket problems, were placed in a large

envelope. These were then used in conjunction with the A, B, and C baskets.

### Test development

It was decided that a panel of experts should be employed to develop the tests to be used as pre-, post-, and retention tests for the study. This panel was utilized so that the problems wouldn't be aimed at specific test questions and therefore bias the study. The panel was selected from among practicing administrators who had studied school law. They were charged with the responsibility of producing two hundred matched test questions, focusing upon the eighteen concepts previously delineated. After the two hundred questions had been completed they were divided into test I and test II. These tests were given to an educational methods class in an attempt to perfect the instrument. After this class had taken the tests, an item and reliability analysis was completed on each test. The item analysis was divided into two parts, discrimination analysis and difficulty analysis.

"An ideal test is comprised of items answered correctly by more high scoring students than low scoring students" (78, p. 7). A discrimination analysis will determine this. A test is scored and the test papers are divided into upper and lower half, according to the number right on the test. The number of correct responses to a given item by the lower half is subtracted from the number of correct responses made by

the upper half, and an indication of discrimination is obtained.

If the result is positive, the item discriminates against the poor students and should be retained. If the result is negative, the item discriminates against the good students, and should be revised or rejected. (78, p. 7)

Next an index of discrimination was computed. This was done by dividing 10 per cent of the number of students who attempted the item into the difference obtained when the lower half was subtracted from the upper half.

An item is considered positively discriminating if the index is +1.00 or larger. Negatively discriminating items (-1.00 or lower) and items that do not discriminate (at or near 0.00) should be revised or rejected. (78)

A difficulty index was computed for each item. This was done by dividing the total number attempting an item into the number who answered it correctly and subtracting that from 1. ( $1 - NR/TA$  where NR is number right and TA is total answering). The item difficulty could range from 0 per cent, everyone answered the question correct, to 100 per cent, everyone answered the question wrong.

Items which are approximately 50% difficult provide the greatest dispersion of test scores. The greater the score dispersion, the greater the reliability. . . . items with difficulty greater than 70% are too hard for the achievement level of the group testing and should be omitted or revised; items with difficulty less than 10% are too easy and should be omitted or revised. (78)

Each of these steps was followed for all the items on both tests, and all with a discrimination index of less than

0.70 were either omitted or revised. Those with a difficulty index of greater than 70 per cent or less than 20 per cent were omitted or revised. After this had been done, two new tests were formulated with 83 matching questions on each.

The reliability of the instrument was then determined. The reliability estimates the accuracy or precision of measurement. "A low index indicates that the test is not a good measure and should not be taken seriously in evaluating students" (78). The Kuder-Richardson formula 20 was used to calculate the reliability estimate. This formula is as follows:  $R = (n/n-1)[1 - \sum \sigma_j^2 / \sigma_x^2]$  where;

$R$  = reliability

$n$  = number of test questions

$$\sum \sigma_j^2 = P_1(1-P_1) + P_2(1-P_2) + . . . . . + P_n(1-P_n)$$

$$\sigma_x^2 = \frac{\sum X^2}{N} - \frac{(\sum X)^2}{(N)}$$

The reliability on each of the two tests was .93. From this it was concluded that these tests were adequate measures for evaluating students.

The two new tests were then given to another education class so that these instruments could be further refined. Once again a complete analysis was done on each test. The reliability was .97 on test I and .96 on test II. The weaker questions were omitted or revised, and two final tests of 56 questions on each was finalized. These, then, were the instruments used to gather the data for this study.

The final step was to physically assemble the experiment in the Instructional Resources Center (IRC), on the third floor of Curtiss Hall. The audio-tutorial booths were assembled and the in-basket materials were placed in their proper places. All, then, was in readiness for the beginning of the experiment.

#### Orientation, Execution, and Review

Once the pre-test, which will be discussed later, was given, the experimental group was subjected to an orientation session. While this was taking place the control group (the one utilizing the lecture method) began the first hour of their seven hours of formal instruction. The orientation was divided into two segments. The first dealt with giving the students information about the school district and the job, plus a rundown on the list of characters in the experiment. The second concentrated on the mechanics that the student must follow. A student would go into the IRC, pick up either basket A, B, or C, a packet of reference materials, an answer sheet and an audio tape corresponding to the basket chosen. The student put the tape on a tape recorder, put on a set of head phones and turned it on. There were three problems strategically positioned on each tape. As the student worked on the regular in-basket problem, he would periodically be interrupted by problems on the tape. The student was then

required to stop what he was doing and solve this new problem presented to him.

It has been previously stated that these students were to acquire knowledge about 18 law concepts, deemed important for teachers to know. The students solved problems, and in so doing acquired knowledge of these concepts. In order to best facilitate this action, the students were asked to play the role of the high school principal. They were cast in this medium since it provided the vehicle best able to adapt to the desired flexibility needed in the experiment.

Each student in the experimental group was asked to keep an accurate log of the time they spent on the experiment. This was done by a sign-in and sign-out time on each answer sheet. The students in the control group were given time sheets to keep track of their time in class, and also the extra study time they spent outside of class. These times were used to determine the mean time spent by each group.

Finally, the students in the experimental group were given, on the last day of their in-basket work, a sheet serving as a review of the material they had just covered. It was decided that this method should be used for their review instead of someone answering their questions, because of the possibility of introducing another teacher variable into the study.

### Testing

The testing was done in three different phases. The pre-test was on the second Friday of the quarter when the students were given test I. The answers to these tests were marked on an IBM 805 form and were machine scored. The post-test was given 10 days later and was announced for that time during the pre-test. Test II was used for the post-test.

An attitude questionnaire was given to the students at the time of the post-test where they were asked which group they were in, which would they rather have been in, and what were the strengths and weaknesses of each group as they saw them.

Then, unannounced, a retention-test was given two weeks after the post-test. Test II was also used for the retention test. This is the schedule followed by the students in the first half of the fall quarter. The second group did the same thing only exactly six weeks later.

### Treatment of Data

The primary objective of the experiment was to assess the relative effectiveness of the audio-tutorial method of instruction to the lecture method, as measured by the pre-test, post-test and retention test. It was also desired to investigate whether the relative effectiveness of the two methods differed by two classifications of the subjects: 1) whether or not the subject had taken student teaching, and 2) achievement level.

This latter classification was measured in terms of grade point ratio of the student; each student was classified as high achievement if his grade point ratio exceeded 2.80, or as low achievement otherwise. The value 2.80 (based on A = 4.00, B = 3.00, etc.) was chosen so that approximately one-half of the subjects were contained in each group. Table 1 indicates the number of students contained in the three-way classification, group (experimental and control), by achievement level, and by whether or not student teaching experience had been completed.

Table 1. Experimental subjects by group, achievement level, and whether or not student teaching experience had been completed

Group	Student teaching experience completed				Total
	Yes		No		
	High Achieve- ment	Low Achieve- ment	High Achieve- ment	Low Achieve- ment	
Experimental	27	22	33	26	108
Control	22	29	28	32	111
Total	49	51	61	58	219

Therefore, the appropriate analysis for the experiment can be defined as a multifactor analysis of variance with repeated measurements on subjects. The factors consisted of group, achievement level and whether or not student teaching experience had been completed. The repeated measures were pre-,



post- and retention test, and the variable of interest was the test score. The sources of variability and the effects isolated in the analysis can be shown by means of the following linear model:

$$Y_{ijklm} = M + G_i + A_j + S_k + GA_{ij} + GS_{ik} + AS_{jk} + GAS_{ijk} + P_{l/ijk} + T_m + GT_{im} + AT_{jm} + ST_{km} + GAT_{ijm} + GST_{ikm} + AST_{jkm} + GAST_{ijkm} + PT_{lm/ijk}$$

Where  $Y_{ijklm}$  = the  $m$ th Test on the  $l$ th person within the  $i$ th group,  $j$ th achievement level, and  $k$ th student teaching group

$M$  = over all grand mean

$G_i$  = group,  $i = 1$  for experimental, 2 for control

$A_j$  = achievement level,  $j = 1$  for high, 2 for low

$S_k$  = completed student teaching,  $k = 1$  for yes, 2 for no

$GA_{ij}$  = interaction of the  $i$ th group with  $j$ th achievement level

$GS_{ik}$  = interaction of the  $i$ th group with  $k$ th student teaching group

$AS_{jk}$  = interaction of the  $j$ th achievement level with  $k$ th student teaching group

$GAS_{ijk}$  = interaction of the  $i$ th group with the  $j$ th achievement level and the  $k$ th student teaching group

$P_{l/ijk}$  = the  $l$ th person within the  $i$ th group,  $j$ th achievement level, and the  $k$ th student teaching group

$T_m$  = the  $m$ th test,  $m = 1$  for pre, 2 for post, and 3 for retention

$GT_{im}$  = interaction of the  $i$ th group with the  $m$ th test

$AT_{jm}$  = interaction of the  $j$ th achievement level with the  $m$ th test

$ST_{km}$  = interaction of the  $k$ th student teaching group with the  $m$ th test

$GAT_{ijm}$  = interaction of the  $i$ th group with the  $j$ th achievement level and the  $m$ th test

$GST_{ikm}$  = interaction of the  $i$ th group with the  $k$ th student teaching group and the  $m$ th test

$AST_{jkm}$  = interaction of the  $j$ th achievement level with the  $k$ th student teaching group and the  $m$ th test

$GAST_{ijkm}$  = interaction of the  $i$ th group with the  $j$ th achievement level, the  $k$ th student teaching group and the  $m$ th test

$PT_{lm/ijk}$  = interaction of the  $l$ th person with the  $m$ th test, within the  $ijk$ th class

The effects of the three classifications, group, achievement level and student teaching experience, are based on the test totals; therefore, the appropriate error term for

significance tests on factors and their assorted interactions is the term, person within classification (  $P_{1/ijk}$  ). This term measures the variability of persons within groups and is essentially a pooled within error term based on tests summed across person.

The error term for significance tests of the effect of Test and its associated interactions is Person by Test interaction, within class (  $PT_{lm/ijk}$  ). This term indicates the consistency of differences between tests for individuals within classification groups.

Since the numbers of persons within subcells of the three-way classification were unequal, the analysis of variance was computed on unweighted cell means. For a description of the analysis and computation procedures applicable to this design, see Chapter 7 in Winer (86).

## FINDINGS

Four questions were posed under the problem in Chapter 1, and four null hypotheses were set forth to be tested. Because of the nature of the questions, only one can be answered here. This one deals with time and will be discussed later in this chapter. The other three questions call for conclusions and these will be discussed in the final chapter.

The four null hypotheses were tested, as a part of the overall analysis of the study, and the analysis of variance is presented in Table 2. Null hypothesis number 1: There is no significant difference in the learning (as measured by the raw score differences between pre- and post-tests) under audio-tutorial methods and traditional methods of instruction in school law, was rejected. The analysis failed to reject null hypotheses 2, 3, and 4 which were: There is no significant difference in learning (as measured by the difference in pre- and post-tests) between the students who have had student teaching and those who have not had student teaching; There is no significant difference in learning (as measured by the difference in a pre- and post-test) between the main effects and interactions of the following variable characteristics of students: College grade point, whether or not the student had had student teaching, and the students' respective scores on the different tests that they will take; and There is no significant difference (as measured by the post-test number

Table 2. Analysis of variance

Source	Sum of squares	df	Mean squares	F
1. Group ( G )	5.73314	1	5.73314	5.11887**
2. Student Teaching ( ST )	1.07117	1	1.07117	0.95635
3. Achievement Level ( A )	14.39945	1	14.39945	12.85665**
4. ( G ) x ( ST ) x ( A )	1.78760	1	1.78760	1.59607
5. ( G ) x ( ST )	0.90096	1	0.90096	0.80443
6. ( G ) x ( A )	0.01550	1	0.01550	0.00138
7. ( ST ) x ( A )	7.31517	1	7.31517	6.53140**
8. Error <sub>1</sub> [People/Group]	236.32000	211	1.12000	
9. Test ( T )				
c <sub>1</sub> Pre-Test vs Post and Retention	666.46133	1	666.46133	1784.36766**
c <sub>2</sub> Post-Test vs Retention	1.43125	1	1.43125	3.83199*
10. ( T ) x ( G )				
c <sub>1</sub> x ( G )	6.17769	1	6.17769	16.53973**
c <sub>2</sub> x ( G )	0.12250	1	0.12250	0.32798
11. ( T ) x ( ST )				
c <sub>1</sub> x ( ST )	0.62376	1	0.62376	1.67539
c <sub>2</sub> x ( ST )	0.01225	1	0.01225	0.03280

Table 2. (Continued)

Source	Sum of squares	df	Mean squares	F
12. ( T ) x ( A )				
c <sub>1</sub> x ( A )	0.25731	1	0.25731	0.68892
c <sub>2</sub> x ( A )	0.04251	1	0.04251	0.11382
13. ( T ) x ( G ) x ( A )	0.20631	2	0.10315	0.27618
14. ( T ) x ( G ) x ( ST )	0.11932	2	0.05966	0.15973
15. ( T ) x ( ST ) x ( A )	1.07718	2	0.53859	1.44200
16. ( T ) x ( ST ) x ( G ) x ( A )	2.18689	2	1.09345	2.92756
17. Error <sub>2</sub> [People x ( T ) / ( G )]	1502.21700	422	0.37350	

two, given two weeks after post-test number one) in the retention of the content, between the students' having been taught by the audio-tutorial and the traditional lecture method.

Nineteen F values were computed in the analysis and the more salient findings are presented in various tables. These findings are presented, through a tabling of means calculated on the subjects. Of particular interest to this study was the rejection of null hypothesis number 1.

Table 3. Test by group; means

Test	Group	
	Experimental	Control
Pre	26.267	26.725
Post	38.732	37.212
Retention	38.312	36.442

There was a highly significant difference in the two methods of instruction, with the audio-tutorial method proving superior to the lecture method. This, of course, was measured by the achievement, or growth over time, of the students in each treatment group. This finding is to be taken to mean exactly as has been stated, and any conjecture as to the ramifications of this finding is reserved for the final chapter.

The failure to reject null hypothesis number 2 points up the fact that there was no significant difference in learning, dependent upon the student teaching experience. This is reported in Table 4. The student teaching experience did produce an attitude change on the part of the student, as was summarized in Tables 13 and 14; however, the difference in learning was not significantly affected by student teaching.

Table 4. Test by student teaching; means

Test	Student teaching	
	Yes	No
Pre	26.515	26.477
Post	37.637	38.307
Retention	37.060	37.695

Both null hypotheses 2 and 3 removed group interaction as one of the factors. Should either of these be rejected, it would show that the instructional method was not the only factor significantly affecting student achievement.

In Table 5 the data revealed that the test interaction with student teaching and achievement was not significant.



Table 5. Test by student teaching by achievement; means

Test	Student teaching			
	Yes		No	
	High (A)	Low (A)	High (A)	Low (A)
Pre	26.875	26.155	27.395	25.560
Post	37.755	37.520	40.015	36.600
Retention	37.250	36.870	39.050	36.340

Additional information deemed pertinent to this study is presented in some of the preceding tables for various reasons. The highly significant F value for the main effect groups, as shown in Table 6, is not relevant to the experiment, because it is summed across all tests.

Table 6. Group; means

	Group	
	Experimental	Control
	34.437	33.460

This actually means there was a difference in the average of all three tests--pre, post, and retention--between the groups. This information is not important to this study because the pre-test means are in the grand means.

Table 7 contains the same type of information that Table 6 presents. The only difference is that instead of group main effect, achievement level main effect is presented.

Table 7. Achievement level; means

	Achievement level	
	High	Low
	34.723	33.174

Again this is highly significant from the statistical standpoint, but irrelevant to the study in that it too was summed across all tests.

The information presented in Table 8 represents the means of the interaction of the student teaching experience and achievement level.

Table 8. Interaction of student teaching and achievement level; means

Student teaching	Achievement level	
	High	Low
Yes	32.833	33.515
No	35.487	33.960

This is also summed across all tests and is inapplicable to this study. The highly significant F value of this source merely indicated a difference of the average of the three tests in the student teaching, achievement level breakdown in the analysis.

The data in Table 9 revealed, as was expected, a highly significant difference between the pre-test and post-test scores.

Table 9. Test; means

	Test		
	Pre	Post	Retention
	26.496	37.972	37.377

The means in Table 9 represent all the students' scores, irrespective of group. A substantial growth can be observed indicating considerable learning in the period between the pre-test and post-test. A significant difference was observed between the post-test and the retention-test, although only a loss of .595 questions occurred.

Table 10 discloses the means for the test by group by achievement level interactions. Although this source was not significant, it is included because of the test, group interaction. This information is very important because it

indicates that the achievement level of the student was not a determining factor in their learning ability for this experiment.

Table 10. Test by group by achievement level; means

Test	Group			
	Experimental		Control	
	High (A)	Low (A)	High (A)	Low (A)
Pre	26.785	25.750	27.485	25.965
Post	39.745	37.720	38.025	36.400
Retention	39.030	37.595	37.270	35.615

The same type of information is included in Table 11, the only difference being that test by group by student teaching experience interaction was examined for significance instead of test by group by achievement level interaction. Again no

Table 11. Test by group by student teaching; means

Test	Group			
	Experimental		Control	
	Yes (ST)	No (ST)	Yes (ST)	No (ST)
Pre	26.475	26.060	26.555	26.895
Post	38.680	38.785	36.595	37.830
Retention	38.105	38.520	36.015	36.870

significant difference was found, and this is important as it points out that the student teaching experience did not significantly affect the learning ability of the students.

The mean time that each group spent on the experiment is entered in Table 12. The experimental group's time represented

Table 12. Time by group; means

Group	
Experimental	Control
6.01 hours	8.32 hours

actual time in the experiment plus outside review, and the control group's time included time in class and outside review and reading. The control group spent 38.44 per cent more time on the unit and, as has been stated, did significantly poorer than did the experimental group. This time differential will be discussed further in Chapter 5.

It can be noted by the summary of data in Tables 13 and 14 that the student teaching experience did affect the attitude of the students. Table 13 shows the responses of the students who had not had student teaching to the questions: which group were you in? and, which group would you rather have been in? The control group was preferred over the

experimental group by 76 of the 119 students questioned. Only 60 students of these 119 were actually in the control group.

Table 13. Group by attitude for non-student teachers

	Group	
	Experimental	Control
Which group were you in?	59	60
Which group would you rather have been in?	43	76

The data presented in Table 14 is for the same questions; however, the group had completed their student teaching experience. Again a marked difference is evident, in that 62 of

Table 14. Attitude by group by those having had student teaching

	Group	
	Experimental	Control
Which group were you in?	49	51
Which group would you rather have been in?	62	38

the 100 indicated a preference for the experimental group, although only 49 were assigned to this group. The student teaching experience definitely did influence the students' attitude toward the method of instruction that they preferred.

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

## Summary

The problem was to determine if simulated materials could be developed for instruction similar to those first developed by the UCEA for graduate instruction in Educational Administration; for teaching of school law to pre-service teachers in a course entitled Principles of Secondary Education. More specifically the problem was to test the following null hypotheses: 1. There is no significant difference in learning under audio-tutorial methods and traditional methods of instruction in school law. 2. There is no significant difference in learning between the students who have had student teaching and those who have not had student teaching. 3. There is no significant difference in learning between the main effects and interactions of the following variable characteristics of the students: college grade point, whether or not the student has had student teaching, and the students' respective scores on the pre-, post- and retention tests. 4. There is no significant difference in the retention of the content between the students having been taught by the audio-tutorial and the traditional lecture method.

The experiment was designed in such a way that the 219 students in Education 426 were randomly divided into experimental and control groups. The control group was subjected to the lecture method of instruction for a unit on school law, and

the experimental group was taught the same unit concepts audio-tutorially using specially prepared simulated materials. All of the students were pre- and post-tested to measure growth over time and were given a retention test two weeks after the post-test.

A multifactor analysis of variance with repeated measurements on subjects was used to treat the data. The factors consisted of groups, achievement level and whether or not student teaching experience had been completed. The repeated measures were pre-, post- and retention test, and the criterion variable was the test score.

The only significant F value emerging from the study, that was pertinent to the study, was in the two methods of instruction. The results indicated that the audio-tutorial method of instruction was significantly better than the lecture method. The other factors and their interactions did not significantly affect the ability of the students to learn in this experiment.

Actual time was recorded by each student of the time he spent on the unit during the experiment. The group utilizing the lecture method spent 38.44 per cent more time on the unit, yet the audio-tutorial group achieved significantly better.

The student teaching experience varied directly with the students' attitude toward the method of instruction that they preferred. Although there was no significant difference in achievement attributed to the student teaching experience, the



students who had experienced student teaching preferred the audio-tutorial method, and those who had not had this experience preferred the lecture method.

### Limitations

This study was limited to senior students at Iowa State University who were taking Education 426, Principles of Secondary Education. This is the last course in the Teacher Education sequence and any conclusions drawn from the study should not be generalized beyond this group.

This study examined two methods of instruction, audio-tutorial and lecture. Any comparison of instructional methods must be limited to these perimeters.

The content of the unit chosen for this experiment focused on concepts in school law. This unit was only one of several in the course; consequently, discussions about methods of instruction for this course must be restricted to just the school law unit.

The facilities that were available for this experiment were small in number, compared to the number actually needed. Only eight audio-tutorial booths were in the Instructional Resources Center, and during the time of the study, only six were operational at times. If there had been more units at the disposal of the students, perhaps they wouldn't have been

rushed by the impatience of students waiting in line and would have spent more time on the in-basket problems.

A retention test was given two weeks after the post-test. If there had been more time between these tests, a significant difference in the retention of the two groups might have been found. The duration of this course was only six weeks, therefore it was impossible to allow more than two weeks between the tests.

Every effort was made not to add unmeasurable factors to the study. Because of this, the students were not given immediate reinforcement to their solution of the problems. It was feared that if someone was stationed in the audio-tutorial center to give this reinforcement or to answer their questions, an additional teacher variable would be introduced that might contaminate the study. Therefore, the students progressed through the unit without knowing whether they were really grasping the desired concepts.

It was important that the students were properly oriented to the role that they were to assume, that of the high school principal. A suitable orientation would have covered the job specifications for the principal, a complete background on the school, teachers, and students, and a thorough understanding of the community. Since the course only covered a period of six weeks, the time allotted for this unit was understandably short. Only one hour was used to give this entire information plus the procedure the students were to follow in completing

their assigned responsibilities. This time was not sufficient to properly orient the students; consequently, it is improbable that they became completely engrossed in their role. This shortcoming may have affected the tenacity with which the students attacked the problems.

Another limitation was the nature of the study itself. If the results of a study are to be useful in the implementation of its findings or to serve as a bench mark for further research, the study must be easily adaptable to these uses. The simulation of situations is a costly and time consuming endeavor. Because of this, it is improbable that time or resources, especially instructor time, would be available to fully utilize the findings in a study such as this.

One of the questions pertinent to a study of this nature is: How do you measure, or control for, the "Hawthorne Effect"? The students were randomly selected and then both groups were informed they were going to receive instruction by a special method. In this way both groups felt that they were a part of the study and one group was not singled out as the experimental group. Hopefully, by using this manner the "Hawthorne Effect" was minimized.

### Conclusions

At the beginning of this study, there were four questions asked and four null hypotheses stated to be tested. The first question was: Can a teaching unit involving school law be

superimposed on the UCEA materials, or materials developed specifically for this course using the same format? The results of this study reveal that the students using these materials which were developed learned significantly more than the students being subjected to the lecture method of instruction over the same material. From this it can be concluded that a unit can be developed using this format.

The second question asked whether there was an economy of time involved by using these materials. Time is of the essence for Education 426 (because of the six weeks' duration), and the lecture method group spent 38.44 per cent more time than did the audio-tutorial group. It is evident that there was an economy of time by the use of these materials. The audio-tutorial group did significantly better than did the lecture group, but had there been no learning differences, the experimental treatment should be used for the time-saving feature.

Question number three was: Are students more highly motivated in the area of school law by having been exposed to these materials? In approximately the same vein, question number four was: How do these experiences in dealing with these materials affect their attitude toward the entire course? Professor Richard Manatt, instructor for the course, indicated that he thought the students exposed to these materials did appear to be more highly motivated both in school law and for the rest of the course. It is difficult to make a judgment

about this; however, his observations were the only attempts to these questions.

Null hypothesis number 1, which said there was no significant difference in learning between the two instructional methods, was rejected. It was found that the audio-tutorial method of instruction was significantly better than the lecture method of instruction at the .01 level. Within the limitations previously set forth, it can be stated that the students learned more under the audio-tutorial method of instruction.

Three factors of the study were considered, along with their interactions. The student teaching experience did not affect the students' ability to learn, and neither did the achievement level of the student. Consequently, it is concluded that the method of instruction, the third factor, was the significant entity to which can be attributed the difference in the learning ability of the two groups.

Stringent boundaries were established for this study so that outside influences could be controlled as much as possible. If the students had been given immediate reinforcement, and had an instructor been available to answer their questions, then there is the distinct possibility that the audio-tutorial group would have scored even higher than they did.

The final conclusion is that the student teaching experience made the students more perceptive toward the audio-tutorial method of instruction. Even though there was no

significant difference in achievement attributed to this experience, the attitude of these students toward audio-tutorial instruction was much more favorable than by those students who had not had this experience.

### Recommendations

The following recommendations are made for teaching learning situations in general and Education 426 specifically:

1. The audio-tutorial method of instruction should be utilized to teach the unit in school law in the course entitled, Principles of Secondary Education 426.

2. The Department of Education at Iowa State University should procure its own audio-tutorial booths in a learning laboratory. The number of booths in the Instructional Resources Center is inadequate for use by an entire class, and are intended for demonstration purposes only.

3. If this unit is taught again using the simulated materials, or if other classes are taught utilizing this technique, more visual aids should be developed for a more complete orientation of the subjects to the problem.

4. Should this study be duplicated or classes taught in this manner, a method of immediate reinforcement should be made available to the student. An instructor should be present to answer any questions that might arise.

5. A very simple questionnaire was used to determine the students' attitude toward the audio-tutorial method of

instruction. A more sophisticated attitude survey might have proven beneficial for use by later studies. If another study using this method were attempted, then a more complete attitude survey would be recommended.

6. The time and cost involved in developing materials for an entire course makes this a difficult task. Materials could be developed, however, and presented audio-tutorially for enrichment of certain units in a course. It is suggested that this would be applicable to a great variety of courses.

7. In-service training of teachers provides another valuable use of simulated materials. Not only would the concepts be useful in teaching instructors, but this would also provide an excellent review for those concepts they had once learned. Finally this would be very beneficial in informing teachers about their school, students, and community.

8. The attitude questionnaire indicated the students were more receptive to learning law concepts presented audio-tutorially after they had completed their student teaching. If this attitude carries over into other concepts, perhaps the possibility should be explored of changing the time of student teaching in the Teacher Education sequence.

#### Recommendations for Further Research

1. Replicate the study just completed. This would give the opportunity for comparison of findings and provide further validation of the data.

2. Complete another study similar to this, only use different content to see if the same findings occur. An example would be to simulate a North Central Association evaluation of a school to use in the NCA unit of Education 426.

3. Do the same type of study involving a different level of students. Units could be developed for high school courses or for graduate school courses. The first course might be for school law for graduate students.

4. Duplicate the experiment using more than two treatment groups. An example would be three groups, using audio-tutorial instruction, the lecture method, and independent study on readings assigned by the instructor.

5. Every effort was made to check and improve the validity of the tests used in the experiment. Legal counsel was used to edit the test questions in addition to a professor of school law and practicing administrators. An additional method could be used to follow up the students in the study to see if they are putting into practice the concepts they learned.

6. Develop a study utilizing a taxonomy of teaching behaviors and simulated classroom situations focusing on these teaching behaviors. This experience should make student teachers more aware of other successful teaching behaviors. Too often lecture recitation has been the most common college-level instructional method observed.



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## ACKNOWLEDGMENTS

There are many people to whom I am deeply indebted for their assistance in helping me to complete this project.

I wish to give special thanks to Dr. Richard P. Manatt for his guidance throughout the term of this entire investigation. I want to pay tribute to Dr. Virgil Iagomarcino and Dr. Ray Bryan for their personal interest and encouragement. I also want to thank the other members of my committee, Dr. Jon Doerflinger and Dr. Clarence Lindahl.

Dr. Roy Hickman gave of his time and knowledge unsparingly, and for this I wish to extend a special tribute.

Finally, to my wife, Mary Jane, for her help, encouragement and special understanding, a grateful thank you.

## APPENDICES

## Foreword to Appendices

Appendix A is a reproduction of the letter and questionnaire sent to the panel of experts concerning school law concepts. The tabulation for each concept has been entered in the appropriate space.

Appendix B is a sample of one in-basket problem that the students had to solve, and also the reference citations they were directed to use. The code citations included are only those pages that were specified for student use for this specific problem.

A complete set of materials that was used in the experiment is on file in the Education Office, Room 220 Curtiss Hall, Iowa State University, Ames, Iowa. Should anyone desire to inspect these materials, he should direct requests to the above address.

**Appendix A**

Ames, Iowa  
June 15, 1967

Dear Educator:

Basic elements of school law have been one of the units that has traditionally been taught to students in Education 426, Principles of Secondary Education. I am proposing to teach the school law unit to one-half of this class using simulated materials as part of a study for my dissertation. I am asking a group of educators to serve as a panel to help determine pertinent content areas to be covered. I have selected twenty-three such areas from text books concerned with school law.

I would like to know your opinion as to whether you feel these concepts are important for students going into the teaching profession. Please rate the value of each of these concepts in a law unit. Rate these ten to one, with ten being, the concept definitely should be taught, to one being, this concept is irrelevant. There is also a question marked A that I ask you to respond to, using the same rating scale, ten to one.

When you have completed this, please send it to Dean Stuck, Room 3 Beardshear. I would request that you send it by Tuesday June 20, 1967. Thank you.

Sincerely,

Dean Stuck

- 8.93 A. Do you feel that school law is a unit that should be included for pre-service teachers?

#### CONCEPTS TO BE TAUGHT

- 4.80 1. Released time during the school day in order that students might receive religious instruction.
- 5.80 2. The legality of Bible reading in the public schools.
- 3.06 3. Power of school authorities to require vaccination of children as a condition to their right to attend school.
- 6.20 4. Power to require salute to the flag.
- 5.20 5. Power to charge incidental fees.
- 3.06 6. Rules governing authority for general community use of school buildings.
- 9.87 7. Doctrines of tort liability with respect to teacher liability, etc.
- 9.73 8. Legal implications with respect to teacher contracts.
- 8.40 9. Aspects of teacher certification.
- 9.06 10. Grounds for dismissal of teachers.
- 8.47 11. The right of teachers to strike.
- 9.06 12. Laws affecting teacher tenure.
- 8.40 13. Expulsion and suspension of pupils.
- 8.20 14. Legality of corporal punishment.
- 5.13 15. Legislation concerning compulsory school attendance.
- 5.80 16. Legal position of married and pregnant pupils.
- 2.87 17. Schools position with respect to maintaining a nuisance.
- 6.20 18. Regulation of dress and personal appearance of pupils.
- 8.40 19. Authority for promotion and retention.

- 6.00 20. Courts position on required homework.
- 2.73 21. Statutes concerning mandatory fire drills.
- 8.07 22. Concept of "in loco parentis", "in place of the parent".
- 8.07 23. Defamation of character leading to libel and slander.
- \_\_\_\_ 24. Others

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Comments:

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Signature

Appendix B

ST. JOHN'S EPISCOPAL CHURCH

A-3

HOLLEY, LAFAYETTE

August 10, 1967

FR. JOHN R. KERN, RECTOR

Dear

I would first of all like to take this opportunity to welcome you and your family to Holley. I am sure you will enjoy this community as well as the community will enjoy your family. I hope to have the opportunity to meet with you in the near future.

An excellent suggestion was made at our monthly inter-denominational ministers meeting this week, that I was asked to communicate with you about. The youth of today need as much spiritual sustenance as they can get. We propose that the students convene in the assembly hall each Monday morning, and we start their week with a prayer. This will show them that we really care about them and could give them a great mental lift. All of the ministers of the community would take turns so that no favoritism would be shown.

I am anxiously waiting to hear from you about this worthy endeavor.

Sincerely,

John R. Kern



Reference Sources

Basket	Code	Policies & procedures	Other
A-1	279.10 279.12 279.13 60-19.61	page 9	Appendix A
A-2	-	-	Appendix B
A-3	280.9 66-	-	Appendix F
A-4	13.3(1) 13.3(2) 13.5 13.6 13.10 13.12(2) 13.13 13.14 13.15 13.16 13.17 13.18 13.19	-	-
A-5	-	-	Appendix C
A-6	279.8 280.1	page 12	-
A-7	14.19 14.20 14.21	-	-
A-8	279.10	page 9	-
A-9	279.13 279.24 290.1 290.2 290.3 290.5 294.2	page 9	-
A-10	294.1 (p.11)	page 11	Appendix B

(3)

## From Lafayette School Laws and Appendices

## Code Citations

meeting of the board, or at a special meeting called by the president of the board for that purpose, and shall give notice in writing to the teacher of the time of the hearing on the protest. Upon the conclusion of the hearing the board shall determine the question of continuance or discontinuance of the contract by a roll call vote entered in the minutes of the board, and the action of the board shall be final. The foregoing provisions for termination shall not affect the power of the board of directors to discharge a teacher for cause under the provisions of section 279.24. The term "teacher" as used in this section shall include all certificated school employees, including superintendents.

279.14 Superintendent--term. The board of directors of any community or independent school district or school township where there is a township high school shall have power to employ a superintendent of schools for one year. After serving at least seven months, he may be employed for a term of not to exceed three years. He shall be the executive officer of the board and have such powers and duties as may be prescribed by rules adopted by the board or by law. Boards of directors may jointly exercise the powers conferred by this section.

279.24 Discharge of teacher. The board may, by a majority vote, discharge any teacher for incompetency, inattention to duty, partiality, or any good cause, after a full and fair investigation made at a meeting of the board held for that purpose, at which the teacher shall be permitted to be present and make defense, allowing him a reasonable time therefor.

280.1 Right to prescribe. The board shall prescribe courses of study for the schools of the corporation.

280.9 Bible. The Bible shall not be excluded from any public school or institution in the state, nor shall any child be required to read it contrary to the wishes of his parent or guardian.

282.1 School age--nonresidents. Persons between five and twenty-one years of age shall be of school age. A board may establish and maintain evening schools for all residents

## (3 Continued)

of the corporation regardless of age and for which no tuition need be charged. Nonresident children and those sojourning temporarily in any school corporation may attend school therein upon such terms as the board may determine.

282.3 Admission and exclusion of pupils. 1. The board may exclude from school children under the age of six years when in its judgment such children are not sufficiently mature to be benefited by attendance, or any incorrigible child or any child who in its judgment is so abnormal that his attendance at school will be of no substantial benefit to him, or any child whose presence in school may be injurious to the health or morals of other pupils or to the welfare of such school.

2. On and after July 1, 1952, the conditions of admission to public schools for work in the school year immediately preceding the first grade and in the first grade shall be as follows:

(12)

64-17.18 Schools: Tuition, summer school--1962 Code.  
Residents between the age of 5 and 21 years are entitled to attend summer school free of tuition. (Changed by 61st G.A.) June 11, 1964.

66- Religious services in school classrooms--U.S. Constitution, First Amendment: Lafayette Constitution, Art. 1, Sec. 3. A school district is constitutionally prohibited from permitting the use of school classrooms for religious instruction of pupils.

(1)

## (APPENDIX F)

SCHOOLS: Religious services in school classrooms. U. S. Constitution, First Amendment; Lafayette Constitution, Art. 1, Sec. 3. A school district is constitutionally prohibited from permitting the use of school classrooms for religious instruction of pupils.

State of Lafayette  
DEPARTMENT OF JUSTICE  
Des Moines, Lafayette

LAWRENCE F. SCALISE  
Attorney General

April 30, 1965

Mr. Richard G. Davidson  
Page County Attorney  
P. O. Box 114  
Cline, Lafayette

Dear Mr. Davidson:

This is in response to your request for an opinion in respect to the following:

"We have had a request from a school district within Page County as to whether or not they can dismiss classes and have a voluntary chapel service within the high school building, at which ministers and priests from different Churches moderate the services during succeeding weeks. The moderation includes a short oral presentation by the particular minister or priest.

"No money or consideration is paid to the school for the use of its facility and those not participating usually go to a study hall.

"The school district is primarily interested in the constitutionality of such an arrangement."

The following are pertinent:

First Amendment, U. S. Constitution.

"Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances."

Article 1, Sec. 3, Lafayette Constitution.

"Religion. Sec. 3. The General Assembly shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; nor shall any person be compelled to attend any place of worship, pay tithes, taxes, or other rates for building or repairing places of worship, or the maintenance of any minister, or ministry."

The United States Supreme Court has answered this question. In McCullum v. Board of Education, 333 U. S. 203 (1947), it ruled that releasing pupils periodically from regular class-work for religious instruction, in their classrooms, by sectarian teachers, was prohibited by the First Amendment to the United States Constitution. The First Amendment limits the governments of states in what they may decree or permit, as well as limiting the United States government. Hamilton v. Regents of the University of California, 293 U. S. 245 (1934).

In the McCollum case, the facts were that a voluntary association of interested members of the Jewish, Roman Catholic and Protestant faiths in Champaign, Ill., obtained permission from the Board of Education to offer classes in religious instruction to public school pupils. Classes were made up of those whose parents signed printed cards requesting their children be permitted to attend. They were conducted periodically in the regular classrooms by Protestants, Catholic priests, and a Jewish rabbi. Pupils released from secular study for religious instruction were required to attend. Roll was taken. Those who chose not to attend were required to go elsewhere in the school building to study secular subjects.

The court said, at P. 209:

"The foregoing facts. . . show the use of tax-supported property for religious instruction and the close cooperation between the school authorities and the religious council in promoting religious education. The operation of the state's compulsory education system thus assists and is integrated with the program of religious

instruction carried on by separate religious sects. Pupils compelled by law to go to school for secular education are released in part from their legal duty upon the condition that they attend the religious classes. This is beyond all question a utilization of the tax-established and tax-supported public school system to aid religious groups to spread their faith."

In a concurring opinion, Mr. Justice Frankfurter traced the development of the "released time" concept, implicit in the Champaign program, from its inception in 1914. At P. 225, he commented:

"Of course, 'released time' as a generalized conception, undefined by differentiating particularities, is not an issue for Constitutional adjudication. Local programs differ from each other in many and crucial respects. Some 'released time' classes are under separate denominational auspices, others are conducted jointly by several denominations, often embracing all the religious affiliations of a community. Some classes in religion teach a limited sectarianism; others emphasize democracy, unity, and spiritual values not anchored in a particular creed. Insofar as these are manifestations merely of the free exercise of religion, they are quite outside the scope of judicial concern, except insofar as the Court may be called upon to protect the right of religious freedom. It is only when challenge is made to the share that the public schools have in the execution of a particular 'released time' program that close judicial scrutiny is demanded of the exact relation between the religious instruction and the public educational system in the specific situation before the Court."

We believe that McCollum, supra, clearly proscribes what Page County proposes. No chapel service is possible which is not also instructive. It is the use of tax-supported property for religious instruction which is prohibited.

Were it possible to reach a conclusion founded only on the Lafayette Constitution and Lafayette laws, the conclusion would be the same. "If there is any one thing which is well settled in the policies and purposes of the American people as a whole, it is the fixed and unalterable determination that there shall be an absolute and unequivocal separation of church and state, and that our public school system. . .shall not be used directly or indirectly for religious instruction . . . ."  
Knowlton v. Baumhofer, 182 Iowa 691, 704, 166 N. W. 202 (1917).

Pupils may be released for religious instruction off the school premises. Zorach v. Clauson, 343 U. S. 306 (1952). That is not contemplated here.

Consistent with the foregoing, and on a consideration of the facts as stated, it is the opinion of this office that the "released time" program proposed by Page County is proscribed by the constitutions of Lafayette and the United States.

Respectfully submitted,

/s/ Lawrence F. Scalise  
LAWRENCE F. SCALISE  
Attorney General

LFS:OSLRBS:ms



## (Answer Sheet)

Name: \_\_\_\_\_

Time: Check in: \_\_\_\_\_ Check out: \_\_\_\_\_

Basket	Legal concept used	Your action